# ASSESSMENT OF DRUG ADHERENCE OF DIABETIC PATIENTS AT LADY READING HOSPITAL, PESHAWAR

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## Abstract

*Background: Diabetes mellitus requires lifelong management, with medication adherence being crucial for preventing complications like cardiovascular disease and neuropathy. In Peshawar, diabetes is a growing public health concern, and Lady Reading Hospital plays a key role in managing diabetic patients. However, adherence levels and influencing factors remain understudied. This study assesses drug adherence among diabetic patients at Lady Reading Hospital, identifying barriers to improve patient outcomes and inform healthcare strategies for better diabetes management in the region.*

*Objective: This study aims to assess the level of drug adherence among diabetic patients at Lady Reading Hospital, Peshawar, and identify factors influencing their adherence. The findings will help improve diabetes management by addressing adherence gaps and guiding healthcare strategies to enhance patient outcomes.*

*Methodology: A quantitative, descriptive cross-sectional study design was employed to assess drug adherence among diabetic patients at Lady Reading Hospital, Peshawar. A convenient sample of 110 diabetic patients attending the outpatient department (OPD) and diabetes clinics was selected for the study. Self-administered questionnaires based on the Morisky Medication Adherence Scale (MMAS-8) were used to gather data, along with clinical and demographic data. To assess adherence levels and pinpoint the causes of non-adherence, statistical analysis was done.*

*Results: The survey of 110 diabetic patients at Lady Reading Hospital revealed that the majority were middle-aged, unemployed, and had low educational levels. Type 2 diabetes was the most common form of the condition. While 64.3% consistently took their medication, 44.4% reported skipping doses, mainly due to forgetfulness (35.7%) or cost (8.7%). Many patients struggled with understanding*

*their medications and accessing them. Despite receiving reminders (mainly from family members), 32.5% rated their diabetes management as poor. These findings highlight the need for improved patient education, better access to medications, and stronger communication with healthcare providers.*

*Conclusion: The study highlights the serious problem of diabetic patients at Lady Reading Hospital not taking their medications as prescribed, which can have a major influence on how their condition is managed and result in problems. Even though some patients took their drugs as directed, many reported missing doses because of things like financial hardships and forgetfulness. The results point to a lack of knowledge and difficulties in obtaining prescription drugs. These problems highlight the necessity of focused interventions, such as ongoing patient education, enhanced counseling, and methods to overcome obstacles like cost and accessibility. Improving adherence will ultimately result in better diabetes control and a lower risk of complications, thus it will be crucial to improve communication between patients and healthcare professionals.*

*Further research is necessary to identify the key factors contributing to poor adherence and to develop tailored strategies that can enhance patient outcomes and reduce the burden of diabetes in this region.*

## INTRODUCTION

This thesis explores the assessment of drug adherence among diabetic patients at Lady Reading Hospital, Peshawar. While studies on medication adherence exist, limited research has been conducted in this region. The study will highlight the importance of adherence for effective diabetes management and its implications for patient care and healthcare research. According to the American Diabetes Association (2022), diabetes care involves a comprehensive approach to managing blood glucose levels, reducing complications, and improving patient outcomes. The Standards of Medical Care in Diabetes provide evidence-based guidelines on medication adherence, which is critical for maintaining glycemic control and preventing complications. Adherence to prescribed medications is a key factor in achieving effective diabetes management and preventing the progression of the disease.

According to the American Diabetes Association (2022), diabetes care involves a comprehensive approach to managing blood glucose levels, reducing complications, and improving patient outcomes. The Standards of Medical Care in Diabetes provide evidence-based guidelines on medication adherence, which is critical for maintaining glycemic control and preventing complications. Adherence to prescribed medications is a key factor in achieving effective

diabetes management and preventing the progression of the disease (American Diabetes Association, 2022)

### Drug Adherence:

The degree to which diabetes patients at Lady Reading Hospital take their medications as advised by their doctors is known as drug adherence. The Morisky Medication Adherence Scale (MMAS-8) is used to monitor adherence by asking patients to self-report whether they take their medications regularly, correctly, and at the appointed times.

### Diabetic Patients:

People who have received a clinical diagnosis of Type 1 or Type 2 diabetes mellitus from a medical professional at Lady Reading Hospital are considered diabetic patients. During the study period, these patients are undergoing diabetic therapy at diabetes clinics or the outpatient department (OPD).

### Background of Drug Adherence:

Drug adherence in diabetic patients is a critical aspect of managing the chronic condition of diabetes mellitus. The study highlights that diabetes is a rapidly growing global health issue, with an estimated 415 million people affected in 2015, projected to rise to 642 million by 2040. Effective management of diabetes involves both lifestyle changes and consistent

use of antidiabetic medications. However, noncompliance with prescribed medications remains a major challenge, particularly in low-income countries where the burden of diabetes is increasing. Efforts to improve drug adherence are essential to reduce the burden of diabetes on both patients and healthcare systems. For example, strategies such as patient education, reminders, and simplified treatment regimens can help address non-compliance and improve health outcomes in diabetic patients. (Khan,2021)

## Significance of the Study:

The significance of the study on the assessment of drug adherence in diabetic patients lies in addressing a critical aspect of diabetes management—ensuring consistent medication intake. Given that non-adherence can lead to uncontrolled diabetes, higher healthcare costs, and increased morbidity and mortality, this study is vital for identifying the underlying causes of poor compliance. Understanding these factors enables healthcare providers to develop targeted interventions to improve patient outcomes, reduce complications, and lessen the financial burden on healthcare systems (Khan, 2021). (2)

## Objectives

To assess the level of drug adherence to antidiabetic medications among diabetic patients at Lady Reading Hospital, Peshawar.

## Literature Review:

The article "Analyzing Health Professionals' Adherence to National Guidelines and Comparing Diabetes Care in Specialized Care Centres and Hospitals" published in the American Journal of Internal Medicine provides a thorough analysis of diabetes management practices in different healthcare settings, focusing particularly on public hospitals versus specialized care centers. The study uncovers significant disparities in diabetes care quality, with specific attention given to glycemic control, lifestyle modification recommendations, and adherence to established national guidelines.

Using a mixed-methods approach, the authors reviewed 400 medical records and employed statistical techniques, including binary logistic regression, to assess and compare the quality of diabetes care provided in public hospitals and specialized diabetic care centers. The findings indicate that public hospitals significantly lag behind in essential diabetes management interventions. For example, only 16.4% of patients received foot examinations in public hospitals, a stark contrast to the higher rates observed in specialized centers. Additionally, the quality of documentation in public hospitals was found to be inadequate, with fewer than 30% of follow-up examinations properly recorded.

One of the critical revelations of the study is the poor adherence to national diabetes care guidelines in public hospitals when compared to private clinics and specialized centers. The latter exhibited better compliance with recommended procedures, such as fundoscopy and glycemic monitoring, which are essential for preventing complications like neuropathy and retinopathy.

The research also highlights the socioeconomic factors influencing diabetes care quality. A significant portion of diabetic patients (40%) lacked health insurance, directly impacting their access to necessary screenings and follow-ups. Furthermore, the study reported a concerning smoking prevalence among diabetic patients, particularly among males, with 18% identified as active smokers. Alarmingly, only 13% of these patients received counseling on smoking cessation, indicating a significant gap in comprehensive diabetes care strategies.

Overall, the study underscores the need for improved adherence to national guidelines and the implementation of targeted interventions to enhance diabetes management in public hospitals, addressing both clinical practices and socioeconomic barriers that hinder effective care delivery. (3)

## Methodology

**Research Question:** What are the factors influencing drug adherence among diabetic patients attending lady reading hospital, and how do these factors impact treatment outcomes?

## Sample Size:

Using sample calculator and taking 95% confidence interval, 5% margin of error the sample size for the study is 110 (n=110).

Study Period:

The study period was four months from September to December, 2024.

Sampling Technique:
Convenient sampling.

**Sample Selection:**
**Inclusion Criteria**:
Diabetic patients diagnosed with Type 1 or Type 2 diabetes.
Patients visiting outpatient or inpatient departments at Lady Reading Hospital.
Adults aged 18 years and above.
Patients who have been on anti-diabetic medication for at least three months.
Patients willing to provide consent to participate in the study.

**Exclusion Criteria:**
Patients with gestational diabetes.
Those with severe mental illnesses that hinder adherence assessment.
Patients with incomplete medical records or unwilling to participate.

**Data Collection Procedure:**
The data collection process for assessing drug adherence among diabetic patients at Lady Reading Hospital, Peshawar, began with obtaining written permission from the approval from the hospital Director. Eligible diabetic patients were identified, and informed consent was obtained after explaining the study's purpose, procedures, and confidentiality measures. Data was collected through a structured questionnaire covering demographics, clinical details, and drug adherence assessed using the Morisky Medication Adherence Scale (MMAS-8). Individual interviews were conducted in a private setting, ensuring confidentiality. All data was anonymized and used solely for academic purposes.
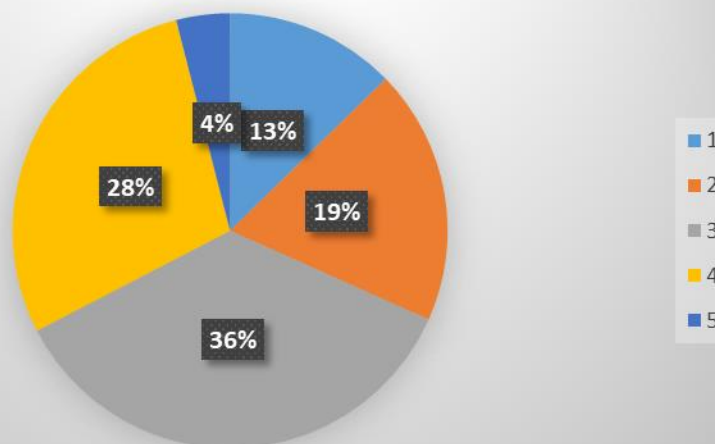
**Data Analysis Procedure:**
The data was analyzed by descriptive statistics using tables, graphs, and presentations in the form of frequencies and percentages (%). SPSS (Chi square test) was used to establish an association between Variables.

# RESULTS

| Age | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | 31-40 | 24 | 19 |
| | 41-50 | 45 | 35.7 |
| | Above 50 | 36 | 28.6 |
| | Below 30 | 5 | 4 |
| | Total | 126 | 100 |



Percentage

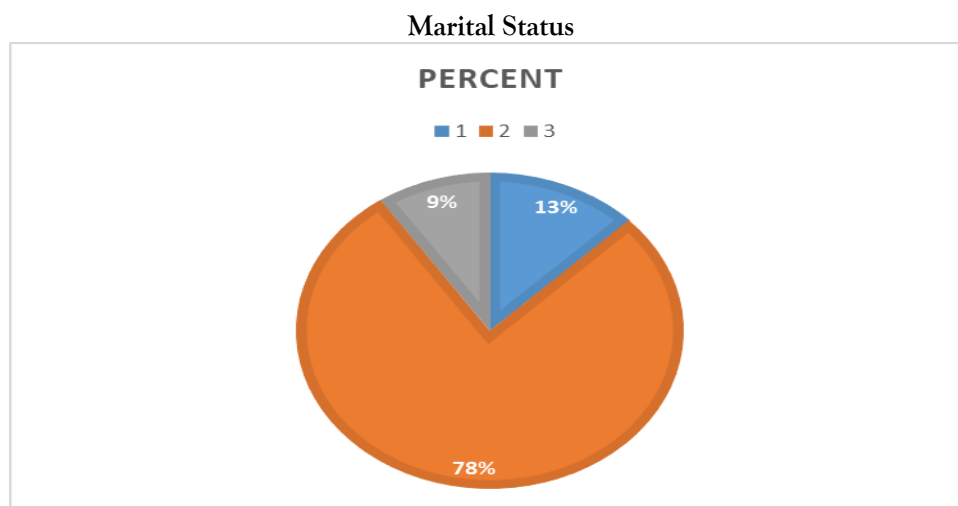|  | Frequency | Percent |
|---|---|---|
| Divorced | 16 | 12.7 |
| Married | 98 | 77.8 |
| Single | 12 | 9.5 |
| Total | 126 | 100 |

The majority of participants were between the ages of 41 and 50 (35.7%), followed by those aged 31-40 (19%), with only 4% below 30.

**Gender**

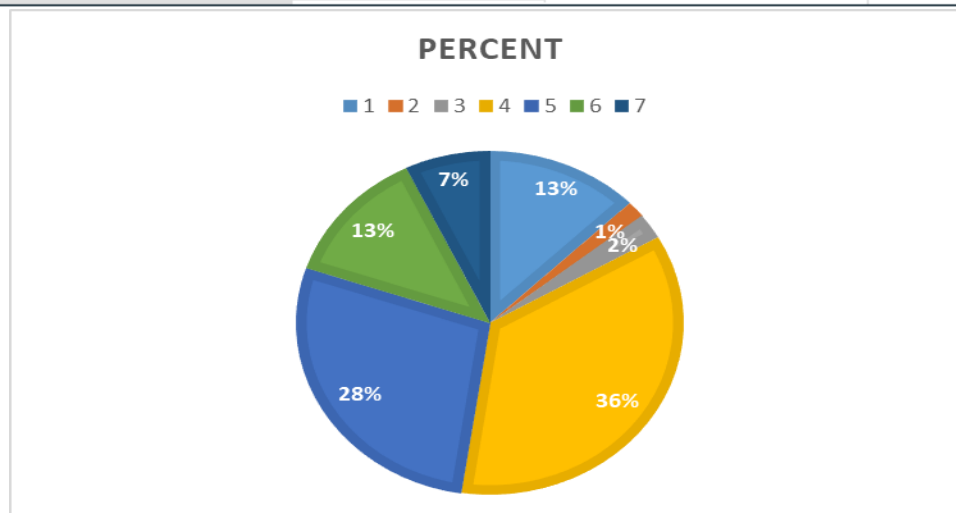|  | Frequency | Percent |
|---|---|---|
|  |  |  |
| Female | 70 | 55.6 |
| Male | 40 | 31.7 |
| Total | 126 | 100 |
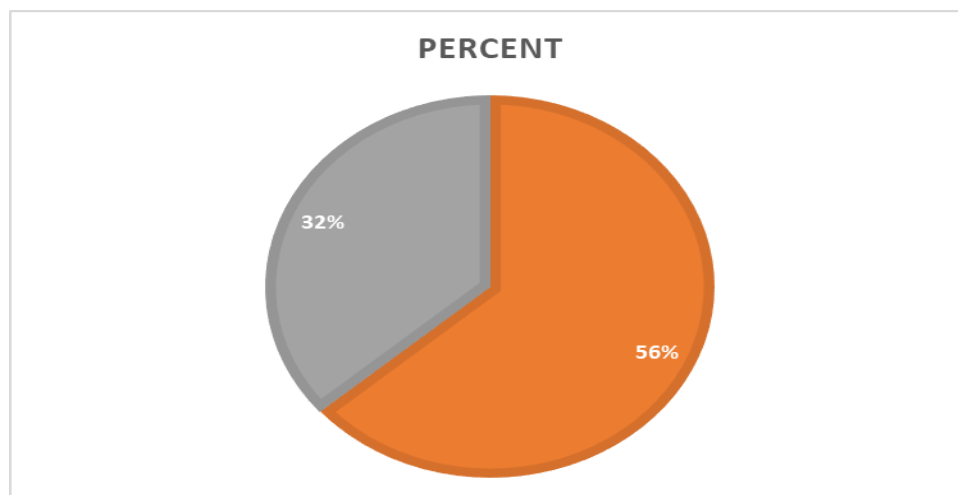


The analyzed data showed that 32% were male and 56% were female.

**Marital Status**

The analyzed data showed that 13% were divorced, 9% were single and 78% were married.

| Educational Level | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | Higher education | 2 | 1.6 |
| | Higher Education | 3 | 2.4 |
| | No Education | 45 | 35.7 |
| | No formal Education | 35 | 27.8 |
| | Primary | 16 | 12.7 |
| | Secondary | 9 | 7.1 |
| | Total | 126 | 100 |

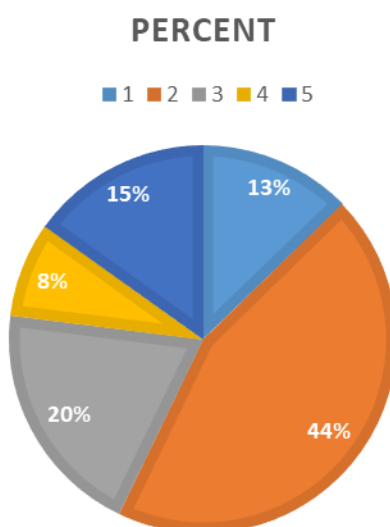| Duration Of Diabetes | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | 1-5 years | 56 | 44.4 |
| | 6-10 years | 25 | 19.8 |
| | Less than 01 year | 10 | 7.9 |
| | More than 10 years | 19 | 15.1 |
| | Total | 126 | 100 |



The above data analyze that most participants (63.5%) had no education or only primary education, with a small percentage having secondary or higher education.

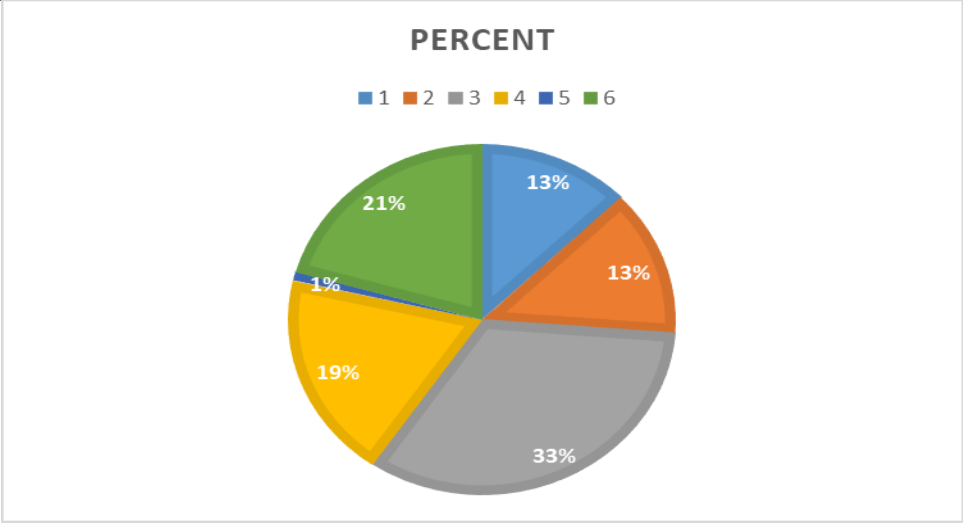| | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | Employed | 22 | 17.5 |
| | Retired | 2 | 1.6 |
| | Unemployed | 86 | 68.3 |
| | Total | 126 | 100 |

**Occupation**
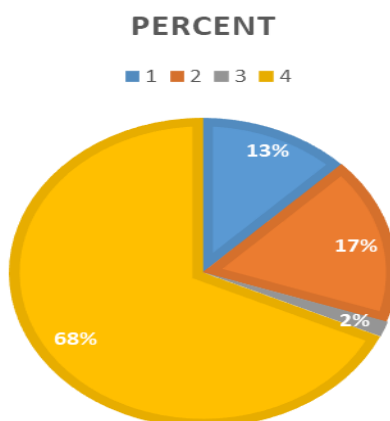
The data showed that 17.5% of participants are employed, 1.6% are retired, and 68.3% are unemployed.



The data indicated that 44.4% of participants have had diabetes for 1-5 years, 19.8% for 6-10 years, 7.9% for less than 1 year, and 15.1% for more than 10 years.
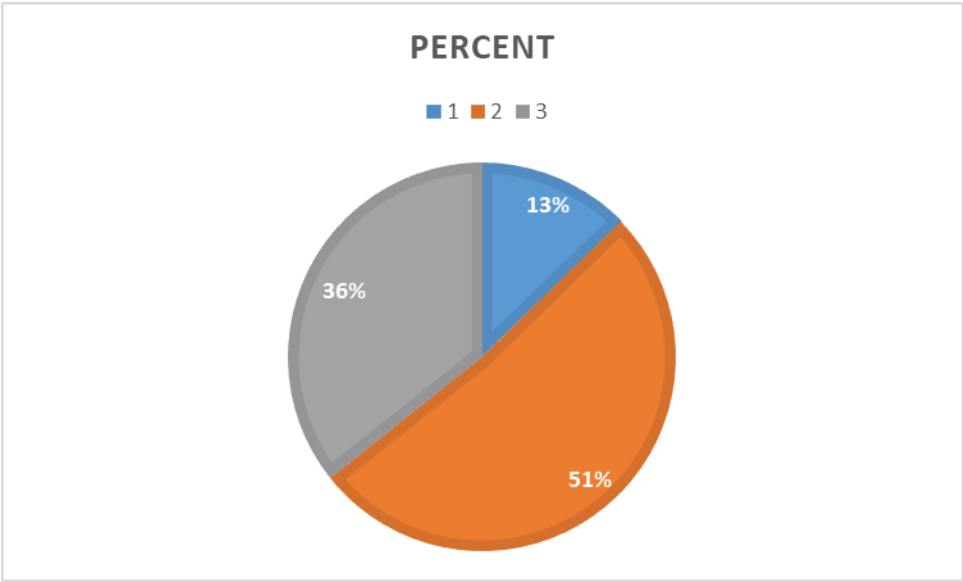
| Type Of Diabetes | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | Type 1 | 17 | 13.5 |
| | Type 2 | 42 | 33.3 |
| | Type1 | 24 | 19 |
| | type2 | 1 | 0.8 |
| | Type2 | 26 | 20.6 |
| | | | |
| | Total | 126 | 100 |

The data showed that 33.3% of participants have Type 2 diabetes, 19% have Type 1 diabetes, and 20.6% are categorized under other types.

| Other Chronic Conditions | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | No | 65 | 51.6 |
| | Yes | 45 | 35.7 |
| | Total | 126 | 100 |



The data showed that 51.6% of participants have no other chronic conditions, while 35.7% have one or more.

**Taking Of Medication**

|  | Frequency | Percent |
|---|---|---|
|  | 16 | 12.7 |
| Always | 81 | 64.3 |
| Never | 2 | 1.6 |
| Rarely | 14 | 11.1 |
| Sometimes | 13 | 10.3 |
| Total | 126 | 100 |
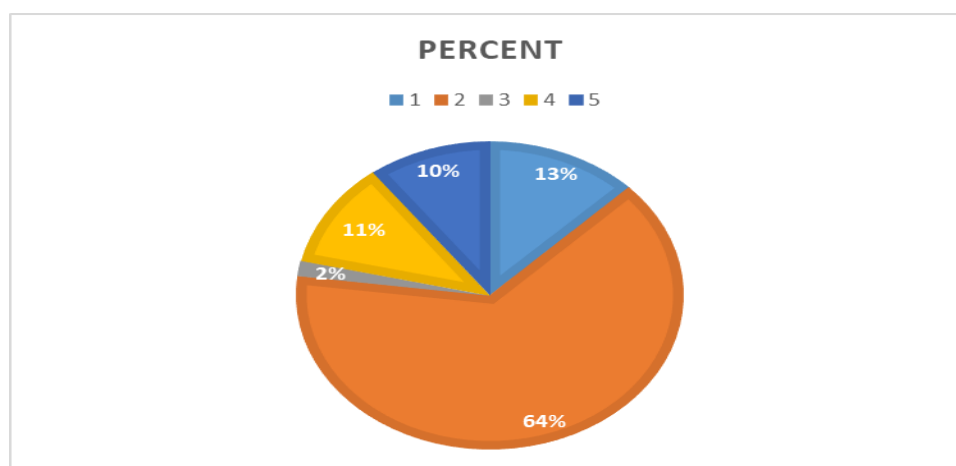


The data showed that 64.3% always take their medication, while 11.1% rarely, 10.3% sometimes, and 1.6% never take it.

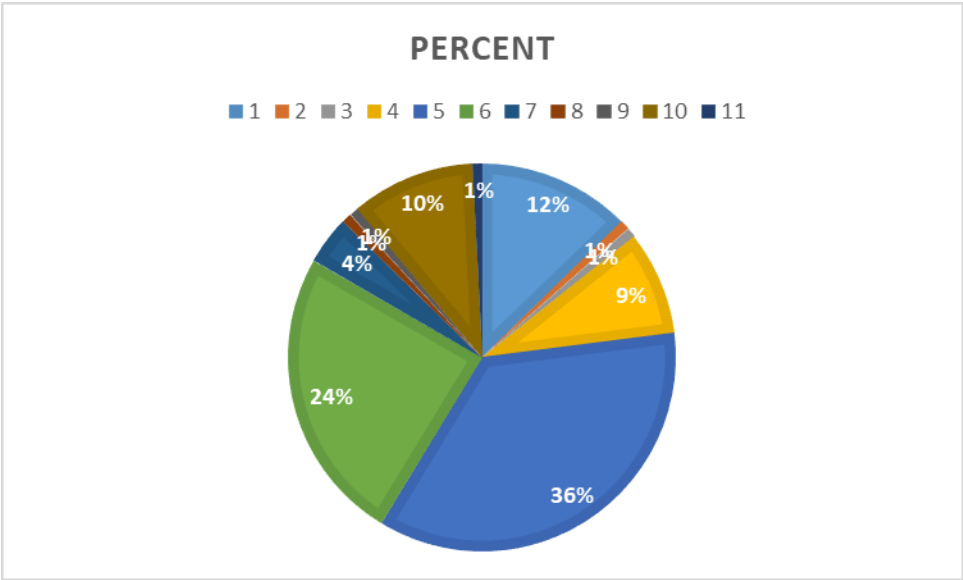| **Skipping Of Medicine** | | Frequency | Percent |
|---|---|---|---|
|  |  | 16 | 12.7 |
|  | No | 54 | 42.9 |
|  | Yes | 56 | 44.4 |
|  | Total | 126 | 100 |
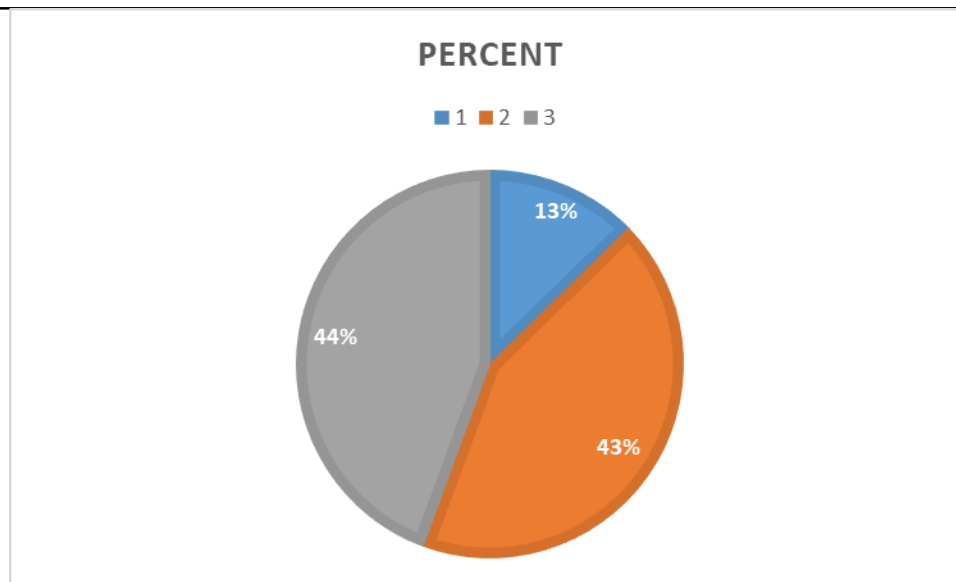
The data showed that 44.4% of participants skipped their medication, while 42.9% did not, with 12.7% not specifying.

| Reason Of Skipping Medication | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | Belief that medication is not working | 1 | 0.8 |
| | Belief that the medication is not working | 1 | 0.8 |
| | Cost of medication | 11 | 8.7 |
| | Forgetfulness | 45 | 35.7 |
| | Forgetfulness | 31 | 24.6 |
| | Medication side effects | 5 | 4 |
| | Not feeling unwell | 1 | 0.8 |
| | Not feeling unwell | 1 | 0.8 |
| | Other | 13 | 10.3 |
| | Other (Specify) | 1 | 0.8 |
| | Total | 126 | 100 |

| Difficulty In  Medication Schedule | | Frequency | Percent |
|---|---|---|---|
| | | 16 | 12.7 |
| | No | 18 | 14.3 |
| | yes | 1 | 0.8 |
| | Yes | 91 | 72.2 |

| | Total | 126 | 100 |
|---|---|---|---|



The above data analyzed that the main reason for skipping medication was forgetfulness (60.3%), followed by cost (8.7%) and side effects (4%). Other reasons were less common.

| Facing Of Challenges During Medication | FREQUENCY | PERCENT |
|---|---|---|
| | 16 | 12.7 |
| Complex dosing schedule | 4 | 3.2 |
| Complex dosing schedule | 3 | 2.4 |
| Difficulty in accessing medication | 8 | 6.3 |
| Lack of understanding of medication | 29 | 23 |
| Valid | 35 | 27.8 |
| Other | 10 | 7.9 |
| Other (Specify) | 5 | 4 |
| Other (Specify) Poverty | 1 | 0.8 |
| Poor communication with healthcare providers | 8 | 6.3 |
| Poor communication with healthcare providers | 1 | 0.8 |
| Poverty | 6 | 4.8 |
| Total | 126 | 100 |
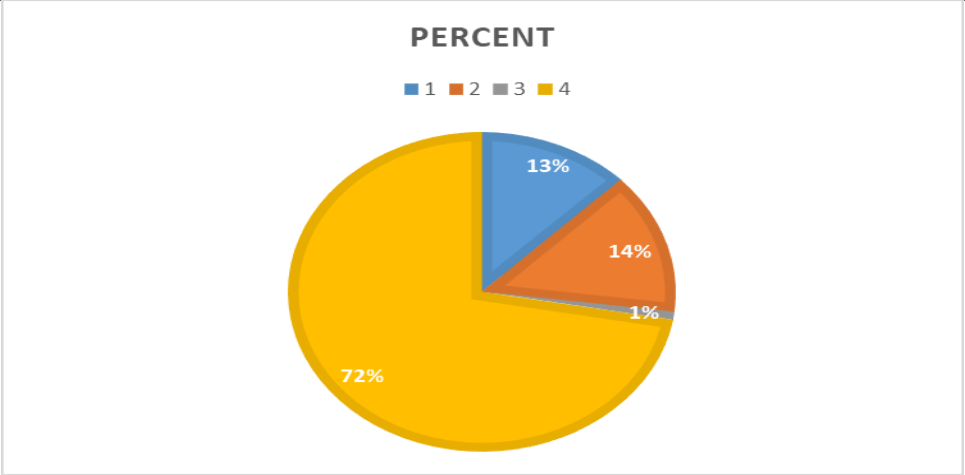
The data showed that 72.2% of participants reported difficulty with the medication schedule, while 14.3% did not, and 0.8% reported occasional issues.
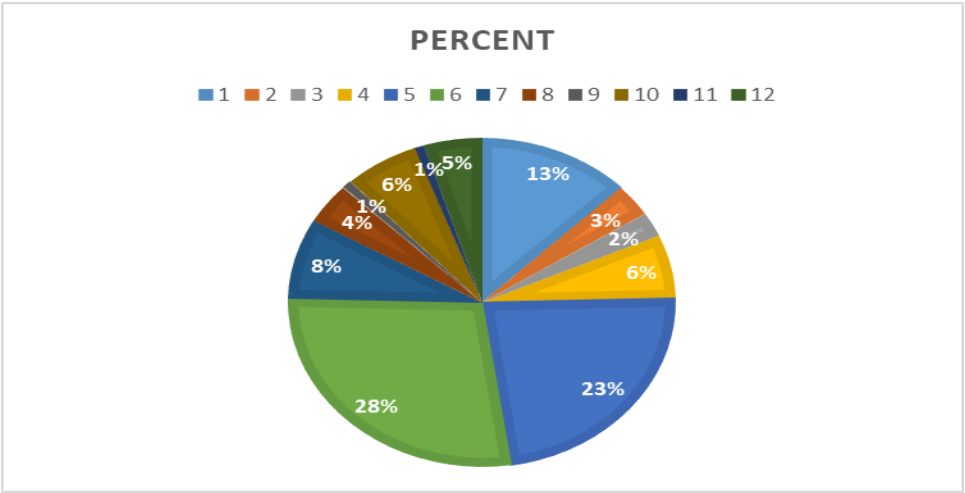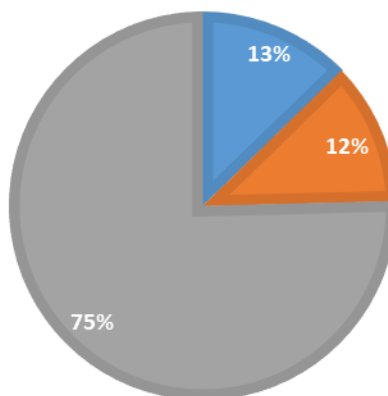


The above data analyzed that the main challenge in medication management is a lack of understanding (27.8%), followed by poor communication with healthcare providers (6.3%) and access issues (6.3%).

**Reminder about medication**

|  |  | Frequency | Percent |
|---|---|---|---|
|  |  | 16 | 12.7 |
|  | No | 15 | 11.9 |
|  | Yes | 95 | 75.4 |
|  | Total | 126 | 100 |

75.4% reported receiving medication reminders, while 11.9% did not.

**Rates for DM Management**

|  |  | Frequency | Percent |
|---|---|---|---|
|  |  | 16 | 12.7 |
|  | Excellent | 12 | 9.5 |
|  | Fair | 36 | 28.6 |
|  | Good | 21 | 16.7 |
|  | Poor | 41 | 32.5 |
|  | Total | 126 | 100 |
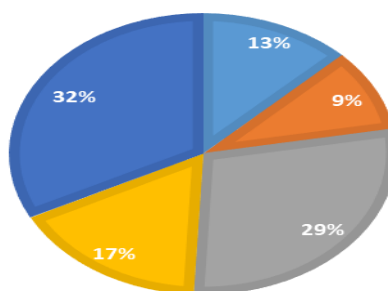


32.5% rated diabetes management as "Poor," while 28.6% rated it as "Fair" and 16.7% as "Good."

**Education improving adherence to medication**

|  |  | Frequency | Percent |
|---|---|---|---|
|  |  | 16 | 12.7 |
|  | No | 60 | 47.6 |
|  | Yes | 50 | 39.7 |
|  | Total | 126 | 100 |
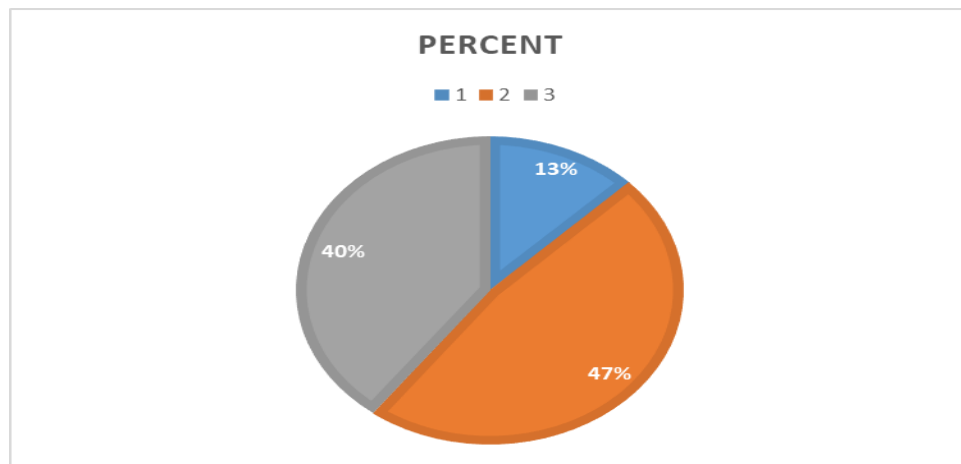
The data showed 47.6% said "No," 39.7% said "Yes," and 12.7% represented another category.

**Marital status\*Gender**

| Chi-Square Tests | | | |
|---|---|---|---|
| | Value | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 126.188[a] | 4 | 0 |
| Likelihood Ratio | 96.076 | 4 | 0 |
| N of Valid Cases | 126 | | |
| a. 3 cells (33.3%) had expected count less than 5. The minimum expected count was 1.52. | | | |
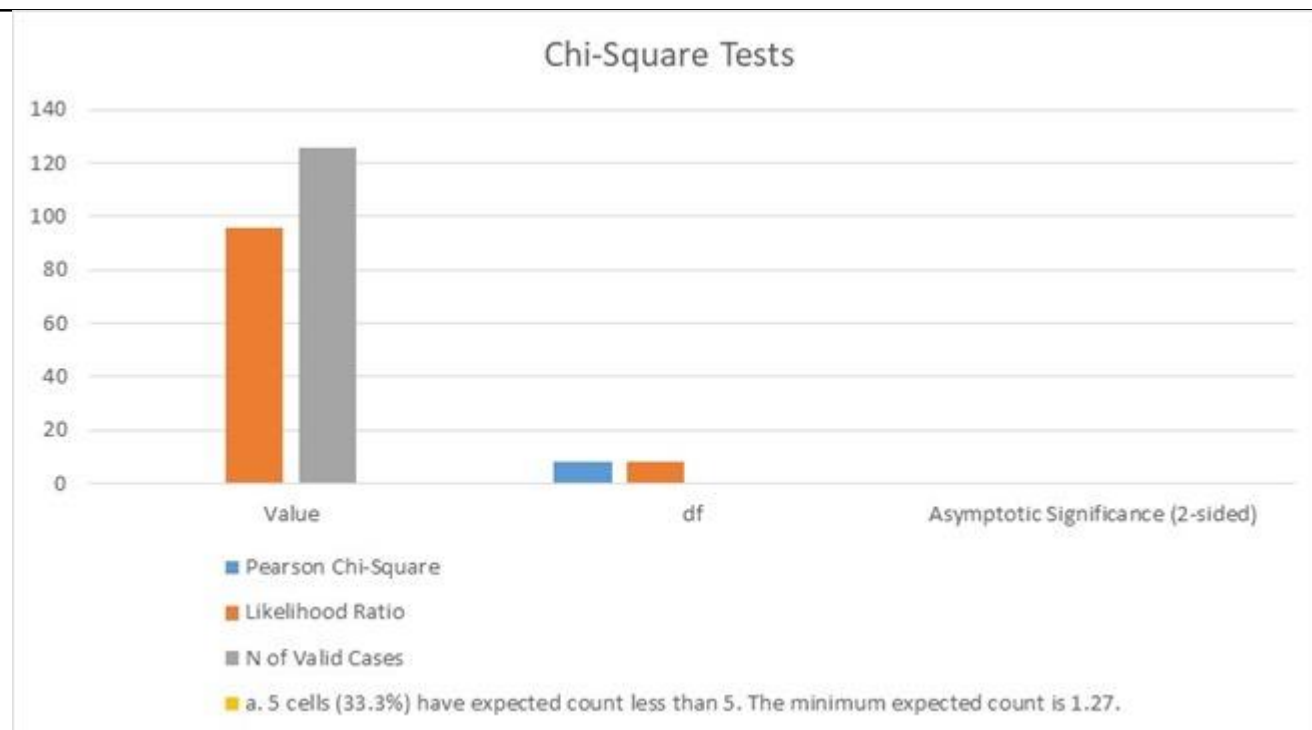
The data showed a significant association (p = 0.000), with 33.3% of cells having low expected counts, requiring cautious interpretation.

**Education level *Gender**

| | | | Gender | | Total |
|---|---|---|---|---|---|
| | | | Female | Male | |
| Education level | | 16 | 0 | 0 | 16 |
| | | 100.00% | 0.00% | 0.00% | 12.70% |
| | Higher education | 0 | 2 | 0 | 2 |
| | | 0.00% | 2.90% | 0.00% | 1.60% |
| | Higher Education | 0 | 3 | 0 | 3 |
| | | 0.00% | 4.30% | 0.00% | 2.40% |
| | No Education | 0 | 27 | 18 | 45 |
| | | 0.00% | 38.60% | 45.00% | 35.70% |
| | No formal Educatio | 0 | 24 | 11 | 35 |
| | | 0.00% | 34.30% | 27.50% | 27.80% |
| | Primary | 0 | 9 | 7 | 16 |
| | | 0.00% | 12.90% | 17.50% | 12.70% |

| | | 0 | 5 | 4 | 9 |
|---|---|---|---|---|---|
| | Secondary | 0.00% | 7.10% | 10.00% | 7.10% |
| Total | | 16 | 70 | 40 | 126 |
| | | 100.00% | 100.00% | 100.00% | 100.00% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 130.712ᵃ | 12 | 0 |
| Likelihood Ratio | 101.68 | 12 | 0 |
| N of Valid Cases | 126 | | |
| a. 11 cells (52.4%) had expected count less than 5. The minimum expected count is .25. | | | |
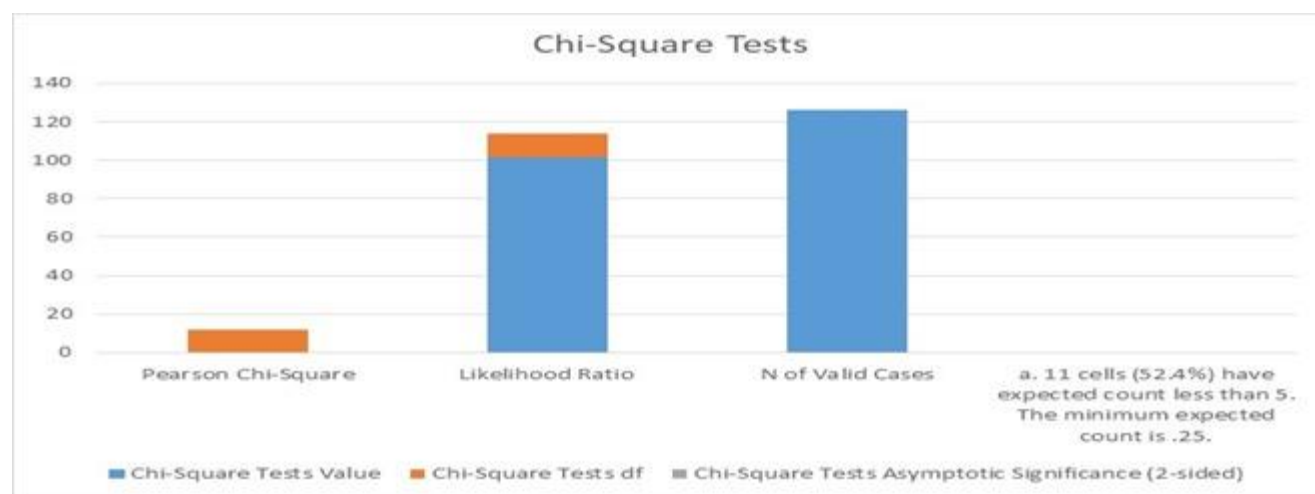


This data indicated a significant association (p = 0.000), though 52.4% of cells had low expected counts, requiring careful consideration of the results.

**Duration of diabetes*Gender**

| | | | Gender | | Total |
|---|---|---|---|---|---|
| | | | Female | Male | |
| Duration of Diabetes | | 16 | 0 | 0 | 16 |
| | | 100.00% | 0.00% | 0.00% | 12.70% |
| | 1-5 years | 0 | 36 | 20 | 56 |
| | | 0.00% | 51.40% | 50.00% | 44.40% |
| | 6-10 years | 0 | 16 | 9 | 25 |
| | | 0.00% | 22.90% | 22.50% | 19.80% |

| | | | | | |
|---|---|---|---|---|---|
| | Less than 01 year | | 0 | 6 | 4 | 10 |
| | | | 0.00% | 8.60% | 10.00% | 7.90% |
| | More than 10 years | | 0 | 12 | 7 | 19 |
| | | | 0.00% | 17.10% | 17.50% | 15.10% |
| Total | | | 16 | 70 | 40 | 126 |
| | | | 100.00% | 100.00% | 100.00% | 100.00% |

| Chi-Square Tests | | | |
|---|---|---|---|
| | Value | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 126.081[a] | 8 | 0 |
| Likelihood Ratio | 95.984 | 8 | 0 |
| N of Valid Cases | 126 | | |
| a. 5 cells (33.3%) had expected count less than 5. The minimum expected count is 1.27. | | | |
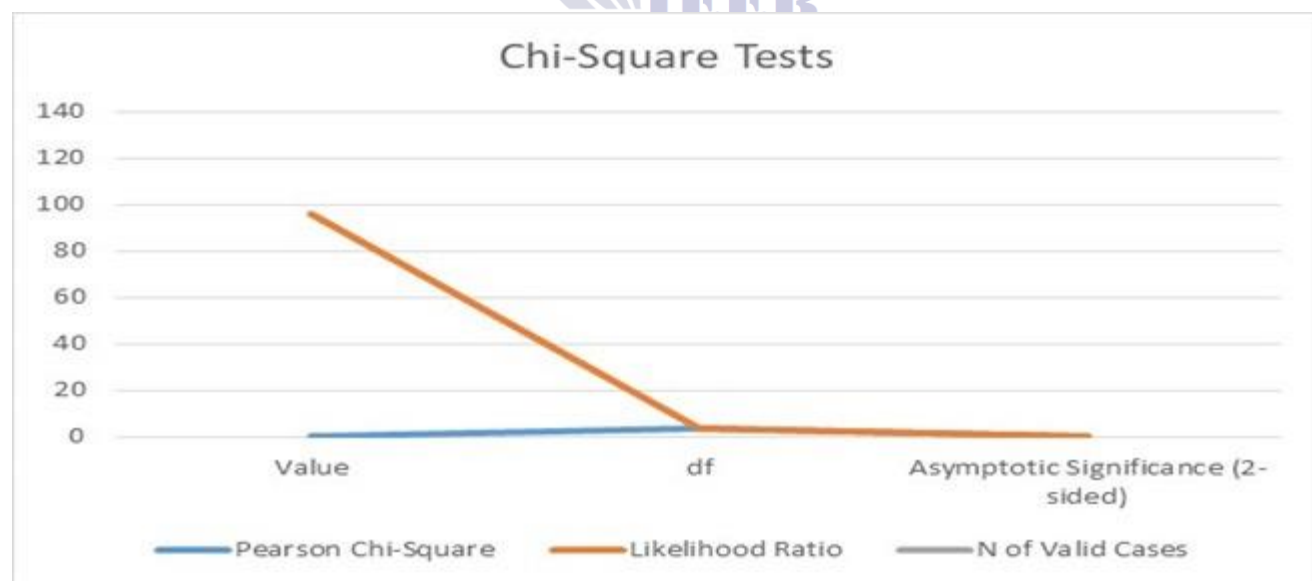


This data showed a significant association (p = 0.000), though 33.3% of cells had low expected counts, warranting cautious interpretation.

**Education improving adherence to medication * Gender**

| | | |
|---|---|---|
| | Gender | Total |

|  |  |  | Female | Male |  |
|---|---|---|---|---|---|
| Education improving adherence to medication | | | 16 | 0 | 0 | 16 |
|  |  |  | 100.00% | 0.00% | 0.00% | 12.70% |
|  | No |  | 0 | 39 | 21 | 60 |
|  |  |  | 0.00% | 55.70% | 52.50% | 47.60% |
|  | Yes |  | 0 | 31 | 19 | 50 |
|  |  |  | 0.00% | 44.30% | 47.50% | 39.70% |
| Total | | | 16 | 70 | 40 | 126 |
|  |  |  | 100.00% | 100.00% | 100.00% | 100.00% |

| Chi-Square Tests | | | |
|---|---|---|---|
|  | Value | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 126.122[a] | 4 | 0 |
| Likelihood Ratio | 96.021 | 4 | 0 |
| N of Valid Cases | 126 |  |  |
| a. 1 cells (11.1%) had expected count less than 5. The minimum expected count is 2.03. | | | |



Chi-Square Tests Value

- Pearson Chi-Square
- Likelihood Ratio
- N of Valid Cases
- a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.03.
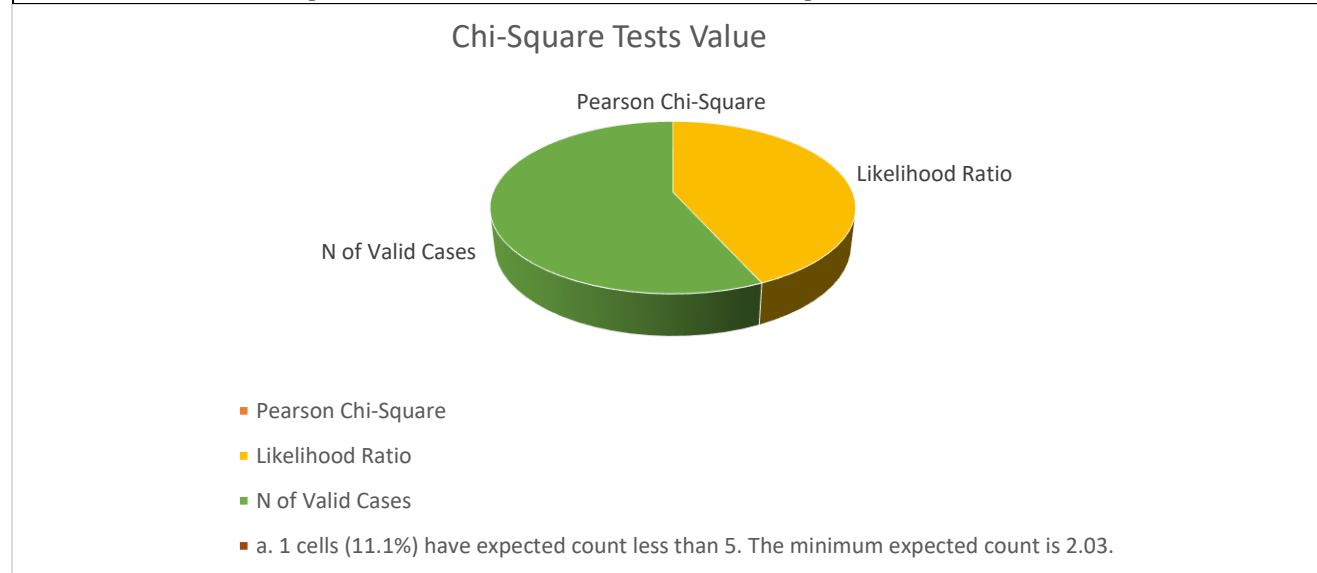
This data showed a significant association between the variables (p = 0.000), highlighting a strong relationship. However, the presence of 11.1% of cells with expected counts less than 5 suggests potential limitations in the dataset that could influence the test's reliability.

**Discussion and Variables**

The adherence to medication is a critical issue in managing chronic diseases like diabetes, and various factors can influence diabetic patients' medication adherence. According to the data presented, belief that the medication is not working was a minor but important reason for skipping medication, cited by 0.8% of patients. This perception of ineffectiveness can significantly impact adherence, as patients may

stop taking their prescribed medication when they do not perceive immediate benefits (Chowdhury et al., 2020)(4). It underscores the importance of proper patient education regarding the long-term benefits of diabetes management to maintain consistent adherence (Sadeghi et al., 2020).(5)

Another significant barrier identified is cost of medication, with 8.7% of patients reporting that they skipped their medication due to high costs. Financial barriers to accessing medications are well-documented in diabetes care (Glynn et al., 2019), particularly in low- and middle-income settings where medication costs are often prohibitive. This can be addressed through strategies such as subsidized drug programs or financial assistance to reduce the burden on patients, which has been shown to improve adherence rates in similar populations (Fisher et al., 2016).(6)

A common challenge to adherence, as identified by 35.7% and 24.6% of patients, was forgetfulness. Forgetting to take medications is one of the most frequently reported issues in medication adherence studies (Aikens et al., 2014)(7). It highlights the need for interventions like reminder systems, whether through digital means (e.g., smartphone apps) or traditional methods such as pillboxes or community health workers, which have been found to improve medication adherence (Bender et al., 2019).(8)

Medication side effects were another reported barrier, with 4.0% of participants mentioning this as a reason for skipping medication. This is consistent with the findings of studies that have shown adverse effects from diabetes medications to be a major cause of non-adherence (Mills et al., 2018).(9) Effective communication between healthcare providers and patients about potential side effects, as well as offering alternative medications with fewer side effects, can help mitigate this issue (Chowdhury et al., 2020).(4)

Some patients (0.8%) skipped medications because they did not feel unwell. This is common in chronic conditions like diabetes, where symptoms are often absent or subtle, leading patients to underestimate the importance of regular medication (Gupta et al., 2019). Educating patients about the asymptomatic nature of diabetes and the potential long-term complications of uncontrolled blood sugar levels could reduce this misconception and improve adherence (Sadeghi et al., 2020).(5)

Finally, factors such as poverty and poor communication with healthcare providers were cited as reasons for non-adherence. These findings align with research that indicates social determinants of health—such as low socioeconomic status and inadequate healthcare communication—can significantly impact medication adherence (Mills et al., 2018)(9). Improving access to care and enhancing the quality of communication between patients and providers are essential steps toward overcoming these barriers (Bender et al., 2019).(8)

Where to Study the Assessment of Drug Adherence in Diabetic Patients

To address the factors influencing medication adherence in diabetic patients, conducting a study at Lady Reading Hospital (LRH) in Peshawar, Pakistan, would provide valuable insights. Studies on medication adherence in diabetic patients in resource-constrained environments like LRH can provide a better understanding of the unique barriers faced by this population. Given the high prevalence of diabetes in Pakistan and the socioeconomic challenges faced by many patients, this setting is ideal for assessing the relationship between financial constraints, education, healthcare access, and adherence (Sadeghi et al., 2020).(5) Previous research has shown that addressing financial barriers, improving patient education, and increasing accessibility to medications can significantly improve adherence rates in similar settings (Chowdhury et al., 2020).(4)

By focusing on a local hospital like LRH, the study could also highlight the role of healthcare provider communication, social support systems (such as family reminders), and local health interventions that could improve adherence. Additionally, focusing on this particular demographic could help tailor interventions to the specific needs of the population served by LRH, which could then be applied to other regions facing similar challenge

**Conclusion**

Medication adherence is a cornerstone of effective diabetes management. This study highlights a range of factors contributing to non-adherence among diabetic patients, including forgetfulness, medication costs, side effects, and lack of understanding. These challenges, coupled with social determinants like poverty and poor healthcare communication,

demonstrate the complexity of ensuring consistent adherence. The findings underscore the importance of addressing these multifaceted barriers to improve health outcomes for diabetic patients. Specifically, at institutions like Lady Reading Hospital (LRH), there is a need for targeted interventions that cater to the specific socioeconomic and educational profiles of the population it serves.

## Recommendations

1. Education Programs: Implement comprehensive education programs at LRH to enhance patients' understanding of diabetes and the importance of adherence. Workshops and counseling sessions can address misconceptions about medication efficacy and the risks of non-adherence.
2. Financial Support: Introduce or strengthen subsidized medication programs to alleviate cost-related barriers. Collaborating with governmental and non-governmental organizations can help make medications more affordable.
3. Reminder Systems: Establish effective reminder systems, including mobile apps, text messages, or low-tech solutions like family-based reminders, to tackle forgetfulness among patients.
4. Patient-Provider Communication: Train healthcare providers in effective communication strategies to foster trust, address patient concerns, and provide clear guidance on managing side effects or complex dosing schedules.
5. Community Support Systems: Engage family members and caregivers in diabetes management plans, as family support has shown to be a significant aid in ensuring adherence.
6. Research Expansion: Conduct further studies to explore additional barriers to adherence, particularly in diverse socioeconomic and cultural settings, and evaluate the effectiveness of interventions tailored to the population of LRH.
7. Monitoring and Feedback: Establish regular follow-ups to monitor adherence levels and provide feedback. Continuous assessment ensures that any barriers are promptly addressed, and patients remain motivated in their treatment journey.

By addressing these recommendations, Lady Reading Hospital and similar institutions can significantly improve medication adherence among diabetic patients, leading to better disease management and overall health outcomes.

## Implications

The findings have important implications for healthcare providers, policymakers, and patients. They emphasize the need for a patient-centered approach in diabetes care, where education, communication, and support systems play pivotal roles. Healthcare providers must focus on educating patients about the importance of adherence and the potential risks of skipping medications, even when symptoms are not apparent. Policymakers should consider subsidizing diabetes medications and promoting financial assistance programs to mitigate the economic barriers to adherence. Furthermore, the use of technological aids, such as digital reminders, can help address forgetfulness, the most frequently cited reason for skipping medications.

## STRENGHTS

**Clear Objective:** The study's goal was to evaluate the degree of medication adherence among diabetic patients at Lady Reading Hospital. By revealing important adherence trends, the study was able to directly guide initiatives for improved diabetes care.

**Descriptive Study Design:** To provide a clear picture of the adherence patterns among diabetes patients, a descriptive cross-sectional design is helpful in taking a momentary picture of the present status of medication adherence at a particular moment in time.

**Large Sample Size:** With 110 patients in the sample, the study provides a sizable data set that improves the validity and reliability of the results and permits greater generalizability within the hospital setting.

**Diverse Data Collection Methods:** A thorough assessment of drug adherence was made possible by the use of the Morisky Medication Adherence Scale (MMAS-8) and patient interviews. Both quantitative and qualitative data were collected, which aided in pinpointing particular causes of non-adherence.

**Timeliness and Relevance:** In the current healthcare environment, the findings are extremely pertinent, particularly in a setting with limited resources like

Peshawar, where knowledge of adherence hurdles can guide patient care plans and healthcare policies.

## Weaknesses

**Cross-Sectional Design Limitations:** Because this study is cross-sectional, it only collects data at one particular moment in time, making it difficult to make inferences regarding the causal linkages between patient variables and medication adherence. Long-term adherence trends might not be reflected in the results.

**Single Hospital Focus:** Because the study was limited to Lady Reading Hospital, its external validity may be compromised. The findings might not apply to other institutions in other areas with different patient populations or medical environments.

**Lack of Longitudinal Analysis:** The study was unable to monitor adherence changes or the effects of therapies over time since it did not follow patients over time. This would have allowed for important insights into how adherence habits change over time.

## Limitations

**Cross-Sectional Design Limitations:** The study's cross-sectional design limits the capacity to track changes in medication adherence over time by only collecting data at one point in time. characteristics (such as socioeconomic or demographic characteristics) and adherence are not causally related in this strategy. Because of this, the study is unable to ascertain if adherence varies over time or as a result of interventions.

**Sampling Bias:** Convenience sampling was employed in the study, which might not accurately reflect all of the diabetic patients at Lady Reading Hospital. The findings may not be applicable to all diabetic patients in the hospital or the surrounding area since the patients who were available or willing to participate may have different essential features from those who were excluded from the study.

**Self-Reported Data:** Drug adherence was assessed using self-reported adherence. Due to social desirability bias, which is the desire to appear compliant, patients may over report their adherence or underreport their non-adherence, which can introduce bias. Adherence rates may be overestimated as a result.

**Absence of Longitudinal Data:** The trial did not monitor patients for an extended length of time to monitor adherence behavior changes or evaluate the long-term impacts of therapies. It is challenging to track the evolution of adherence patterns and the effects of continuous interventions on adherence rates in the absence of a longitudinal approach.

**Restricted Elements Examined:** Although the study concentrated on cost and forgetfulness as adherence barriers, it did not look at other potential such as psychological issues (e.g., depression), social determinants of health, or cultural influences.

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