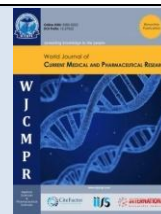




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EVALUATION OF PRESCRIBING PATTERNS MEDICATION ADHERENCE AND QUALITY OF LIFE IN PATIENTS WITH DEPRESSION AT PSYCHIATRIC DEPARTMENT

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ABSTRACT

A prospective observational case-control study was conducted to assess prescribing practices, medication adherence, quality of life, and the impact of clinical pharmacist interventions on medication adherence, medication errors, patient education, and therapeutic outcomes among patients suffering from depression at the Department of Psychiatry, Government General Hospital, Guntur. A total of 81 patients with depression, aged between 15 and 65 years, were enrolled in the study. Data regarding socio-demographic characteristics, disease-related information, prescribing patterns, medication adherence, and quality of life were collected during the study period from October 2024 to March 2025. Medication adherence was assessed using the Medication Adherence Rating Scale (MARS) questionnaire, while quality of life was evaluated using the WHOQOL-BREF questionnaire. The study findings revealed variations in prescribing patterns, with a notable prevalence of polypharmacy. Following clinical pharmacist interventions, including patient counselling and medication review, an improvement in medication adherence was observed among patients in the intervention group. Furthermore, patients who received pharmacist-led interventions demonstrated better quality of life, particularly in the physical and psychological domains. The interventions also contributed to a reduction in medication-related adverse effects and improved patient satisfaction. In conclusion, clinical pharmacist interventions can play an important role in optimizing prescribing practices, improving medication adherence, reducing medication-related problems, and enhancing the quality of life and therapeutic outcomes of patients with depression.

Keywords: Depression, Prescribing Patterns, medication adherence, quality of life, clinical pharmacist intervention, polypharmacy, WHOQOL-BREF, MARS.

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INTRODUCTION

Depression or major depressive disorder (MDD), also known as clinical depression, is a prevalent condition marked by continuous low mood and reduced interest in life and loss of pleasure along with fatigue, which severely interferes with patients' capacity to function normally. Depression impacts how people perceive things, their behaviour, thoughts, and everyday activities including sleep, eating, and work. The WHO estimates that more than 322 million people around the world suffer from depression, which poses serious public health concerns [1]. People of all ages, gender, race, and socio-economic groups can be affected with depression. A combination of several factors, including biological, genetic, psychological, and environmental, cause the disorder. Women have higher chances of being

diagnosed with depression compared to men; but men are usually not properly recognized because of poor expression of feelings and less willingness to see doctors [2]. Depression can be associated with chronic diseases like diabetes, heart disease, cancer, and chronic pain, complicating treatment process. Some medications taken to treat other diseases also lead to depression [3].

Major Depressive Disorder is a highly disabling mental disorder across the globe. This condition manifests through persistent sadness, fatigue, insomnia and loss of appetite, inability to concentrate, and suicide attempts due to severe psychosocial impairment. The mental disorder has been reported by WHO as a top contributor to the global burden of disease and is projected to be the number one health problem in 2030 [4,5].

Various types of depression exist. They include Major Depressive Disorder, Persistent Depressive Disorder (Dysthymia), Treatment-Resistant Depression, Primary and Secondary Depression, Psychotic Depression, Premenstrual Dysphoric Disorder, Postpartum Depression, Seasonal Affective Disorder, and Masked Depression [1,6, 12].

According to epidemiological studies, depression affects around 3.8% of the global population, predominantly females, young people aged between 18 and 30 years, and old persons above 65 years. Pregnancy and postpartum periods are also risk factors for depression. Suicide constitutes a dire complication of the mental disorder causing approximately 700,000 deaths yearly globally [13,15].

Etiology of depression is complex. Genes play a role as well, especially if there is a history of depression in the family [16]. Biochemical causes may be related to the presence of imbalanced neurotransmitters like serotonin, norepinephrine, and dopamine, as described in the amine hypothesis [17]. Depression can also result from environmental and psychological causes, including traumatic experiences, stress, adverse events, negative thoughts, and low self-esteem [18,19]. Depression adversely impacts the quality of life, and medication nonadherence and irrational medication prescribing may cause relapse, high medical expenses, and decreased efficacy. As such, it is important to understand depression and its implications for prescribing behaviours and medication adherence [20-29].

MATERIALS AND METHODS

Study Design and Study Settings

This is a Prospective observational case-control study that was carried out in the Psychiatric Department of Government General Hospital, Guntur. This study lasted for four months, between October 2024 to March 2025.

Study Selection Criteria

The sample size of 81 patients was taken by the convenience sampling technique.

- **Inclusion Criteria:** Clinically diagnosed cases of depression under DSM-V
- **Age Range:** Patients ranging from ages 15-65 years
- **Participants:** Patients who are both in-patients and out-patients
- **Exclusion Criteria:** Pregnant women and patients having any comorbidity issues

Study Methodology and Instruments

For data collection, the research made use of patient case files, the MARS questionnaire, and WHOQOL-BREF. The patients were classified into two categories; those who received clinical pharmacist consultation were in the control category while the other group was categorized under the Case category. Analysis of results was done using SPSS and Microsoft Excel.

RESULTS

Gender and Age Distribution

In total, there are 81 subjects, comprising 45 female (55.6%) and 36 male (44.4%) respondents. The cumulative percentage of females is 55.6%, implying that all the respondents have been considered. For age, the most prominent group is the 35-44 years with a 28.40% frequency followed by 55-65 years (24.69%). From the Chi-Square test of Independence on age and gender, we get a p-value of 0.46 showing no relationship between both variables.

Occupational, Educational, and Marital Status

From the occupational distribution in Table 1.3, semi-skilled constitutes the biggest group accounting for 45.68%. In terms

of educational status, according to Table 1.4, the most educated respondents are at the SSC level with 39.51%, while the illiterate account for 45.68%. From the marital distribution in Table 1.5, the majority of the respondents (80.25%) are married with no statistically significant relation with gender ($p=0.0935$).

Economic analysis & Residency Status

There is a significant presence of women in the lowest income group (5000-10000 rupees) (64.44%) and hence proves a significant association of gender with income status ($p=0.003893$), as represented in Table 1.5. The respondents were distributed into 60.49% of rural origin while 39.51% were from urban origin. Distribution of family types revealed 74.07%.

Prescribing Patterns and WHO indicators

In all, 28 drugs were prescribed. There were 26 drugs that were generic, and 26 drugs were prescribed using the oral method of administration (Table 1.6). Selective Serotonin Reuptake Inhibitors (SSRIs), such as Escitalopram and Fluoxetine, were prescribed most often, demonstrating a trend towards pharmacologically sound medication practices. The mean of drugs per prescription was 2.89, which was slightly higher than the WHO standard.

Medication Adherence (MARS) and Quality of Life

Table 1.7 shows the results of the comparison of medication adherence. Low adherence cases were recorded for 91.36% ($n=74$) of the control group participants, whereas there was no low adherence cases reported for the case group after intervention by pharmacists.

Quality of Life assessment across four domains revealed that the Environment domain recorded the highest mean score (58.28), while Physical Health recorded the lowest (29.78). All domains showed statistically significant higher mean scores compared to the respective test values ($p < 0.001$).

Table 01: Distribution of employees according to their gender

Gender	Frequency	Percent	Cumulative Percent
Female	45	55.6	55.6
Male	36	44.4	100.0
Total	81	100.0	

Table 02: Distribution of employees according to their Age

Age Group	Male Frequency	Female Frequency	Total Frequency	Cumulative Percent	Significance
15-24	0 (0.00%)	4(9.30%)	4 (4.94%)	4(4.94%)	$\chi^2 = 3.64$ df = 4, p = 0.46.
25-34	8(21.05%)	8(18.60%)	16(19.75%)	20(24.69%)	
35-44	8(21.05%)	15(34.88%)	23(28.40%)	43(53.09%)	
45-54	10(26.32%)	8(18.60%)	18(22.22%)	61(75.31%)	
55-65	12(31.58%)	8(18.60%)	20(24.69%)	81(100.00%)	

Table 03: Distribution of employees according to their occupation

Categor y	Male	Femal e	Total Freque ncy	Cumula tive Percent	Signific ance
SKILLED	5 (13.51)	3(6.82)	8 (9.88%)	8 (9.88%)	$\chi^2=8.19$, df=4df = 4 p=0.085
SEMI SKIL	21(56.75)	16(36.37)	37 (45.68 %)	45 (55.56%)	
UNEMPL OYE	5 (13.51)	18(40.91)	23 (28.40 %)	68 (83.96%)	
DAILY LAB	4 (10.81)	4 (9.09)	8 (9.88%)	76 (93.84%)	
UNSKILL ED	2 (5.40)	3(6.82)	5 (6.17%)	81 (100.00 %)	

Table 04: Distribution of respondents according to their Educational and Marital Status

Educational Status	Male Percentage	Female Percentage	Total Percentage	Cumulative Frequency	Significance
SSC	12 (32.43)	20(45.45)	(32) 39.51	32 (39.51)	$\chi^2=1.43$ 28, $df=2$ $p=0.48$ 85
GRADUATE	6(16.22)	6(13.64)	(12) 14.81	44 (54.32)	
PG	0(0.0)	0(0.0)	(0) 0.0	44 (54.32)	
ILLITERATE	19(51.35)	18(37)	(37)45.68	81 (100.0)	
MARITAL STATUS					
MARRIED	(29) 80.56	(36) 80.0	(65) 80.25	65 (80.25)	$\chi^2=$ 6.40 $df= 3$ $p=$ 0.0935
UNMARRIED	(3) 8.33	(3) 6.67	(6) 7.41	71 (87.66)	
WIDOW	(1) 2.78	(6) 13.33	(7) 8.64	78 (96.3)	
DIVORCED	(3) 8.33	(0) 0.0	(3) 3.7	81 (100.0)	

Table 05: Distribution of employees according to their Residence and Economic status

Reside nce	Male Percen tage	Female Percen tage	Total Percen tage	Cumul ative Freque ncy	Signific ance
RURAL	(26) 72.22	(23)51. 11	(49)60. 49	(49)60. 49	$\chi^2=$ 2.8987, df = 1, p-value = 0.08865
URBA N	(10) 27.78	(22)48. 89	(32)39. 51	(81)10 0.0	
ECONOMIC STATUS					
5000- 10000	(10) 27.78	(29) 64.44	(39) 48.15	(39) 48.15	$\chi^2=$ 11.097, df = 2, p= 0.00389 3
11000- 20000	(20) 55.56	(11) 24.44	(31) 38.27	(70) 86.42	
>2100 0	(6) 16.67	(5) 11.11	(11) 13.58	(81) 100.0	

Table 06: Overall Medication Adherence (MARS) & Quality of Life Scores

Parameter	Control (Pre-Intervention)	Case (Post-Intervention)	Statistica l significan ce
Medication Adherence (MARS)	N (%)	N (%)	
Low Adherence (Score 0-4)	74(91.36%)	0 (0.0%)	r = -0.998
Moderate Adherence (5-7)	7 (8.64%)	37 (45.7%)	P = 0.040
High Adherence (8-10)	0 (0.0%)	44 (54.3%)	(Significa nt)
WHOQOL-BREF Domains	Mean Score	Std. Deviation	P-Value
Physical Health	29.78	9.91	<.001
Psychologica l	33.53	13.05	<.001
Social Relationship	41.43	20.89	<.001
Environmen t	58.28	13.00	<.001

DISCUSSION

Demographics

The demographic analysis of 81 participants showed a slightly higher female representation (55.6%) compared to males (44.4%). The most represented age group was 35–44 years (28.40%), followed by 55–65 years (24.69%) and 45–54 years (22.22%), while the 15–24 age group had the least representation (4.94%). No significant association was observed between age group and gender ($\chi^2=3.64$, $df=4$, $p=0.46$), consistent with previous findings emphasizing age as an important but independent determinant of health behaviors (30).

Occupational distribution revealed that most participants were semi-skilled workers (45.68%), with higher male participation, while unemployment was notably higher among females, reflecting documented gender-based employment disparities (31). Educational status showed that SSC-level education was most common (39.51%), with illiteracy affecting 45.68% of participants. However, no significant association was found between gender and education ($\chi^2=1.4328$, $p=0.4885$), supporting literature that educational disparities vary by context (32).

Most participants were married ($\approx 80\%$), with widowed status more common among females, possibly due to longer female life expectancy. Residence analysis showed a predominantly rural population (60.49%), with no significant gender association. Economic status was the only demographic variable showing a significant gender difference ($\chi^2=11.097$, $p=0.003893$), highlighting persistent income inequalities affecting health and quality of life. Family structure was predominantly nuclear, with no gender-based difference observed.

Prescribing Pattern Analysis

The study revealed an average of 28 drugs per prescription, which is markedly higher than WHO recommendations (2–2.9 drugs) (33) and far exceeds findings from other studies (34,35). This level of polypharmacy represents a major non-correlating parameter, raising concerns regarding drug interactions, cost, and adherence.

Conversely, generic prescribing was high (92.8%), aligning with WHO recommendations and comparable studies (33,35), representing a strong correlating parameter. Adherence to the National List of Essential Medicines was moderate (57%), indicating partial compliance and scope for improvement. Oral administration predominated (93%), consistent with WHO guidance and prior studies, reflecting rational prescribing practices.

SSRIs, particularly Escitalopram and Fluoxetine, were the most commonly prescribed antidepressants, aligning with meta-analyses and treatment guidelines (8,9). Moderate use of atypical antipsychotics and benzodiazepines was consistent with current psychiatric recommendations (10,11). Despite these positives, excessive polypharmacy remains a significant concern.

Medication Adherence

Most participants fell into the low-severity category, with no high-severity cases observed, suggesting effective early management (36–38). The intervention significantly improved adherence in the Case group, shifting participants from low to

moderate and high adherence, with females demonstrating better adherence overall. These findings align with existing literature emphasizing the effectiveness of structured interventions and gender-related health behaviours.

WHOQOL-BREF

Quality-of-life assessment showed the highest mean score in the Environment domain, followed by Social Relationships, Psychological Health, and Physical Health. Inferential statistics confirmed significant improvements across all domains ($p<0.001$) (39–41). While environmental factors performed well, variability in psychological and social domains highlights the need for targeted, individualized interventions. In summary, while most demographic variables showed no significant gender differences, economic status and polypharmacy emerged as key concerns. The findings emphasize the importance of rational prescribing, adherence-enhancing interventions, and gender-sensitive policies to improve health outcomes and overall quality of life.

CONCLUSION

This study offers valuable insights into the factors influencing medication adherence, quality of life, and prescribing habits among patients. One of the key findings was the presence of gender-based differences in income levels, with a higher proportion of female patients belonging to lower-income categories. This highlights the influence of socioeconomic factors on health outcomes and emphasizes the need for policies that address income inequality and promote economic empowerment of women, which may contribute to improved access to healthcare and better treatment outcomes.

The analysis of prescribing patterns revealed deviations from standard prescribing practices, particularly due to a high prevalence of polypharmacy. Polypharmacy can increase the risk of drug interactions, adverse drug reactions, and reduced adherence. However, the study also showed good adherence to generic drug prescribing and a predominant use of oral dosage forms. These findings align with World Health Organization (WHO) guidelines and reflect positive aspects of rational drug use, while also indicating the need for continuous monitoring of prescribing practices. The intervention aimed at improving medication adherence was found to be effective, especially in the Case group, which demonstrated a significant improvement in adherence levels when compared to the Control group. This finding highlights the importance of patient education, counselling, and follow-up in improving adherence. Gender-based trends observed in adherence further emphasize the need for personalized and gender-sensitive healthcare approaches that take individual patient characteristics into account. Quality of life assessment revealed moderate improvements across all domains, including physical health, psychological well-being, social relationships, and environmental factors. Among these, the environmental domain showed the most consistent positive changes. In contrast, greater variability was observed in psychological and social domains, suggesting that these areas require additional attention and supportive interventions. Clinical pharmacists play a key role in improving medication adherence and quality of life. Through personalized counselling, prescription review, and regular follow-ups, pharmacists address adherence-related

problems, manage polypharmacy, reduce treatment costs, and collaborate with healthcare teams to optimize therapy and improve overall patient outcomes.

CONFLICT OF INTEREST

Not Declared

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INFORM CONSENT AND ETHICAL STATEMENT

Written informed consent was obtained from all participants prior to their enrolment in the study. The present study was reviewed and approved by the Institutional Ethics Committee (IEC) of Government Medical College, Guntur.

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