Ciencia Latina Revista Científica Multidisciplinar, Ciudad de México, México.
ISSN 2707-2207 / ISSN 2707-2215 (en línea), julio-agosto 2024,
Volumen 8, Número 4.

https://doi.org/10.37811/cl_rcm.v8i4

ASSOCIATION BETWEEN TREATMENT ADHERENCE AND DEPRESSION IN PATIENTS WITH HIV/AIDS

ASOCIACIÓN ENTRE ADHERENCIA AL TRATAMIENTO Y DEPRESIÓN EN PACIENTES CON VIH/SIDA

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DOI: https://doi.org/10.37811/cl_rcm.v8i4.12591

Association between Treatment Adherence and Depression in Patients with HIV/AIDS

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ABSTRACT

Background: Depression represents a significant issue among individuals diagnosed with HIV. A study conducted in Africa revealed that the prevalence of depression in this patient population may reach 63.1%. In Mexico, however, there is no existing literature on this matter. Antiretroviral therapy (ARV) is a vital component of treatment for individuals with HIV/AIDS. However, the efficacy of ARV may be compromised by poor adherence to treatment. The lack of adherence may be attributed to psychological factors, such as depression. **Objective**: To determine the presence and severity of depression and its relationship with adherence to treatment in patients with HIV/AIDS. **Methods**: A quantitative, non-experimental, cross-sectional, and non-interventional study was conducted at the High-Specialty Regional Hospital ISSSTE (Institute for Social Security and Services for State Workers) in Veracruz, Mexico. Unit of analysis: 977 individuals, selected according to the pre-established inclusion and exclusion criteria, with a confidence level of 99% and a confidence limit of 3.8%. **Discussion**: The lack of adherence to treatment in patients with HIV/AIDS was found to be directly proportional to the presence and severity of depression. Depression was identified in 81.17% of the total sample. 62.79% exhibited mild depression, 16.27% demonstrated moderate depression, and 20.93% displayed severe depression. In patients with poor adherence to treatment, severe depression was found in 91.37%. Additionally, comorbidities such as diabetes and hypertension were observed with a higher frequency than reported in literature. **Conclusion**: We recommend establishing a systematic and individual psychological evaluation of HIV/AIDS patients and initiating measures for the early detection of depression. This approach will help to prevent a possible interruption or abandonment of antiretroviral treatment, and therefore therapeutic failure.

***Keywords*:** HIV, treatment, adherence, antiretroviral, depression, comorbidities

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Asociación entre Adherencia Al Tratamiento y Depresión en Pacientes con VIH/SIDA

RESUMEN

Antecedentes: La depresión es un factor clave entre individuos con VIH. Un estudio realizado en África mostró que la prevalencia de depresión en estos pacientes puede ser de hasta 63,1%. En México, sin embargo, no existe referencia respecto a este tema. El tratamiento antirretroviral (TAR) es indispensable en pacientes con infección por VIH/SIDA, y su fracaso puede deberse a la falta de adherencia a éste. La pobre adherencia puede deberse a variables psicológicas como la depresión. **Objetivo**: Determinar la presencia de depresión, así como el grado de la misma y su relación con la adherencia al tratamiento en pacientes con VIH/SIDA. **Material y Métodos**: Se realizó un estudio cuantitativo, no experimental, transversal y no intervencionista en pacientes adultos con VIH/SIDA con y sin tratamiento antirretroviral del Hospital Regional De Alta Especialidad ISSSTE Veracruz, en la ciudad de Veracruz, México. Unidad De Análisis: 977 personas, siguiendo los criterios de inclusión y exclusión, con un nivel de confianza de 99% y un limite de confianza de 3.8%. **Discusión**: La falta de adherencia al tratamiento en pacientes con VIH/SIDA fue directamente proporcional a la presencia de depresión y a la severidad de la misma. La depresión se encontró en el 81.17% de la muestra total. De estos, el 62.79% tenía depresión leve, 16.27% depresión moderada y 20.93% depresión severa. En pacientes con poca adherencia al tratamiento, la depresión severa se encontró en el 91.37%. Además, comorbilidades como diabetes e hipertensión arterial se encontraron con una frecuencia mayor a la reportada en la bibliografía. **Conclusión**: Recomendamos establecer de manera sistemática e individual la evaluación psicológica de los pacientes con VIH/SIDA e iniciar medidas para la detección temprana de depresión, con el fin de prevenir una posible interrupción o abandono del tratamiento antirretroviral y por ende el fracaso terapéutico.

Palabras clave: VIH, tratamiento, adherencia, antirretrovirales, depresión, diabetes, hipertensión, comorbilidades

Artículo recibido 03 julio 2024
Aceptado para publicación: 05 agosto 2024

INTRODUCTION

The human immunodeficiency virus (HIV), first isolated in 1983, is a retrovirus that causes the destruction of the immune system through its tropism for macrophages and for CD4+ T lymphocytes. There are two types of HIV: HIV-1 and HIV-2.[1]

The virus is transmitted through the body fluids of infected individuals, including blood, breast milk, semen, and vaginal secretions. Additionally, it can be transmitted to the fetus during pregnancy and childbirth. It is not transmitted by contact such as kissing, hugging, or handshaking, nor by sharing personal items, water, or food.[2] Antiretroviral drugs are the primary treatment for HIV infection, and their effectiveness depends largely on adherence to treatment.

The World Health Organization (WHO) defines adherence to treatment as the act of taking the prescribed medication in accordance with the recommended dosage and schedule and maintaining this regimen over time.[3] This encompasses not only taking the medication as directed, but also aligning one's lifestyle habits with the advice of a healthcare professional.[4]

Antiretroviral treatment (ARV) is a vital component of the management of HIV/AIDS infection. The efficacy of ARV in suppressing the viral load depends on the patient's strict adherence to the treatment regimen, which requires a high level of commitment. Previous research has demonstrated that good adherence to ARV is associated with a reduced likelihood of depressive behaviors and the absence of addictions. However, this was not found to be associated with quality-of-life improvement.[5]

HIV infection continues to represent a significant global public health concern. According to the WHO, approximately 1.3 million individuals acquired HIV in 2022, resulting in an estimated 39 million people living with the disease by the end of that year. Additionally, an estimated 360,000 deaths were attributed to HIV-related causes.[2]

In 1981, several cases of pneumonia and Kaposi's sarcoma were diagnosed simultaneously in the United States. The following year, these diagnoses were defined as AIDS and were predominantly among homosexual men, which led to the erroneous assumption that AIDS was a disease exclusive to homosexuals. However, over time, new cases were reported in other groups and individuals who had engaged in sexual intercourse with HIV-positive individuals.[6]

In 1983, the first case of HIV/AIDS was reported in Mexico.[7] From that point until April 15th, 2024, a total of 375,296 confirmed cases have been registered nationwide. Of these cases, 82%, or 307,770 cases, were identified in men, while 18%, or 67,526 cases, were identified in women. In the course of 2023, 17,739 new cases were documented nationwide, with an incidence rate of 13.5 per 100,000 inhabitants. [8]

An epidemic caused by the Human Immunodeficiency Virus (HIV) has been reported in the Mexican state of Veracruz. According to the latest report issued by the Ministry of Health, a total of 34,628 cases have been reported from 1983 to the first quarter of 2024, representing 9.2% of the total cases reported in the country. [8]

1,584 new HIV cases were reported in Veracruz during 2023, representing an incidence of 18.3 per 100,000 inhabitants.[8] As indicated in the Bulletin of Comprehensive Care for People Living with HIV of the National Center for the Prevention and Control of HIV and AIDS in Mexico (CENSIDA), by the end of the same year, the state of Veracruz had 11,262 individuals undergoing antiretroviral treatment.[9]

Mexico has adopted a progressive approach to the HIV epidemic from its earliest stages. Since 2003, the country has provided free antiretroviral therapy to all people living with HIV through a network of outpatient centers. These include Centers for the Prevention and Care of HIV/AIDS and Sexually Transmitted Infections (CAPASITS), the network of Comprehensive Care Services (SAIH) clinics for the uninsured, and social security clinics.[10] Nevertheless, 4,828 individuals died from HIV-related causes across the country in 2022. [8]

The occurrence of ARV failure in patients with HIV may be attributed to non-adherence[11], which in turn may be associated with poor quality of life and/or psychological factors such as depression.

Depression represents a significant public health concern in numerous countries, affecting millions of individuals globally. It is estimated that millions of people worldwide suffer from depression. The treatment of depressed patients typically involves the use of antidepressant drugs, psychological therapy, or a combination of both. [12]

Studies conducted in Mexico have documented the prevalence of mental disorders suffered by the population. The National Survey of Psychiatric Epidemiology (ENEP) revealed that between 2001 and

2022, 9.2% of the population had a depressive disorder in their lifetime, while 4.8% had experienced such a disorder in the twelve months prior to the study. [13]

Common comorbidities in patients with HIV include pneumonia, tuberculosis, toxoplasmosis, and Kaposi's sarcoma, which are collectively referred to as opportunistic diseases. Other important comorbidities are hypertension and diabetes, which can significantly impact the health status of patients.[14]

In their 2020 documentary research, Morey Gabriel and Zambrano Rosario identified several opportunistic infections prevalent in Latin America, including cerebral toxoplasmosis, mucocutaneous candidiasis, pulmonary tuberculosis, *Pneumocystis jirovecii* pneumonia, and invasive candidiasis. The 2019 Annual Bulletin of the Ministry of Public Health of Ecuador identified tuberculosis as the most frequent opportunistic infection.[14]

In addition to the physical comorbidities associated with HIV, individuals who are HIV-positive also experience psychological disturbances and a higher incidence of depression and anxiety than individuals who are HIV-negative. [15]

Depression is a significant concern among individuals with HIV. Therefore, it is essential to assess the psychological status of patients.[16] A study by Abdulateef Elbadawi and colleagues showed that the prevalence of depression among patients with HIV/AIDS can reach as high as 63.1%. [17]

Depression is a risk factor for HIV infection and impairs adherence to medical treatment and safe sex practices that prevent further transmission of the virus. There is evidence that supports the efficacy of a combined psychotherapy and pharmacotherapy approach for the treatment of depressive symptoms.[18]

Waldron et al, 2021 mention that the symptomatology of depression and anxiety increases to a greater extent the physical and mental health problems of patients living with HIV; which decreases the level of quality of life and prevents them from continuing with treatments, potentially due to a lack of comprehension of the meaning of life and a diminished motivation to improve. [19]

The diagnosis of depression is a clinical process in which the results of structured interviews can also be used. Several self-rating scales are available, such as Zung's Self-Rating Depression Scale (SDS), an established norm-based screening measure to identify the presence of depressive disorders in adults; it

is used worldwide in clinical and research assessments of depressive symptoms and severity of depression.[20,21,22]

Zung developed a method for scoring both depression and anxiety that involved conversion of a total scale raw score (with a potentail range of 20 to 80) to a index score with a potential range of 25 to 100. The index score is derived by dividing the sum of the values (raw scores) obtained on the 20 items by the maximum possible score of 80, converted to a decimal and multiplied by 100. [23] It is important to mention the scoring criteria established in the scale: (<50 without depression, 50-59 with mild depression, 60-69 moderate depression and ≥ 70 severe depression). [24]

METHODS

A quantitative, non-experimental, cross-sectional, and non-interventional study was conducted in adult patients of both sexes confirmed positive for HIV/AIDS with and without antiretroviral treatment, who are patients of the High-Specialty Regional Hospital ISSSTE (Institute for Social Security and Services for State Workers) in Veracruz, Veracruz, Mexico and are assigned to different departments of this hospital.

Unity of Analysis

The subjects of this study were 977 individuals who met the inclusion and exclusion criteria mentioned below. The Zung Self-Rating Depression Scale was used to assess the presence and severity of depression in these subjects. This scale has been validated in different countries and languages and is available in a simplified version with 20 items.

Based on the sample size provided by CENSIDA 2023 and the expected frequency of the phenomenon of 63.1%, a confidence level of 99% and a confidence limit of 3.8% were obtained.

Additionally, a brief identification survey was conducted to gather information regarding the patient's age, sex, and place of residence. This was also done to determine whether the patient was adhering to antiretroviral treatment, the duration of which was also documented. Furthermore, the survey inquired about whether the patient had ever voluntarily discontinued treatment, whether they had resumed treatment after a period of discontinuation, or if they had completely abandoned treatment. This instrument has been previously validated by experts in the field at the mentioned hospital.

It is noteworthy that not all patients who were on the seropositive lists attended the epidemiology department or the outpatient clinic. In addition, some patients declined to participate in the survey for various reasons, including social stigma.

In accordance with the standards set forth by the institution's ethics committee, the surveys were applied individually and anonymously in a setting that was both comfortable and private, with optimal lighting and a pleasant room temperature.

Inclusion criteria

- Patients between the ages of 18 and 65 years old, diagnosed with HIV/AIDS, who were admitted to the internal medicine hospitalization area of the High-Specialty Regional Hospital ISSSTE Veracruz.
- Patients between the ages of 18 and 65 years with a diagnosis of HIV/AIDS who were attending follow-up visits to the epidemiology department of the High-Specialty Regional Hospital ISSSTE Veracruz.
- Patients between the ages of 18 and 65 years who had been diagnosed with HIV/AIDS and who attended outpatient specialty consultations at the High-Specialty Regional Hospital ISSSTE Veracruz.

Exclusion criteria

- Individuals under the age of 18.
- Individuals aged 65 years and above.
- Patients who are unable to respond to the questionnaire due to psychomotor limitations.
- Individuals who decline to participate.

RESULTS

All 977 patients surveyed met the inclusion criteria and are the subject of this study. The 126 patients who did not agree to participate in the study and were therefore excluded provided various reasons for their decision, including social stigma and concerns about feeling safe to be interviewed about their disease due to potential reactions from individuals outside of the disease community. These patients also reported experiencing discrimination on numerous occasions.

Of the 126 patients excluded from the study, 47 (37.30%) reported engaging in unprotected sexual intercourse with multiple partners without revealing their HIV-positive status. Among the 977 patients included in the study, 267 (27.33%) had sexual intercourse with one or multiple partners without informing them of their HIV-positive status, primarily due to concerns about rejection or a lack of concern about potential HIV transmission.

The mean age of the 977 patients who participated in this study was 44 years (with an age range of 18-65 years). Of the total sample, 329 were female (33.7%), while 66.3% of the sample were male, with 648 patients. [Graph 1]

Of the 977 patients, 793 met the criteria for depression, with 498 classified as mildly depressed, 129 as moderately depressed, and 166 as severely depressed. In other words, 81.17% of the patients included were depressed, with 62.79% exhibiting mild depression, 16.27% demonstrating moderate depression, and 20.93% displaying severe depression [Graph 2]. Of the total number of depressed patients, 307 were male (38.71%) and 486 (61.28%) were female.

A total of 41.24% (327) of patients with depression resided in the municipality of Veracruz within the city of Veracruz (Mexican state of Veracruz). Of the remaining patients, 298 (37.58%) resided in the municipality of Boca del Río, and 168 (21.19%) resided in other municipalities within the same city.

The largest proportion of patients with depression resided in the municipality of Veracruz. However, the majority of these patients exhibited only mild depression, representing 79.54% of the total. Meanwhile, the Boca del Río municipality had the highest percentage of severely depressed patients, accounting for 71% of the total.

Regarding antiretroviral treatment, 780 of the total number of patients surveyed (79.84%) were currently taking ARV. Of these, 120 patients (15.38%) dropped out at some point and resumed treatment within 2 months of stopping, while the rest showed adequate adherence from the start. In contrast, 197 (20.1%) of the total sample did not adhere to their prescribed antiretroviral treatment.

180 (91.37%) of the 197 patients with poor adherence to treatment were severely depressed, 11 (5.58%) were mildly depressed, and 6 (3.04%) were moderately depressed. [Graph 3]

Additionally, 723 patients (74%) were found to have another disease, including diabetes mellitus, hypertension, and some lymphatic malignancies.

The most prevalent comorbidity was diabetes, present in 467 individuals, representing 43.07% of the total number of patients included in the study. Of the 467 diabetic patients, 256 had at least one additional comorbidity. Hypertension was identified in 136 patients, accounting for 13.09% of the total number of patients included in the analysis. [Graph 4]

A total of 156 patients (15.96%) of the 977 included had or presented tuberculosis as an opportunistic infection at some point during their antiretroviral treatment. Some of these patients discontinued the treatment by medical indication or by their own decision, resuming it later or abandoning it completely. Among the patients with HIV/AIDS and active or previous tuberculosis, the majority reported having had severe depression at some point in their illness, with some experiencing improvement at the time of the study.

DISCUSSION

A review of the literature reveals a notable absence of references concerning the relationship between adherence to antiretroviral treatment and depressive disorder in HIV patients in Mexico. Given the chronic nature of HIV infection and the potential for a long life expectancy with adequate antiretroviral treatment, it is crucial to identify the factors that may influence adherence to treatment over time.

Rejection and discrimination, frequently driven by religious beliefs or a lack of awareness about the disease, can have a significant impact on the emotional well-being of individuals with HIV/AIDS, leading to the development of isolation behaviors, anxiety, or feelings of sadness that may contribute to the prevalence of depression in these patients.

As previously stated, numerous studies conducted globally have demonstrated a notable prevalence of depression among individuals with HIV/AIDS. This is linked to a lack of adherence to antiretroviral treatment.

In response, the Mexican Government has implemented strategies to address the public health crisis of HIV/AIDS, ensuring access to care and information for users across both public and private sectors.

The National Center for the Prevention and Control of HIV and AIDS (CENSIDA) provides health services in all Mexican states, offering funding and supplies such as antiretroviral treatment and free diagnostic tests. Additionally, it implements educational programs for all levels of medical care. Furthermore, the government publishes regular bulletins containing surveys, annual statistics, and quarterly information regarding the epidemiological status of the disease. Despite the occurrence of the global pandemic caused by the SARS-CoV-2 virus between 2020 and 2023, the Government's action program for the primary prevention of this disease or its timely diagnosis and treatment continued uninterrupted.

CONCLUSION

The prevalence of depression was found to be 81.17%, which was higher than expected in this study (63.1%). Of these, 62.79% were mildly depressed, 16.27% were moderately depressed, and 20.93% were severely depressed.

The predominance of HIV/AIDS was in the male sex, but the predominance of depression was in the female sex, as of the total number of depressed patients, 486 (61.28%) were women.

The percentage of patients on ARV was acceptable, with 780 patients (79.84%) of the total sample on regular treatment. However, 15.38% of them had temporarily stopped treatment at some point.

Of the 197 patients with poor adherence, 100% were depressed: 91.37% were severely depressed, 5.58% were mildly depressed, and 3.04% were moderately depressed.

Given the above, it is important to note that in this study, lack of adherence to antiretroviral treatment in patients with HIV/AIDS was directly proportional to the presence and severity of depression.

Additionally, 267 patients admitted having unprotected sex with partners who are unaware of their condition, which accounts for 27.33% of the total sample. It is considered necessary to raise awareness and educate patients with HIV about risky sexual practices and transmission of the virus.

The mortality rate due to HIV/AIDS in Mexico has not decreased in recent years. Therefore, there is a need to intensify early detection efforts, link those found to be infected with HIV to care services and implement measures to strengthen adherence to treatment. In addition, it is necessary to systematically and individually assess the psychological status of these patients and initiate measures for the early detection of depression, in order to prevent possible interruption or discontinuation of antiretroviral

treatment and thus treatment failure, since this is closely linked to the prognosis and course of the disease.

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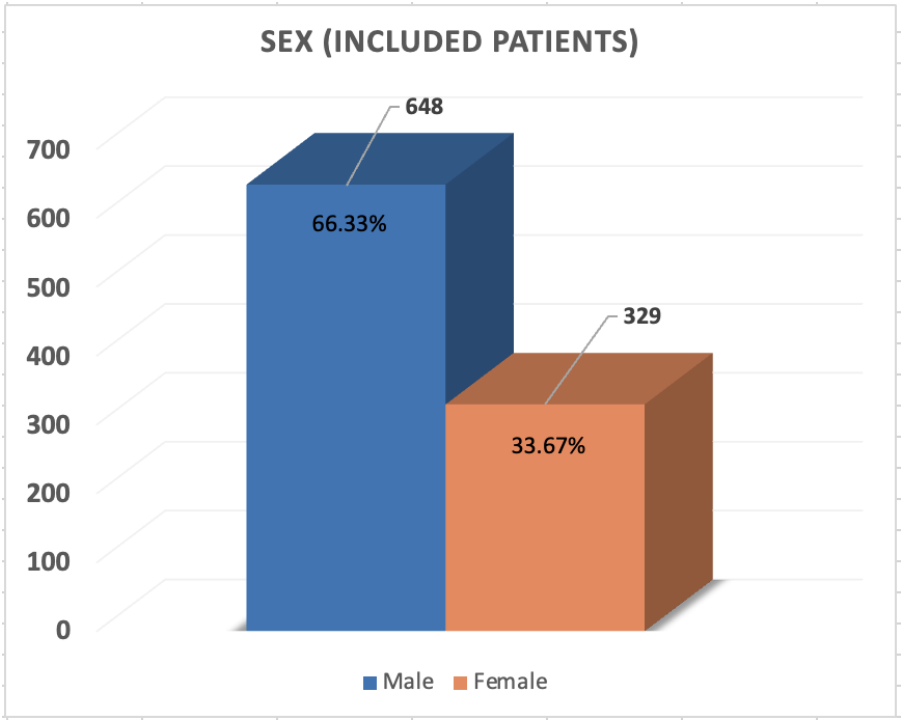
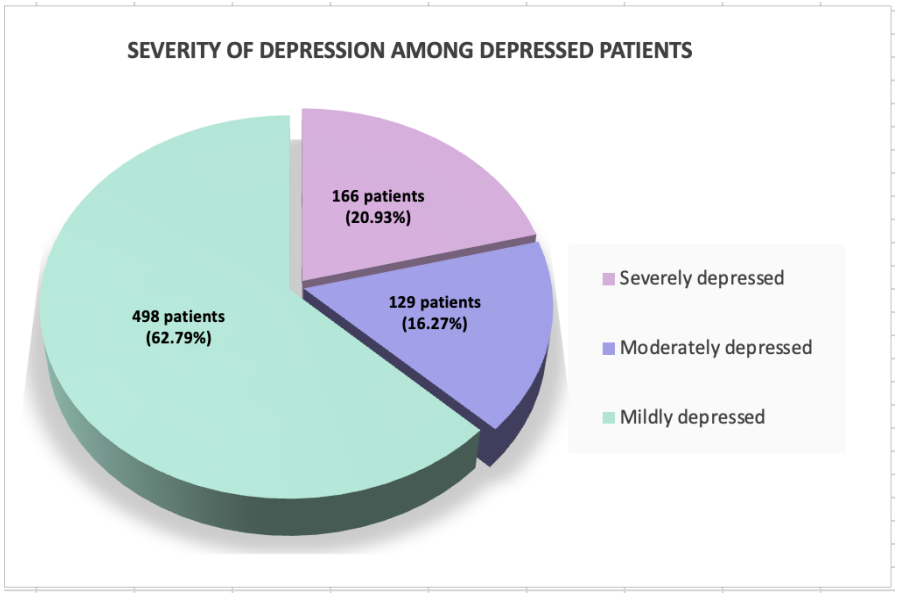
APPENDIX

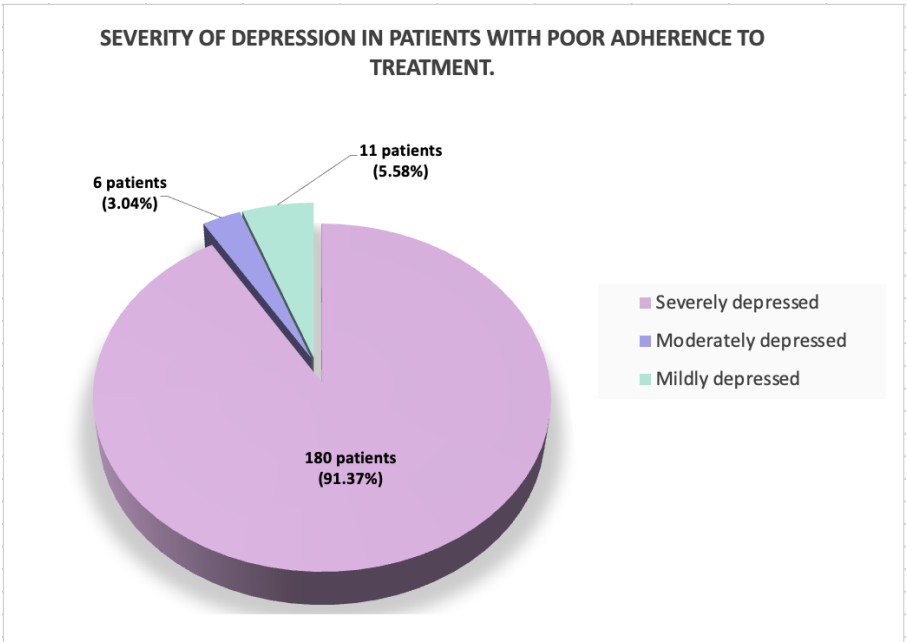
Graph 1



Graph 2



Graph 3



Graph 4