Evaluation of Medication Adherence in Geriatric Patients with Chronic Illnesses in a Tertiary Care Hospital

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ABSTRACT

Objectives: Medication adherence is a vital component for treating chronic illnesses. Geriatric patients are often on poly pharmacy this further exacerbates the importance of adhering to the developed drug therapy plan. Non-adherence towards medications in geriatric patients might result in poor health outcomes, new complications, and commodities may worsen which eventually will affect their quality of life hence, it is important to ensure that the right dose is given to the right patient at right time through the right route. **Materials and Methods:** A prospective cohort study was conducted which comprised of 156 geriatric patients suffering with chronic illnesses were assessed for their medication adherence and quality of life using case report form and other standardized scales like World Health Organization Quality of Life Scale and Morisky medication adherence scale. **Results:** This study examined 156 patients aged 65 to 75 years. The patients had various past medical histories, such as hypertension, diabetes mellitus, cardiovascular diseases, renal disorders, seizures, mental disorders, pulmonary diseases, cardiac diseases, anemia, gastric and thyroid disorders. High medication adherence was seen in 3%, low medication adherence in 85%, moderate medication adherence in 12%, quality of life was good in 12% and bad in 88%. Results showed that low medication adherence and poor quality of life are more common in elderly patients, and that patient counselling can lead to good medication adherence and good quality of life. **Conclusion:** This study found that poor medication adherence in geriatric patients with chronic illnesses can affect their quality of life.

Keywords: Medication adherence, Quality of life, Geriatric patients, WHO QOL Scale, Morisky Medication Adherence Scale.

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INTRODUCTION

Medication adherence is defined by the World Health Organization as "the degree to which the person's behavior corresponds with the agreed recommendations from a health care provider."[1] Medication adherence is a vital component for treating chronic illnesses. According to the Centers for Disease Control and Prevention, 60% of older people have at least two chronic health conditions, and 85% have one or more.[2] Adherence to prescribed medication regimens is difficult for all patients and particularly challenging for the elderly. The patient's health may be significantly impacted by missed medicine doses. To begin with, medication therapy is created to assist patients in overcoming specific illnesses or maintaining stability in their condition. Geriatric patients are often on poly pharmacy this further exacerbates the importance of adhering to the developed drug therapy plan. Non-adherence towards medications in

geriatric patients might result in poor health outcomes, new complications, and commodities may worsen which eventually will affect their quality of life hence, it is important to ensure that the right dose is given to the right patient at right time through the right route. There may be obstacles to adherence that geriatric patients face on a physical and mental level, which should be removed with knowledge and compassion. Numerous important factors, such as quality of life and medication adherence, can have a substantial impact on the geriatric patient's health and wellness. Quality of life can be influenced by several factors, including physical and mental health, social support, stability, and financial security. Medication adherence is the term used to describe the degree to which a patient takes their prescribed medications as directed by their healthcare provider. Poor drug adherence may have several negative consequences, such as an increased risk of illness or death and a worse quality of life.[3] Geriatric patients must receive interventions to increase their adherence towards prescribed medications in order to maximize their quality of life and reduce the use of healthcare resources. The likelihood that medically prescribed medications will be taken as prescribed by the physician rises significantly when people participate in activities that offer educational materials,

reinforce understanding of the importance of taking medications, provide reminders, and remove any potential obstacles to doing so. According to a meta-analysis of 76 studies, treatment compliance decreased as the frequency of the regimen increased. For example, 72% of patients on a once-daily regimen adhered to their regimen, compared to 69% with a twice-daily regimen, 65% with a three-times-daily regimen, and 51% with a four-times-daily regimen.[4] The rationale of this prospective observational study is to evaluate medication adherence, quality of life in geriatric patients with chronic illnesses, monitor medication use, side effects and potential problems.

MATERIALS AND METHODS

Source of data

1. Case report form.

2. Prescriptions of patients.

3. Patient case sheet/medication chart.

4. Lab reports.

5. Patient questionnaire (Morisky scale-MMAS).

6. WHOQOL scale (world health organization quality of life.

Study design and duration: This is a prospective observational study.

Study duration: 6 months.

Study center: Out-patient clinic and Inpatient wards of the Department of General Medicine in Kamineni Academy of Medical Sciences, Research Center and Hospital, L.B Nagar, Hyderabad.

Inclusion criteria

Patients aged > 65 years old.

Patients who were willing to participate in the study.

Exclusion criteria

Patients who are not willing to participate in the study.

Patient aged < 65 years old.

Infectious Diseases like Tuberculosis, Leprosy, Human immune deficiency disease and viral disease.

Patients with malignancies or terminal illnesses.

Study site

The study will be conducted at Kamineni Hospital, L.B. Nagar, which is a tertiary care hospital with state of art facilities for patients.

Study tools

- **Self-designed case report form:** A data collection form will be designed to collect subjects demographic and disease specific aspects.

- **Morisky Medication Adherence Questionnaire (MMAS):** It is one of the most widely used mechanisms to assess patient adherence to medications.

- **WHO Quality of Life Questionnaire (WHOQOL):** The WHOQOL is a quality-of-life assessment developed by the WHOQOL Group with an attempt to develop a quality-of-life assessment.

Study procedure

A prospective observational study was conducted on geriatric patients in Kamineni Hospital for duration of 6 months. Subjects meeting the inclusion and exclusion criteria would be identified during OP and IP visit by the investigator. The investigator would obtain demographics, disease information and medication chart/prescription on a self-designed case report form. The subjects would be briefed about the study and willingness to participate would be ascertained. The above set of questionnaires would help in obtaining information regarding the medication adherence. The data collection format was verified and authenticated by the hospital preceptors for the study. The study involved 156 subjects with age greater than 65 years with comorbidities and polypharmacy prescriptions were included. Patients who are not willing to consent, patients with cancer and infectious diseases, death of the patient before being discharged, incomplete patient case sheets and patient left against medical advice were excluded from the study. Written informed consent was obtained from the patient or care provider. The data collection form includes Socio-demographic information such as age, gender, past medical and medication history, family history, social history, personal history, diagnosis and relevant laboratory data.

Medication adherence was assessed using Morisky's medication adherence scale 8 containing 8 queries related to medication adherence of the patient. Quality of life was assessed using WHO quality of life scale (WHOQOL-BREF) which is a 26-item instrument consisting of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items) and environmental health (8 items).

Descriptive statistics was done by using SPSS software to determine mean and standard deviation of collected data. The statistical tool independent t-test was performed to determine P-Value between the different collected data. The P-value was set at < 0.05 and confidence interval was 95%. Pearson's correlation is used to establish correlation between medication adherence and quality of life. Group statistics were estimated by the estimation of mean, standard deviations and standard error mean of domains of WHOQOL BREF and MMAS.

RESULTS

A total of 156 geriatric patients were screened according to the inclusion criteria

Gender distribution

Figure 1 indicates gender wise distribution of geriatric patients. Percentage of females known with chronic illness in the geriatric patients was less in number (42%) less than male (58%).

Age distribution

Table 1 indicates age wise distribution of patients among different age groups 65-75 yrs were highest (%) then middle was 76-85 yrs and 86-95 yrs were least in number.

Literacy rate of geriatric patients

Figure 2 indicates literacy rate of geriatric patients Where literates are highest percentage (74%) and illiterates (26%).

Mental health

Figure 3 indicates mental health status of geriatric patients in which 54% of patients have negative thoughts almost always or quite often.

Table 2 indicates comorbidities of geriatric patients. 80% of the patients have comorbidity of hypertension and diabetes in 75% patients.

Figure 4 indicates medication adherence: Among 156 subjects a maximum number of 133 patients were poorly adherent to medications, 19 patients show medium adherence, and 4 patients show high medication adherence.

Figure 5 indicates health related quality of life percentage of 156 patients out of which 137 (88%) patients are having poor quality of life and the remaining 19 (12%) patients are having a good quality of life.

Correlation between QOL and MMAS

Table 3 Indicates the correlation between QOL and MMAS in which good quality of life is seen in 19 patients along with good medication adherence in 23% patients and poor quality of life is seen in 137 patients along with poor medication adherence in 133 patients.

Figure 6 indicates Pearson's correlation test which was used to determine the correlation between medication adherence and quality of life by correlating MMAS score and WHOQOL score. The correlation is significant at the level of 0.01 ($p<0.05$).

Table 4 indicates the group statistics that were estimated by the estimation of mean, standard deviations and standard error mean of domains of WHOQOL BREF and MMAS. It was found that the physical health of patients having moderate to high adherence (N=25, mean=22.56, Std. Deviation=2.973, Std. Error Mean=0.595) was better as compared to the patient with poor adherence (N=130, Mean=15.48, Std. Deviation=1.766, Std. Error Mean=0.155). It was found that psychological well-being in patients with moderate to high adherence (N=25, Mean=15.36, Standard deviation=3.012, Std. Error Mean=0.602) was more as compared to the patient with poor medication adherence (N=130, Mean=10.19, Standard deviation=2.656, Std. Error Mean=0.233). It was found that the patients who had moderate to high adherence had good social relations (N=25, Mean=9.38, standard deviation=0.945, Std. Error Mean=0.189) whereas the patients who had low adherence scores exhibited antisocial characteristics. (N=130, Mean=8.58, Std. Deviation=0.786, Std. Error Mean=0.69). It was found that the patients who had moderate to high medication adherence had better quality of life (N=25, Mean=76.92, Std. Deviation=8.660, Std. Error Mean=1.732) whereas the patients who had low adherence scores (N=130, Mean=57.92, Std. Deviation=5.568, Std. Error Mean=0.488).
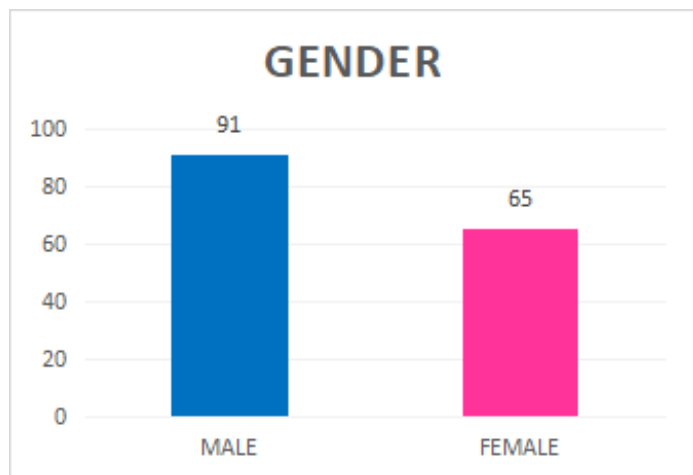

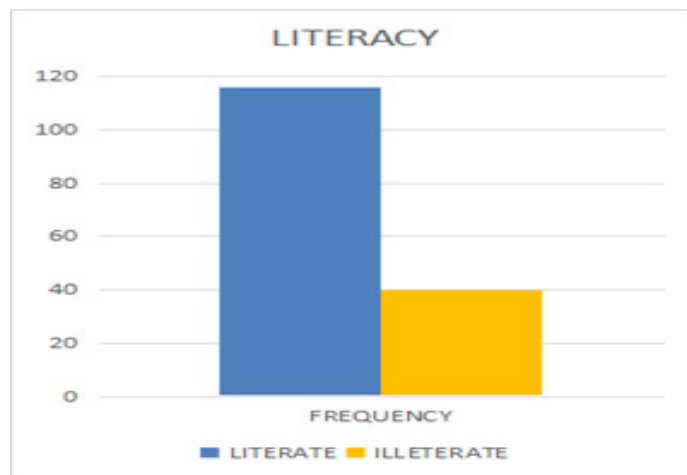**Figure 1:** Gender distribution of patients.

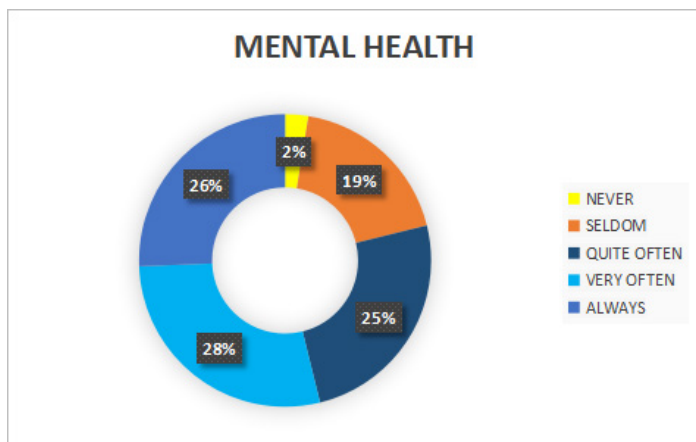**Figure 2:** Literacy rate of geriatric patients.

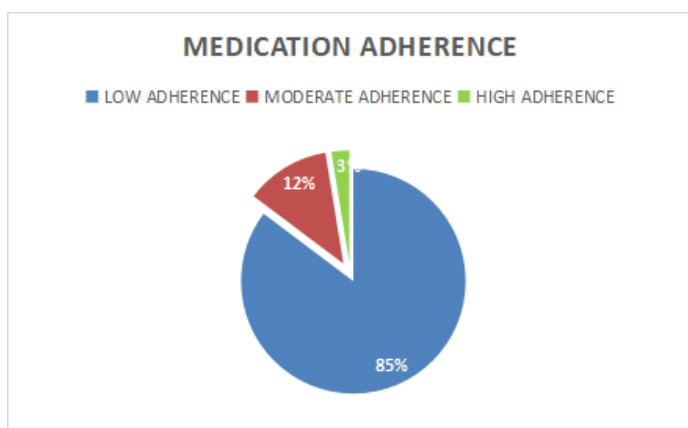**Figure 3:** Mental health status of geriatric patients.

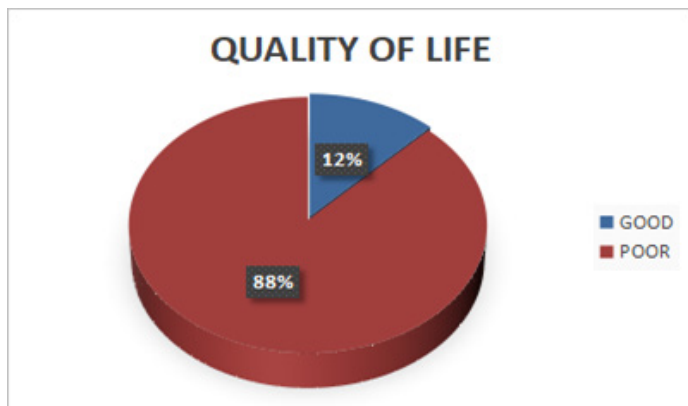**Figure 4:** Medication adherence of Geriatric Patients.

Figure 5: Quality of Life in geriatric patients with chronic illnesses.

Table 1: Age Distribution of Patients.

Age group	Frequency	Percentage
65-75	111	71%
76-85	37	24%
86-95	8	5%

Table 2: Comorbidities of geriatric patients.

| Condition	Frequency	Percentage
Hypertension	125	80%
Diabetes	117	75%
Thyroid disorders	32	21%
CVA	28	18%
CAD	22	14%
Anaemia	16	10%
Gastric disorders	12	8%
Pulmonary diseases	8	5%
Seizures	8	5%
Renal disorders	4	3%
Mental disorders	3	2%

Table 3: This table indicates the correlation between WHOQOL scores and MMAS scores where correlation is significant at 0.01 level.

	WHO SCORE	MMAS SCORE
WHO SCORE Pearson correlation Sig. (2-tailed) N	1 156	0.788 .000 156
MMAS SCORE Pearson correlation Sig. (2-tailed) N	0.788 .000 156	1 156

DISCUSSION

The evaluation of medication adherence and quality of life in geriatric patients with chronic illnesses is a crucial aspect of healthcare, as it provides insights into the effectiveness of treatment plans and the overall well-being of this vulnerable population. In this article, we have examined the relationship between medication adherence and quality of life in geriatric patients, shedding light on the potential implications for our healthcare professionals and policymakers.

The findings of this study indicate a significant correlation between medication adherence and quality of life in geriatric patients with chronic illnesses. High levels of adherence were associated with improved quality of life, including physical, mental, and social well-being. On the other hand, poor adherence to medication regimens was linked to reduced quality of life, increased symptoms burden, and higher health care utilization.[5] Several factors contribute to medication non-adherence among geriatric patients, such as cognitive decline, polypharmacy, complex treatment regimens, and socioeconomic factors.[6] These challenges highlight the importance of tailored interventions and strategies to enhance medication adherence in this population. Healthcare providers must consider the unique needs and limitations of

Table 4: This table indicates group statistics of WHOQOL domains and medication adherence.

Group Statistics					
	Adherece	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Physicalhealth	Medium to high	25	22.56	2.973	0.595
	Low	130	15.48	1.766	0.155
Psychological	Medium to high	25	15.36	3.012	0.602
	Low	130	10.19	2.656	0.233
Socialrelations	Medium to high	25	9.32	0.945	0.189
	Low	130	8.58	0.786	0.069
Environment	Medium to high	25	27.56	3.429	0.686
	Low	130	19.85	3.109	0.273
Whoscore	Medium to high	25	76.92	8.660	1.732
	Low	130	57.92	5.568	0.488
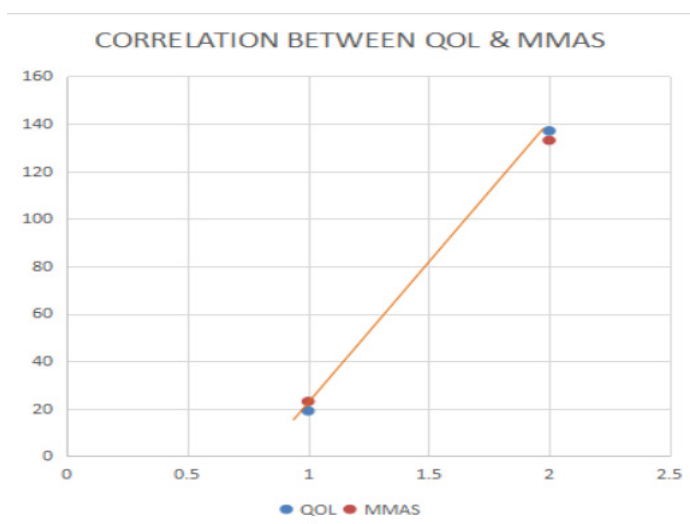
Figure 6: Representation of the correlation between QOL and MMAS.

geriatric patients when designing treatment plans and providing support.

Furthermore, the study revealed that the interventions aimed at improving medication adherence positively impacted the quality of life of geriatric patients. Patient education, medication reminders, simplification of treatment regimens, and the involvement of caregivers were effective strategies in promoting adherence and enhancing quality of life.[7] Identifying and addressing barriers to adherence such as medication cost, transportation issues and access to healthcare are critical steps in ensuring optical outcome for geriatric patients. It is worth nothing that the evaluation of medication adherence and quality of life in geriatric patients with chronic illnesses goes beyond the individual level. The findings have implications for healthcare systems as non-adherence contributes to increased healthcare costs, hospitalization, and poorer health outcomes.[8]

The study focuses on Medication adherence and quality of life in geriatric patients. Out of the total 156 patients only 4 patients had high medication adherence, 19 had medium medication adherence and 113 had low medication adherence. People with high medication adherence shows good quality of life. 113 patients had low medication adherence which shows poor quality of life. If Medication adherence is increased eventually quality of life will improve. Results showed there was low medication adherence and poor quality of life is more in geriatric patients. This can be improved by patient counselling which will lead to good medication adherence and good quality of life. While this study provides valuable insights, there are limitations that should be acknowledged. The sample size and geographical scope of this study may limit the generalizability of the findings. Additionally, the study relied on self-reported measures of medication adherence and quality of life, which may introduce bias. Future research should consider employing objective measures of adherence and incorporating longitudinal designs to further explore the relationship between medication adherence and quality of life in geriatric patients.

CONCLUSION

Geriatrics undergoes many age-related physiological changes that lead to more than two comorbidities. As the number and type of medication increases, it becomes difficult for the patient to remember this further leads to less likelihood of adherence to the treatment regimen. Geriatric patients tend to stop taking medication when they feel that their condition is better. Non-adherence towards medication can be due to various reasons such as cognitive ailments, socioeconomic issues due to comorbidities and polypharmacy. Hence, it is vital to ensure that this sub population should take their medications as prescribed by the physician appropriately which will eventually lead to improved quality of life and better health outcomes. To encourage medication adherence in geriatrics it is necessary to have a comprehensive approach which includes patient satisfaction, educational plan, support from family and an understanding of consequences of non-adherence to medications. Interventions to improve

medication adherence among geriatrics are essential to maximize quality of life and minimize utilization of healthcare resources. Efforts must be made to monitor medication adherence such as, providing follow up appointments or by making telephone calls to ensure that the medication prescribed is taken by the patient as directed by the physician.

This study shows that poor adherence in geriatric patients with chronic illnesses can affect their quality of life. Variations in the level of medication adherence in patients were seen. Some patients had a low level of adherence to their medications while some were highly adherent to their medications. Most of the geriatric patients in this study were moderately adherent to their medication regimen and had better quality of life as compared to those who were poorly adherent to their medications.

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AUTHOR CONTRIBUTIONS

All authors had active roles in the preparation of original manuscript and the treatment of the patient.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

WHO: World Health Organization; **QOL:** Quality of Life; **MMAS:** Morisky Medication Adherence scale; **WHOQOL-BREF:** World Health Organization Quality of Life scale; **OP:** Outpatient; **IP:** Inpatient

SUMMARY

Medication adherence is crucial for treating chronic illnesses. Adherence to prescribed medication regimens is difficult for all patients, especially the elderly, who may face missed doses and poor health outcomes. Geriatric patients often use poly pharmacy, which exacerbates the importance of adhering to the developed drug therapy plans. Impacts on adherence can result in poor health outcomes, new complications, and worsening of commodities, ultimately affecting their quality of life. To improve adherence, geriatric patients must face physical and mental obstacles, which should be removed with knowledge and compassion. Quality of life can be influenced by factors such as physical and mental health, social support, stability, and financial security.

Geriatric patients with chronic illnesses often struggle with medication adherence due to physiological changes and comorbidities. Non-adherence can be due to cognitive issues, socioeconomic issues, and poly-pharmacy. To improve adherence, a comprehensive approach including patient satisfaction, education, family support, and understanding of consequences of non-adherence is needed. Interventions like follow-up appointments and telephone calls can help monitor medication adherence. Thus, our study deals with the evaluation of medication adherence in geriatric patients with chronic illnesses in relation to quality of life by using MMAS 8 and WHO BREF scale, the study found that moderately adherent geriatric patients had better quality of life compared to poorly adherent ones. Medication adherence monitoring in our study is crucial for determining therapeutic outcomes, especially in patients suffering from chronic illnesses maximizing quality of life and minimizing healthcare resource utilization reducing morbidity and mortality.

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