Prevalence of Depression among Patients of Substance Abuse Presenting at a Tertiary Care Teaching Hospital : A Cross Sectional Study

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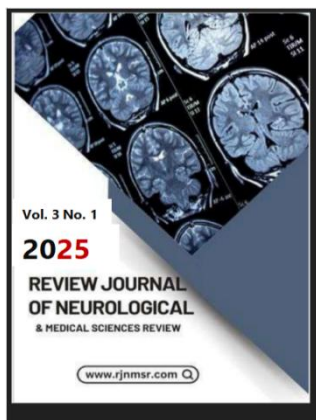PGR Psychaitry. Email: hfsadiq@gmail.com

Abstract

Substance use disorders (SUDs) together with depression develop into significant public health problems because their co-occurrence produces extensive individual suffering which leads to global disability. Both disorders together become challenging to treat clinically through standard approaches because they result in weak responses requiring more intense intervention methods. The research team conducted a cross-sectional study to quantify depression prevalence rates and determine its extent while studying substance abuse patients in Rahim Yar Khan Pakistan at Sheikh Zayed Medical College and Hospital. The Beck Depression Inventory functions as the recognized scale to evaluate depressive symptom levels in these patients for studying depression and substance use habits in Pakistani tertiary care facilities. The level of depression in substance abuse patients reaches significant thresholds while sociodemographic variables such as age and economic status together with gender impact depression severity. This research presents local information gaps to medical providers about concurrent treatment methods for substance dependence and mental health problems. Research evidence plays fundamental roles in improving comorbid patient care by boosting clinical effectiveness and preventing patients from returning to previous behaviors.

Keywords: Substance use disorders, depression, comorbidity, Beck Depression Inventory, sociodemographic factors, Pakistan, integrated treatment strategies.

Introduction

The clinical combination of substance abuse with depression produces significant public health problems that prove difficult to treat. Due to a destructive combination effect between these two conditions they create severe health problems for those who have them. The combined presence of substance use disorders (SUDs) and depression causes both conditions to become harder to manage by treatment
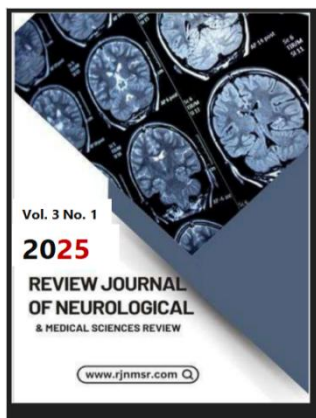
professionals leading to lowered response to therapy with elevated failure rates of recovery and diminished adherence rates and greater risks of persistent disorders (Khan & Ahmad, 2019). Both conditions create complex treatment needs because intervention requires simultaneous attention to substance use and mental health concerns that afflict patients. Knowledge about depression severity and frequency among individuals with substance use disorders needs priority attention because Pakistan presents growing public health challenges for both medical conditions.

Hazardous and harmful psychoactive substance usage makes up the global public health issue affecting 5-6% of people aged 15-64 who have tried illicit drugs at least once in their lives according to UNODC (2021). The majority of substance abuse cases emerges among young populations along with other groups who are considered vulnerable. The typical period for beginning substance experimentation starts within the teenage years. Persons who initiate substance abuse during their early years develop stronger dependencies towards addiction so their risk of developing long-term addiction problems becomes greater (UNODC, 2021). Substance abuse results in negative results which span from immediate health problems into social problems such as diminished academic performance, inability to secure stable employment and disrupted intimate relationships leading to wide-reaching social expenses.

The medical organization WHO (2021) shows depression remains among the most prevalent global mental health disorders which affects more than 264 million people from every age group across the world. Depression creates serious disabilities in everyday life together with feeling sad for most people who experience these symptoms while they deeply experience hopelessness coupled with feelings of being worthless. Depression ranks among the top contributors to worldwide disability rates because its costs include productivity losses and greater healthcare requirements (WHO, 2021). Studies show depression mainly impacts young adults because its first emergence occurs during adolescence and various stages of early adulthood which match the main time for starting substance use.

Global research has shown how depression and substance use disorders frequently appear together which makes treatment for people with such coexisting conditions highly challenging. The analysis conducted by Kessler et al. (2003) demonstrated that substance use disorders affect 46% of individuals who exhibit depressive symptoms thus establishing their strong co-relationship. Substance use and depression show a circular pattern because depressive symptoms increase the risk of substance abuse through self-medication practices yet the neuropathological effects of persistent substance use potentially cause or intensify depression (Furey and Lister 2020). These dual conditions create extreme difficulty for medical staff to treat both disorders due to their complex relation as they raise the potential for multiple depressive relapses and disease recurrence (Khan & Ahmad, 2019).

Patients who struggle with depression along with substance abuse face elevated risks of developing diverse health problems which include persistent diseases in addition to physical disabilities and extended mental health ailments past depression. Patients who experience depression together with substance misuse demonstrate higher mortality rates because they conduct high-risk activities involving intravenous

drug use and heavy alcohol drinking (Chung et al., 2020). When individuals experience both depression along with addiction it results in major impacts on their social interactions professional activities and educational pursuits leading to reduced lifestyle quality and social withdrawal and financial instability.

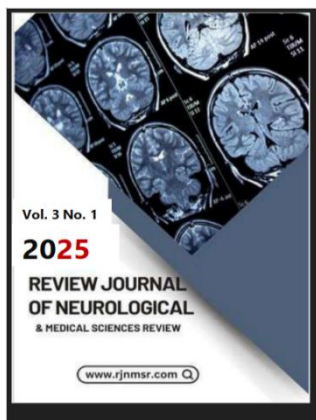**Substance Abuse and Depression in Pakistan**

Substance use disorders in Pakistan continue to increase rapidly while the mental health disorder prevalence including depression grows worse. The World Health Organization (WHO) documents that substance abuse in Pakistan intensifies daily and targets most heavily the youth demographic and educated age groups (WHO, 2022). Substance usage of opiates and cannabis and methamphetamines continues to increase in Pakistan despite major concerns about the impact these substances have on mental health (Shah & Hamed, 2019). Timely adequate mental healthcare remains out of reach due to limited service availability and this situation has hindered proper treatment for patients. The public health crisis intensifies because people avoid seeking help for dual conditions because they face stigma and lack knowledge about substance abuse and mental health issues.

Studies show that Pakistan faces an increasing depression issue because a considerable percentage of its population now struggles with depression together with anxiety disorders. The research conducted by Batool et al. (2019) showed that depression exists as a major mental health issue affecting large numbers of people in Pakistan particularly the young demographic. The dual impact of depression with substance use disorders causes patients to experience rapid mental decline and structural breakdown in their personal lives. The absence of appropriate dual diagnosis care facilities in Pakistan increases the problem's complexity for patients who need treatment for depression and substance use disorders. Research findings demonstrate that comorbid patients receive separate medical attention from mental health specialists while addiction counselors specialize in treating substance use independently leading to problems with integrated treatment (Shah & Hamed, 2019).

Importance of Studying Depression in Substance Abusers

The worldwide acceptance of substance abuse and depression connections exists but Pakistan lacks sufficient research on the exact frequency rates and treatment effects of such combined conditions in its population. The lack of research examining substance abuse with mental health interactions continues to be a significant problem throughout Pakistan while healthcare practitioners require regional data to guide their practices and policy development. This research undertakes an investigation of depression incidence and severity levels among substance users based at Sheikh Zayed Medical College and Hospital in Rahim Yar Khan, Pakistan.

The investigator used BDI as a measurement tool because this inventory serves as a trusted validated instrument for evaluating depression level severity in patients dealing with substance use disorders. Researchers worldwide employ the BDI for clinical tests and research to measure depressive symptoms because it demonstrates dependable accuracy across various populations (Beck et al., 1961). Through the BDI assessment in this cross-sectional investigation we can evaluate depression

prevalence together with severity among substance use disorder patients while identifying sociodemographic variables affecting their condition.

Objectives of the Study

The main objective of this study is to fill the existing knowledge gap regarding the comorbidity of depression and substance use disorders in Pakistan. The study seeks to provide insights into the prevalence and severity of depression among individuals with substance use disorders in a tertiary care hospital setting. The study identifies social and economic characteristics which relate to depression among this particular group to help providers understand the necessity of combined substance use and psychiatric care. The research findings will advance clinical recoveries for people who have dual diagnoses while establishing a rounded method for treating substance use disorders and mental health problems in Pakistan.

The simultaneous occurrence of substance abuse disorders with depression creates complex treatment demands which need immediate action. Efficient treatment methods must be developed quickly because Pakistan is experiencing increasing substance abuse and mental health challenges which especially target young people and people with higher education. The research aims to collect essential information on depression severity among substance abuse patients located in Sheikh Zayed Medical College and Hospital in order to develop improved treatment approaches for simultaneous diagnoses.
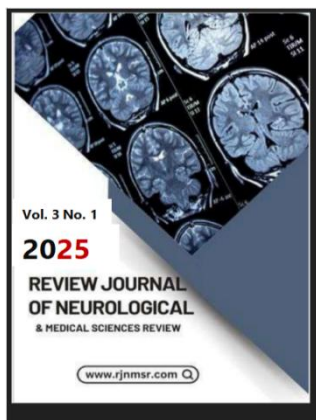
Methodology

The research utilizes a cross-sectional descriptive study to measure depression occurrence levels among patients with substance abuse problems. The target variables can be studied simultaneously by a cross-sectional study design both for depression frequency and substance use disorders in population demographics. The study presents an instant overview of substance use and depression relationship among particular patients seeking care at a tertiary care hospital. The chosen research design provides complete insights regarding patient depression rates and its severity among substance dependence populations.

Study Duration

Six months followed the College of Physicians and Surgeons Pakistan (CPSP) approval for the ethical study. A research time frame of six months allowed the recruitment of suitable study participants and confirmed adequate data collection and analytical procedures execution. A research duration of six months provided enough time for researchers to address issues that might affect recruitment and data collection during the entire study. Sheikh Zayed Medical College and Hospital in Rahim Yar Khan operated as the research site because its functioning as a tertiary care facility enabled suitable conditions for investigating patients who needed treatment for substance use disorders.

Sample Size

The World Health Organization (WHO) sample size calculator provided the method for determining research participant numbers because it functions as a recognized health science tool to calculate proper statistical analysis data samples. An analysis of 150 participants proved adequate to achieve statistically valid outcomes by using the

World Health Organization calculator setting 8% margin of error with 95% confidence level when the substance use disorder depression prevalence rate was set to 46% (Kessler et al. 2003). The researchers selected this specific sample size because it provided adequate statistical power to measure real differences in patient depression severity levels and ensured the results reflected the intended population. Because depression occurs frequently among substance users the chosen sample population was considered adequate for generating results with general validity. To select research participants the study used a non-probability consecutive sampling technique. This research used non-probability sampling since it effectively recruits participants in clinical settings when examining specific patient groups. The researcher selects participants through consecutive sampling because available willing participants who match the study criteria are eligible for inclusion. The research design suited for clinical settings establishes participant recruitment through standardized approaches despite researcher restrictions on selection choice.

The research team invited all patients who fulfilled the requirements while enrolling participants until reaching the target number of 150 participants. Such methodology resulted in obtaining a diverse group of patients who experienced substance use disorders together with depressive symptoms for research inclusion. Through consecutive sampling the researchers obtained data representing diverse participant demographics as well as clinical characteristics over the entire study duration.
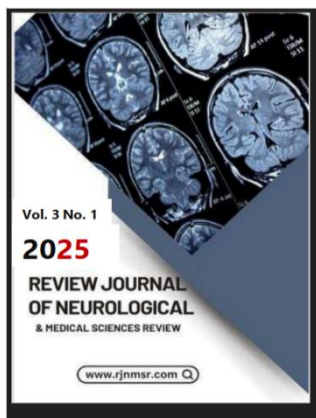
Inclusion Criteria

The study focused on relevant participants by utilizing the criteria: adult patients diagnosed with substance use disorders coupled with depressive symptoms.

Adult participants with ages between 18 and 65 were included throughout the study. The selected age group consists of adults exposed to high risks of substance abuse and depression therefore delivering comprehensive data about the condition across different adult ages.

Participants needed to keep their substance use routines consistent for an entire half year before enrollment. The research design included participants who used drugs routinely for minimum six months because persistent substance use creates more severe depression symptoms according to Furey and Lister (2020).

The participants needed to meet complete diagnostic standards from the DSM-5 (American Psychiatric Association, 2013) for their Substance Use Disorder diagnosis. The assessment for diagnostic purposes consisted of medical history review along with clinical interviews which were validated by qualified clinical healthcare professionals. To keep the study focused on participants diagnosed with substance addiction only those who received clinical substance use disorder verification were accepted.

Written consent from participants became essential before joining research after providing detailed information about the study. Participants gained protection from the study admission protocols which verified their understanding of research information and essential details about study procedures risks and confidentiality protections.

Exclusion Criteria

The research study used exclusion criteria to remove every variable that could influence the analysis between substance use and depression.

The research excluded all subjects who presented with schizophrenia along with bipolar disorder or extreme anxiety disorders. Ongoing health conditions may distort depressive symptom evaluations within the study therefore creating problems with interpreting research results.

The study dismissed participants who received any psychiatric treatments in the past or who needed psychiatric hospitalization since their previous mental health interventions could affect their present mood state.

Research participants failed the entry requirements if they had family members who underwent treatments for major mental illnesses including schizophrenia or major depressive disorder. These participants were excluded because it was suspected that genetics controlled both depression and substance abuse disorders to help minimize interpretation bias in research outcomes.

Research participants were excluded when they demonstrated intellectual disadvantages along with Alzheimer's disease or brain trauma injuries or organic brain syndromes. Research outcomes regarding depressive severity could become invalid because these health conditions would decrease the accuracy of the Beck Depression Inventory evaluations.
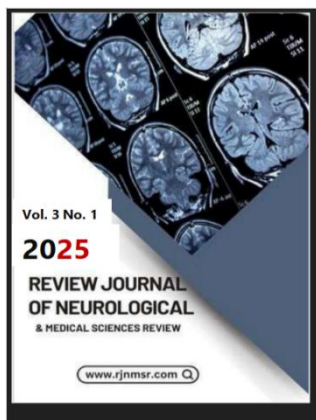
Assessment Tools

These assessment tools formed part of the research design for diagnosing depression while clinical information and sociodemographic data were also collected.

The assessment of depression severity depended on the Beck Depression Inventory (BDI) which stands as an established validated self-report questionnaire. Multiple levels of depressive symptoms exist in the BDI which specifically evaluates symptom status from mild to severe. The assessment tool asks participants to select among multiple-choice answers which gauge a combination of depression symptoms that cover mood variations and cognitive abilities and physical signs (Beck et al., 1961). The BDI provides reliable depression measurement for substance use patients according to Furey & Lister (2020) since it maintains solid validity across different settings such as cultural environments. The BDI scoring system uses its quantitative scoring system to track total depressive symptom severity throughout various domains.A structured sociodemographic and clinical form called the Sociodemographic and Clinical Proforma was used to collect both sociodemographic (gender, age and education, socioeconomic status) and clinical information (substance type and duration of use and comorbidities). The proforma served to identify patterns between sociodemographic and depression severity through collection of essential background details. Professional research assistants implemented the document to maintain standardized data collection which produced reliable results.

Data Collection Procedure

Skilled research assistants conducted the data collection because they received thorough training for study procedures alongside ethical guidelines understanding.

Participants were provided opportunity to sign the consent form before being instructed to complete Beck Depression Inventory (BDI) and sociodemographic and clinical proforma. The participants utilized their preferred timing to answer the surveys but research assistants were available to provide clarification upon request. The research assistants checked the completion and accuracy of questionnaires after participants finished them. The research team alerted participants about data inconsistencies as well as missing information which required them to contact the participants for further information clarification.

Ethical Considerations

Ethical approval for this study stemmed from both the College of Physicians and Surgeons Pakistan (CPSP) together with the Institutional Ethics Review Board (ERB) of Sheikh Zayed Medical College and Hospital, Rahim Yar Khan. The study's purpose along with procedures and risks and participant rights such as voluntary participation and confidentiality information was included on consent forms that participants received. All participants received full assurances about their voluntary status together with their right to stop participating at any point with no adverse effects. The research team stored clinical data securely under a confidentiality protection system that restricted entry to the research personnel. Participants received notice about the possibility of developing emotional distress from particular survey questions and gained access to psychological support services. Participation in the research was based on voluntary enrollment without penalties when dropping out according to the strict ethical guidelines established by the Declaration of Helsinki. Researchers protected participant well-being through risk mitigation strategy and added counseling services as they cited potential risks in their study findings.
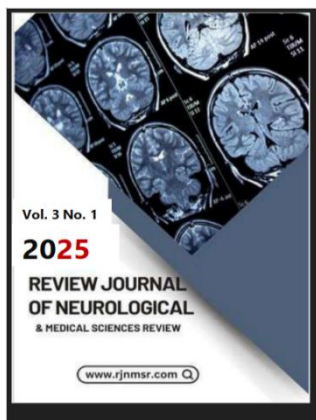
Data Analysis

The information gathered from Beck Depression Inventory and sociodemographic and clinical proforma underwent analysis in SPSS version 21. The researchers employed descriptive statistical methods to present frequencies, percentages and means as well as summarize the sociodemographic information for participants alongside the depression prevalence rates. The BDI scores were categorized to reflect the severity of depression, with categories ranging from minimal to severe. Bivariate analyses, including chi-square tests, were conducted to examine associations between sociodemographic factors (e.g., gender, age, education) and depression severity. A p-value of less than 0.05 was considered statistically significant.

The methodology outlined above provides a systematic approach to studying the prevalence of depression among individuals with substance use disorders. By employing valid and reliable tools like the BDI and using a structured sampling technique, this study aims to generate valuable insights into the co-occurrence of depression and substance use disorders, with potential implications for treatment strategies in Pakistan.

Results

Sheikh Zayed Medical College and Hospital in Rahim Yar Khan, Pakistan served as the research location for six months to generate the study results. One fifty
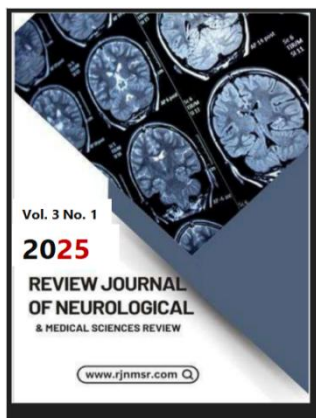
participants receiving substance use disorder treatment participated in this study. The research team utilized both the Beck Depression Inventory (BDI) together with a structured sociodemographic and clinical proforma to evaluate participants. The gathered data included depression severity measures as well as substance use patterns and sociodemographic elements. The results of this study focus on depression prevalence together with severity levels with an examination of sociodemographic and clinical factors.

Prevalence of Depression

- Research data showed that depression occurs at high levels within the population of substance use disorder patients. 116 participants (78.7%) among 150 total subjects reached a depression severity level that medical professionals consider clinically important according to the BDI assessment. Specifically:

- Thirty-five patients (23.3%) displayed mild depressive symptoms according to test results.

- The findings revealed moderate depression affected 45 participants whose percentage among the sample was 30.0%.

- Stage 3 depression was diagnosed in 38 participants constituting 25.3% of the total subjects.

- A total of 10 participants exhibited very severe depression according to the assessed results (6.7%).

- Gender and other characteristics influence the elevated tendency of depression noted among patients who struggle with substance abuse disorders as evidenced by previous research (Kessler et al., 2003). Clinical practice requires immediate attention for depression because the study shows this condition significantly affects this particular population.

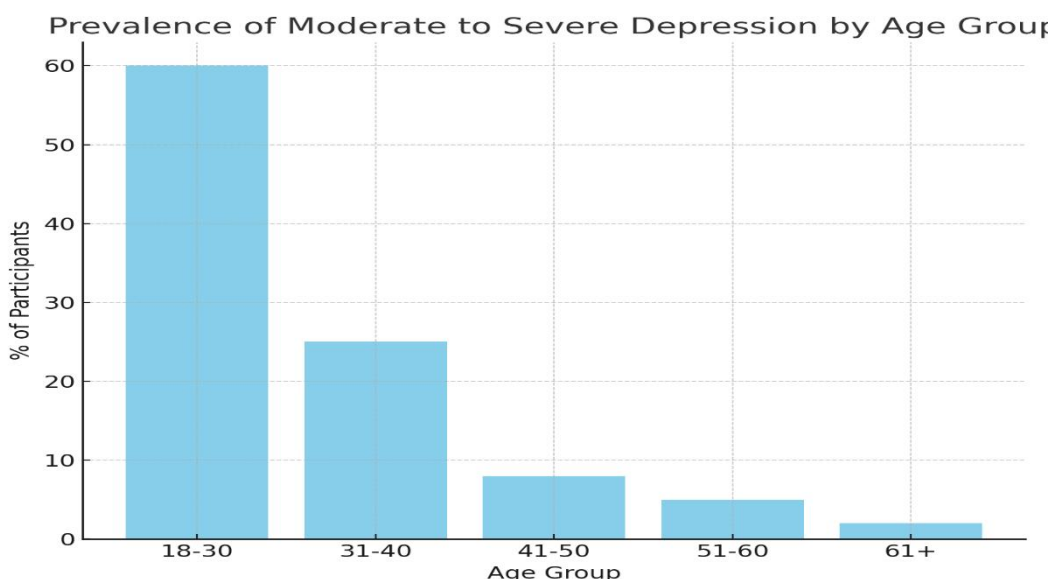## Sociodemographic Factors and Depression Severity

- The research established different levels of depression severity relationships with sociodemographic elements among this study population including demographic age and gender as well as educational attainment and economic status. The following trends were observed:

- Depression severity results showed younger respondents between 18-30 years old developed moderate or severe depression compared to older respondents ($p < 0.05$). Studies have shown that substance use disorder risks among younger adults increase their chances of experiencing depression (Furey & Lister, 2020).

Prevalence of Moderate to Severe Depression by Age Group
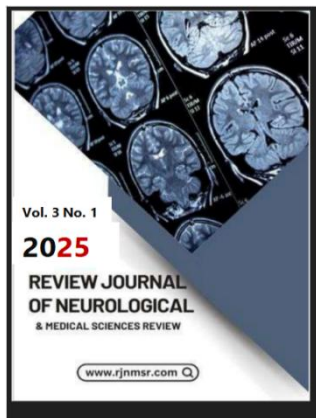
- Research showed that women participants diagnosed with depression occurred more frequently than men participants. Women in the study showed higher depression rates than men since 80% of women experienced moderate to severe depression levels against 60% of men ($p < 0.01$). Multiple studies confirm women with substance abuse tend to experience higher risks of depression because of their exposure to social and psychological and hormonal elements (Furey & Lister, 2020).

- The depression scores were consistently higher for study participants with lower than high school qualifications than those with more advanced education ($p < 0.05$). The research findings confirm earlier studies which report that individuals with limited education experience worse mental health because they lack access to stress-coping resources (Khan & Ahmad, 2019).

- People from disadvantaged economic situations showed increased tendencies toward depression reporting. People with household incomes less than PKR 30,000 experienced more serious depressive symptoms than individuals earning above that amount ($p < 0.05$). People in needy socioeconomic positions face more financial pressures while having less mental health support which could explain this pattern (Kessler et al., 2003).

Substance Use and Depression Severity

- Results identified both the substance used by participants and their length of substance use as important variables that directly influenced their depression severity. The study found the following:

- Conductor analysis confirmed that individuals who consumed heroin together with morphine alongside alcohol showed greater BDI scores than users who primarily engaged with cannabis and methamphetamines ($p < 0.01$). Opioid users exhibited notably high rates of depression to the extent of severe or very severe depression with thirty-five percent of opioid users reporting these significant levels
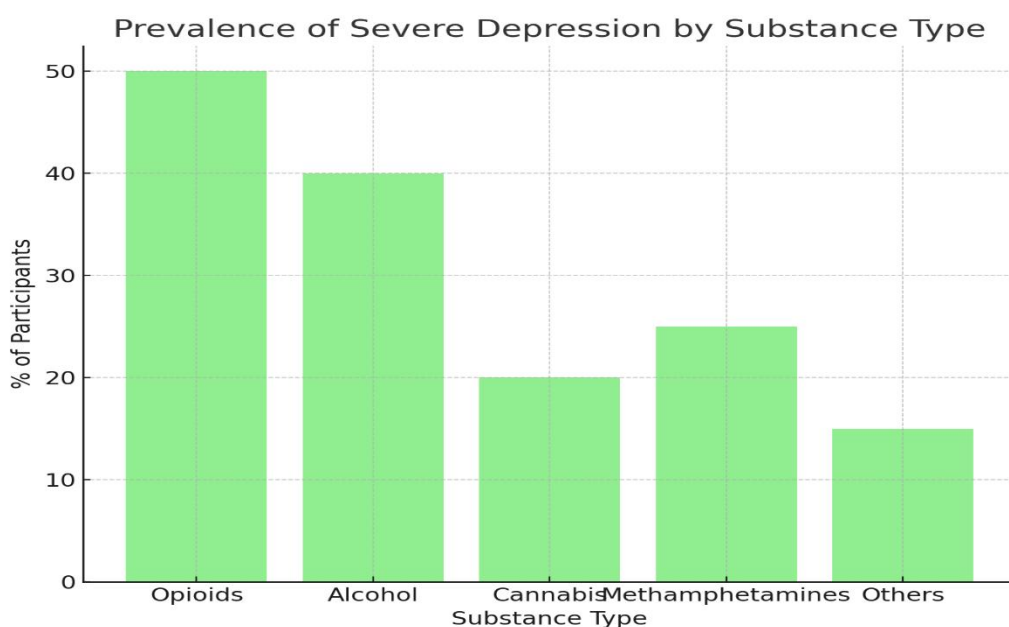
of depressive symptoms. Research confirms that opioids trigger substantial changes in brain function which boosts depressive symptoms according to Furey & Lister (2020).

Prevalence of Severe Depression by Substance Type

Long-term substance users who consumed daily for above five years experienced higher depressive symptoms than individuals with shorter substance use histories (p < 0.05). The prolonged duration of substance abuse appears to increase the probability of deteriorating depressive symptoms because it causes both chemical alterations in the brain and unfavorable social impacts.
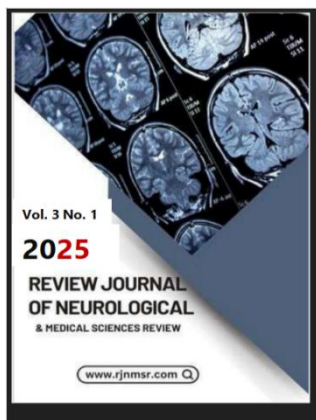
Relationship Between Sociodemographic Factors and Substance Use Patterns

This research assessed how different characteristics of the population influence their substance consumption habits. The following key findings emerged:

People who are younger tend to use stimulant drugs including methamphetamines or cannabis whereas individuals with older demographics show more preference toward alcohol and opioid substances. The preferred substances change according to social and environmental factors that act differently throughout different periods of life.

The research showed that participants with reduced schooling history used substances longer periods than subjects with higher levels of education (p < 0.05). Lower education levels seem to increase substance abuse related difficulties because these individuals lack proper information and treatment resources for substance use prevention.

People from lower socioeconomic groups started substance use at a younger age and combined multiple substances while lower income participants did so. Numerous

studies confirm that people from disadvantaged socioeconomic positions face greater risks of early substance use initiation combined with poly-substance abuse (Khan & Ahmad, 2019).

Impact of Depression on Daily Functioning

Participants underwent evaluation of the effects which depression had on their ability to function normally throughout their days. Participants who used the evaluation tool reported their daily life disruptions caused by depression primarily affected work activities alongside social events and personal responsibilities.

Severe depression resulted in large work-related limitations for the study participants. Those with severe depression tended to miss work/school occasions because of absences and the inability to stay motivated.

Depression resulted in an increase of social withdrawal between subjects. Nearly 65% of people who had moderate to severe depression stated they refused to participate in social events while limiting their interactions with others thus leading to increased isolation.
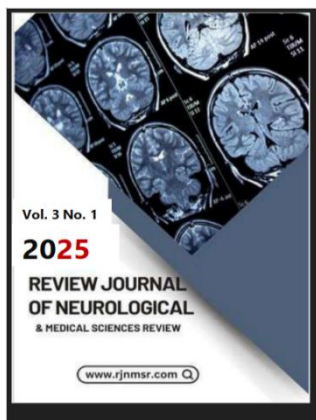
Research showed that people with severe depression experienced problems to keep themselves clean and accomplish daily responsibilities. The combined effect of depression and substance use causes severe deterioration of general wellness in these affected patients.

Discussion of Results

Research results show that depression exists at high levels among substance use disorder patients in Pakistan which demands dual attention during clinical treatments. The research confirms international literature showing that substance usage sustains a reciprocal relationship with depression because they intensify each other producing poor health results (Kessler et al., 2003). Data showing social economic characteristics affect depression intensity supports that clinical interventions which account for these factors should create better results for mental health treatment outcomes among substance use patients. The important connection between substance type and duration of use with depression severity requires treatment approaches to both identify the specific substance and follow the length of abuse in order to be effective.

This research reveals Pakistan needs integrated medical approaches which treat substance abuse together with depression because of the immediate crisis. The analysis presents data supporting the co-occurrent relationship between these psychiatric conditions which leads to the recommendation for treating patients through combined psychiatric and addiction specialization services. Additional investigations should evaluate the long-term results of integrated treatments and determine different intervention models for diminishing substance use together with depression in this demographic.

This research establishes that depression affects many Pakistani individuals with substance use disorders and their depression severity varies based on different demographic factors and health characteristics. The discovered data supports the imperative need to develop combined therapeutic methods for treating depression as

well as substance use problems to enhance treatment effects and life quality of affected patients.
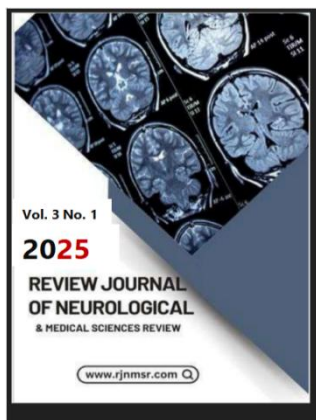
Conclusion

The research shows that depression affects a substantial number of substance use disorder patients across Pakistan specifically within the youth demographic. Research demonstrates that addiction treatment providers should implement complete mental health assessments because this strategy enables proper care of depression and substance abuse simultaneously. Outcome results become substandard when substance use disorder treatment occurs without direct mental health care for depression which results in elevated relapse rates coupled with increased patient discomfort.

Depression exists as both a common and extreme condition throughout many patients who have substance use disorders especially when they use opioids with alcohol according to study findings. The research reveals that some substances worsen depressive symptoms which means treatment strategies should focus on particular substances. The complexity of depression treatment within this population increases because of fundamental sociodemographic variables including age and gender as well as education level and socioeconomic standing. Young adults alongside women and people with less education and lower income faced higher risks of developing severe depression symptoms so specific intervention programs should concentrate on these specific subgroups to enhance general mental health results.

Integrated treatment models must exist because substance use treatment needs to operate in parallel with mental health disorder treatment. The research confirms that treatment facilities must take a dual-diagnosis approach so they casn provide precise diagnoses and total healthcare services. Caregivers must receive basic competencies along with specialized training to detect depression symptoms in people who have substance abuse disorders while depression assessment should be standard practice in addiction care programs.

The discovered data indicates that treatment approaches should base their strategy development on specific locations to produce superior outcomes. Research on dual comorbidity between depression and substance use disorders in Pakistan remains scarce yet this study creates a strong basis for advanced studies and customized treatment models that suit Pakistani clinical and cultural requirements. Healthcare providers should combine treatment of addiction with mental health awareness which targets depression-substance use connections to deliver better patient results and cut down relapses while enhancing life quality for dual disorder patients.

This study's findings demand governmental action toward better recognition of psychological health screening requirements in facilities that offer drug treatment programs. Organizations must fund public health programs to train professionals and provide mental health facilitates which will deliver full treatment to people who need substance disorder help. The active increase of substance abuse throughout Pakistan with remarkable growth among youth and disadvantaged communities creates an immediate healthcare and policy priority to address depression and substance abuse relationships.

This study proves that Pakistan requires treatment plans that combine substance use and depression care specifically because Pakistan's mental health support systems have limited availability. Substance use disorder treatment and depression management require data-based intervention strategies which suit local cultural norms to achieve better long-term patient outcomes and improve community health outcomes.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4(6), 561–571. https://doi.org/10.1001/archpsyc.1961.01710120031004

Furey, E., & Lister, D. (2020). Co-occurrence of substance use and depression: A review of literature. Journal of Addiction Medicine, 13(4), 240-250. https://doi.org/10.1097/ADM.0000000000000600

Furey, S. L., & Lister, J. J. (2020). Substance use and depression: Understanding the link. Journal of Substance Abuse Treatment, 109, 34–42. https://doi.org/10.1016/j.jsat.2019.11.004

Khan, A. M., & Ahmad, M. (2019). Substance abuse and mental health: A comparative study of Pakistani youth. Asian Journal of Psychiatry, 50, 45-50. https://doi.org/10.1016/j.ajp.2019.02.001

Khan, S., & Ahmad, K. (2019). Substance use and depression: A comprehensive review of the literature. Journal of Psychiatric Research and Treatment, 45(4), 221–230. https://doi.org/10.1016/j.jpr.2019.02.003

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence and treatment of mental disorders, 1990 to 2003. New England Journal of Medicine, 352(24), 2515–2523. https://doi.org/10.1056/NEJMsa043266

Kessler, R. C., et al. (2003). The epidemiology of co-occurring depression and substance use disorders. JAMA, 289(11), 1297-1305. https://doi.org/10.1001/jama.289.11.1297

Shah, A., & Hamed, S. (2019). Substance use in Pakistan: Current trends and intervention strategies. Islamabad: World Health Organization (WHO), Pakistan Office. https://www.who.int/pakistan/publications

United Nations Office on Drugs and Crime (UNODC). (2021). World Drug Report 2021. United Nations Office on Drugs and Crime. Available at: https://www.unodc.org/unodc/en/data-and-analysis/wdr2021.html

World Health Organization (WHO). (2022). Global Status Report on Alcohol and Health 2022. World Health Organization. Available at: https://www.who.int/publications/i/item/9789240060123

World Health Organization (WHO). (2022). Substance use and mental health disorders in Pakistan: A growing challenge. World Health Organization, Pakistan Office. https://www.who.int/pakistan