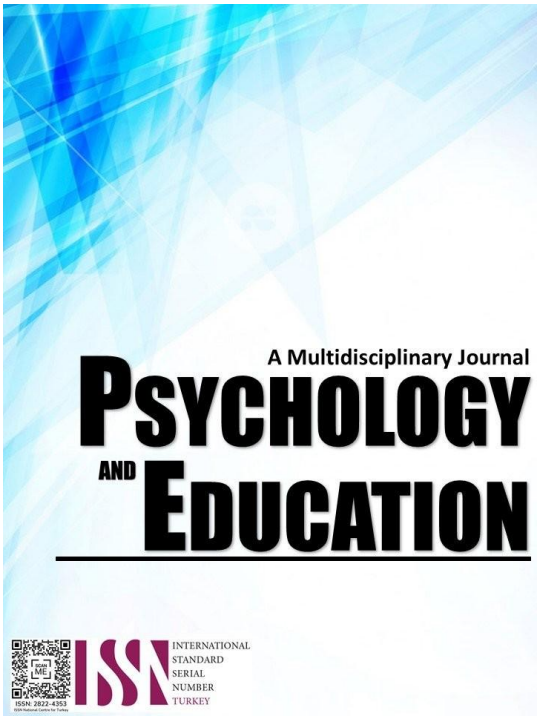
KNOWLEDGE, ATTITUDES, AND COMPLIANCE TO HYPERTENSION AND DIABETES MELLITUS MEDICATIONS AMONG CLIENTS



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Research Article

Knowledge, Attitudes, and Compliance to Hypertension and Diabetes Mellitus Medications among Clients

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Abstract

Hypertension and diabetes are common risk factors for cardiovascular and cerebrovascular disease. Adherence is a primary determinant of the effectiveness of treatment because poor adherence reduces optimum clinical benefit and paves the way for complications. In the province of Camiguin, the prevalence of diabetes mellitus and hypertension has increased, as reported in the 2022 Lifestyle-Related Diseases Registry. This study aimed to investigate the knowledge, attitudes, and medication compliance of clients registered in the Lifestyle-Related Diseases Registry for hypertension and diabetes mellitus in 2022. A descriptive study using a set of reliability-tested questionnaires was utilized in gathering the relevant data from 372 participants. The statistical tools used are mean, standard deviation, Pearson Correlation Coefficients, and multiple regression. The results reveal that the majority of participants have a strong understanding of their disease conditions and the purpose of their medications. Also, the study finds that the respondents have a generally very positive attitude towards health and medication. Aside from that, there is evident high compliance with the preventive measures and medication adherence. Moreover, there are significant relationships between compliance, health condition, the purpose of medication, attitude towards health, and medication. The most critical factor affecting compliance is the Purpose of Medication.

Keywords: *hypertension, diabetes mellitus, knowledge, attitude, compliance*

Introduction

Hypertension and diabetes are major contributing risk factors for both cardiovascular and cerebrovascular diseases. Adherence is a primary determinant of the effectiveness of treatment because poor adherence reduces optimum clinical benefit and paves the way for complications.

In the province of Camiguin, cases of diabetes mellitus and hypertension have been on the rise. According to the 2022 Lifestyle Related Diseases Registry, a total of 6,342 individuals were diagnosed with hypertension, while 951 were diagnosed with diabetes mellitus. These conditions remain among the leading health concerns in the province, with hypertension ranking third in morbidity and diabetes mellitus ranking seventh in mortality. (PHO LRD Registry 2022)

This prompted the researcher to investigate the knowledge, attitudes, and medication compliance related to hypertension and diabetes mellitus among individuals aged 40 to 50 in the province of Camiguin.

Non-communicable diseases (NCDs) are chronic, life-long disorders resulting from environmental, genetic, behavioral, and physiological factors. Globally, NCDs claim the lives of 41 million people annually, with 77% occurring in low and middle-income countries (LMICs). Hence, they are predicted to overtake infectious diseases as the leading cause of premature mortality and morbidity by 2030. Hypertension (HT) and diabetes mellitus (DM) rank among the most widespread non-communicable diseases (NCDs) worldwide and are key risk factors for severe health conditions such as stroke and kidney disease. Often labeled as 'silent killers,' these conditions can cause significant harm even in the absence of noticeable symptoms. The World Health Organization (WHO) estimates that approximately 1.28 billion adults aged 30 to 79 are living with hypertension globally, with two-thirds residing in low- and middle-income countries (LMICs). Meanwhile, the International Diabetes Federation (IDF) reported that in 2021, 537 million adults—or 1 in 10 individuals aged 20 to 79—were diagnosed with diabetes, with over three-quarters of these cases occurring in LMICs.

According to the Joint National Committee on Prevention, Recognition, Evaluation, and Treatment of High Blood Pressure (JNC-8), hypertension affects 1 billion people worldwide. The risk of developing high blood pressure increases, commonly among individuals aged 55 and above. Hypertension is one of the most common conditions, with approximately 457,000 medical consultations each year. It is also a key contributing factor to life-threatening conditions such as myocardial infarction and stroke.

Diabetes mellitus (DM) is a long-term metabolic condition that is closely linked to increased morbidity and mortality rates. The number of individuals affected by diabetes continues to rise globally, with approximately 138 million people currently living with the disease. This growing prevalence has led to diabetes being considered a global pandemic. In many Asian countries, the sharp increase in diabetes cases is primarily attributed to lifestyle changes, rapid urbanization, and insufficient awareness and management practices, both among patients and the general public. Moreover, there is a significant gap between patients' knowledge of the disease and their attitudes toward its management. Improving learning, cultivating positive attitudes, and encouraging proper diabetes management practices are essential steps in reducing the burden and complications of DM.

According to the 2020 Philippine Health Statistics from the Department of Health, diabetes mellitus and hypertension remained among the leading causes of mortality in the Philippines. Diabetes ranked fourth, accounting for 39,884 deaths, or 36.7 per 100,000 population,

while hypertension ranked sixth with 31,727 deaths, or 29.2 per 100,000 population. (DOH 2020)

World Health Organization key facts state that the prevalence of Diabetes and Hypertension has been rising more rapidly in low and middle-income countries than in high-income crisis. (https://www.who.int/news-room/fact-sheets/detail/diabetes)

Diabetes is a long-term health condition that affects the body's ability to convert food into energy. Typically, the body breaks down most food into glucose (sugar), which enters the bloodstream. In response, the pancreas releases insulin, a hormone that helps move glucose into cells to be used as energy. In people with diabetes, either the body doesn't produce enough insulin or it can't effectively use the insulin it does produce. As a result, excess glucose remains in the bloodstream, leading to elevated blood sugar levels.

It refers to a metabolic condition marked by elevated blood sugar levels, defined as a fasting blood glucose level more than 126 mg/dL or a postprandial (two hours after a meal) plasma glucose level exceeding 200 mg/dL.

Hypertension, commonly known as high blood pressure, is defined as a consistent blood pressure reading of 140/90 mmHg or higher. It occurs when the pressure in the blood vessels remains persistently elevated. Blood circulates from the heart to the rest of the body through a network of blood vessels, with each heartbeat propelling it forward. Blood pressure refers to the force of the blood pushing against the walls of the arteries. When this pressure rises too high, the heart must work harder to pump blood efficiently. Hypertension, or high blood pressure, is a serious medical condition that significantly elevates the risk of heart disease, stroke, kidney problems, and other health complications. It ranks among the primary causes of premature death globally, impacting over one billion people, more than one in four men and one in five women worldwide. The impact of hypertension is severe especially in low- and middle-income countries, which account for about two-thirds of all cases, primarily due to growing exposure to risk factors in recent years.

Blood pressure is recorded in millimeters of mercury (mmHg) and expressed as systolic and diastolic pressure. According to the American Heart Association, normal blood pressure ranges between 90/60 mmHg and 120/80 mmHg. (https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure)

Research Questions

This study evaluated the knowledge, attitudes, and medication compliance related to hypertension and diabetes mellitus among individuals in the province of Camiguin aged 40 to 50. Specifically, it aimed to answer the following questions:

1. What is the participants' level of knowledge in terms of:
    1.1. disease conditions on hypertension and diabetes mellitus; and
    1.2. purpose of their medications?
2. What is the level of participants attitude towards:
    2.1. health; and
    2.2. medications?
3. What is the level of compliance of the patients according to:
    3.1. preventive measures;
    3.2. medication adherence;
    3.3. follow-up checkup; and
    3.4. blood pressure and blood sugar monitoring?
4. Is there a significant relationship between patients' level of compliance and their level of knowledge and attitude toward health and medication?
5. Which of the variables singly or in combination best predicts the level of compliance among the patients?

Methodology

Research Design

This study employed both descriptive correlation and causal research designs. The descriptive research was used to determine the significant relationship between the treatment compliance for hypertension and diabetes mellitus among individuals aged 40-50 years old in terms of preventive measures, medication adherence, follow-up checkups, BP monitoring, and blood sugar monitoring of the participants.

According to Mccombes (2019), descriptive research is an appropriate choice when the research aims to describe a population, situation, or phenomenon accurately and systematically. It can answer what, when, where, and how questions, but not why questions. A descriptive research design can use various quantitative and qualitative methods to investigate one or more variables.

Causal research is classified as conclusive since it attempts to build a cause-and-effect link between two variables. This research is primarily aimed at determining the cause of behavior. We can use this research to determine what changes occur in an independent variable due to a change in the dependent variable.

The causal research aimed to identify the significant relationship between knowledge and attitudes regarding the disease condition, the purpose of medication, and overall health.

Respondents

According to Noor et al. (2022), Simple random sampling is a widely utilized method in quantitative studies with survey instruments. It is asserted that simple random sampling is favorable in homogeneous and uniformly selected populations. In this selection method, all the individuals have an equal opportunity to participate in the study, where the selection process is based on luck. Simple random sampling has both benefits and drawbacks. It ensures unbiased, representative, and equal probability of the population; conversely, it can be cumbersome, rarely supported with readily available lists of the population, and challenging when the population is heterogeneous and widely dispersed.

Simple Random sampling, using the raosoft.com calculator, was used by the investigator. Random patients enrolled in the Lifestyle Related Diseases Registry in the calendar year 2022, aged 40 to 50 years old, reached 372 participants. Table 1 below shows the distribution of Hypertensive and Diabetes Mellitus patients per municipality.

Distribution of participants per municipality:

Table 1. *Distribution of Participants*

Municipality	*No. of participants*
Catarman	90
Guinsiliban	50
Mambajao	105
Mahinog	67
Sagay	60
Total	372

These respondents are monitored monthly by their respective Rural Health Units for their blood sugar and blood pressure before they can receive their free monthly maintenance medications.

Instrument

The instrument consists of three parts. The first part of the questionnaire aimed to determine socio-demographic variables, including age, gender, highest educational attainment, occupation, marital status, and family income, which provided additional information about the patients but were not part of the variables. Part II focused on participants' knowledge of Hypertension and Diabetes Mellitus, while Part III aimed to assess their attitudes towards health. The last part consisted of structured questions to measure the participant's level of compliance with their medications.

The variable attitude towards health was consists of 10 items that aim to determine the participant's perspective and disposition about their health. It consists of two variables with five items each.

The knowledge variable on Hypertension and Diabetes Mellitus is assessed using a 10-item questionnaire designed to evaluate participants' level of knowledge. It includes two subscales, each containing five items. Participants rated each statement using a 5-point Likert scale, where five represents "strongly agree," followed by "agree," "undecided," "disagree," and one as "strongly disagree." The scoring was based on the following scale:

In this section, participants will assess their attitudes toward health using a 5-point Likert-type scale, where one indicates "strongly disagree," 2 "disagree," 3 "moderately agree," 4 "agree, and 5 "strongly agree."

The third part of the questionnaire has structured questions to determine the participant's level of compliance. It consists of four variables, each with three items.

Procedure

After a thorough evaluation and review of the research manuscript, the investigator will seek approval from the adviser. Once approved, the investigator will request authorization from the Dean of Nursing Post-Graduate Studies to schedule the defense of the research proposal.

The investigator completed the Research Ethics Application form from the university ethical board in compliance with the ethical standards and wrote letters and secured permission from the heads of office, as well as the community health center, to allow her to conduct the study, and secured the respondent's consent to participate voluntarily in the study. Proper protocol was observed when gathering the data. The investigator followed the university research protocol. A letter of permission was sent to the five Municipal Mayors of the five municipalities of the province, asking permission to conduct a study among the registered Diabetes Mellitus and Hypertensive clients ages 40-50 in their municipalities. After asking permission, data collection will begin. The data collection was done from February to March 2025.

During the data collection, the investigator explained the letter of consent and questionnaire to the participants in the local dialect. The investigator explained the purpose of the study, which aims to investigate the attitudes, knowledge, and compliance with Hypertension and Diabetes Mellitus among individuals aged 40-50 in Camiguin. The investigator also explained the participant selection criteria,

which included being enrolled in the Lifestyle Related Diseases Registry in 2022 and being aged 40 to 50 years old. The participants were informed that their participation is voluntary and non-monetary and that they can withdraw anytime. The participants were also informed that there were no risks associated with participating in the study. If the participant agreed to participate, the questionnaire was explained, and they were given 10 minutes to complete it. For confidentiality purposes, the participants must not write their names on the questionnaire. The participants were assured that all information provided was kept private and was used only for the study. After gathering all the data from the participants, the data were tallied, tabulated, and analyzed.

Data Analysis

The analysis was done using Windows SPSS. The data were entered in the Windows SPSS database to ensure the quality of all the data entered and for quality control in the data entry process. The data were assessed for completeness, consistency, and missing values. Cronbach's alpha will be used to evaluate the internal consistency of the study instrument, with the level of significance set at alpha =.05.

To address research problems 1, 2, and 3, descriptive statistics—including mean and standard deviation—were employed to illustrate the participants' levels of knowledge, attitudes, and compliance related to Hypertension and Diabetes Mellitus medication. According to Laerd Statistics (2019), descriptive statistics are data analyses that assist in explaining, showing, or summarizing data intelligibly so that patterns, for example, can arise in the data. Descriptive statistics are crucial and help to visualize what the data is indicating, especially when there is a large amount of data. Hence, descriptive statistics allow the investigator to display the data in a more understandable and meaningful way, making it easier to analyze the data.

For research problem number 4, the Pearson product-moment correlation coefficient was utilized to determine the significance of the relationship between participants' level of compliance and their levels of knowledge and attitude toward health and medication. The test statistic that evaluates the statistical link, or connection, between two continuous variables is Pearson's correlation coefficient, according to Leard statistics (2019). Because it is based on the concept of covariance, it is regarded as the best method for determining the relationship between variables of interest. It provides details on the size of the association or correlation as well as the relationship's angle.

In Problem 5, the investigator utilized multiple regression to establish further the variable that best predicts the dependent variable. Multiple regression is a statistical technique to understand the relationship between one dependent variable and two or more independent variables. It helps you determine how much each independent variable contributes to the outcome and how they interact to explain or predict the dependent variable.

Results and Discussion

This section provides an analysis and interpretation of the data, emphasizing the knowledge, attitudes, and medication compliance of patients diagnosed with diabetes and hypertension. Thus, this explains the relations and associations of the stated variables in the study. Also, this chapter serves as the springboard towards deriving summaries and conclusions that could lead to the creation of possible recommendations.

Problem 1. What is the participants' level of knowledge in terms of disease condition on Hypertension and Diabetes Mellitus, and the purpose of their medications?

To provide insight into the participants' knowledge regarding the disease conditions of Hypertension and Diabetes Mellitus, as well as the purpose of their medications, Table 2 is presented below.

Table 2. *Level of knowledge among patients with disease conditions*

Indicators	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1. Hypertension is the elevation of the blood pressure of 140/90 or more than (*ang usa ka tawo nga adunay highblood pressure nga 140/90 pataas*)	4.56	0.528	Strongly agree	Very high knowledge
2. Common risk factors of hypertension include age, physical activity, family history, and unhealthy diet (*Ang kumon nga gahatag ug risgo sa sakit nga highblood kay edad, kalihukan sa panglawas, kaliwat sa pamilya ug pagkaon sa mga dili healthy nga pagkaon)*	4.55	0.514	Strongly agree	Very high knowledge
3. Potential complications of uncontrolled hypertension are stroke, heart attack, and kidney damage (*ang mga komplikasyon sa dili matambalan nga highblood pressure kay Stroke, heart attack ug pagka damage sa kidney)*	4.52	0.516	Strongly agree	Very high knowledge
4. Diabetes is a condition characterized by high blood sugar levels (*ang Diabetes kay ang pagtaas sa sugar level sa atong dugo*)	4.63	0.522	Strongly agree	Very high knowledge
5. The common risk factors of diabetes include family history,				

obesity, and unhealthy diet (*Ang kumon nga gahatag ug risgo sa sakit nga Diabetes kay kaliwat sa pamilya, hilabihan ka tambok ug pagkaon sa mga dili healthy nga pagkaon)*	4.58	0.536	Strongly agree	Very high knowledge
Overall	4.56	0.442	Strongly agree	Very high knowledge

Legend: Scale 5 (4.51–5.00) – Strongly Agree; Very High Knowledge; Scale 4 (3.51–4.50) – Agree; Highly Knowledgeable; Scale 3 (2.51–3.50) – Undecided; Moderately High Knowledgeable; Scale 2 (1.51–2.50) – Disagree; Low Knowledge; Scale 1 (1.00–1.50) – Strongly Disagree; Very Low Knowledge.

Table 2, Level of Knowledge among the Participants in Terms of Disease Condition on Hypertension and Diabetes Mellitus, highlights five statements. Additionally, the fourth statement had a mean of 4.63 with a standard deviation of 0.522, which showed the highest obtained mean. This indicates that most participants were highly knowledgeable about diabetes mellitus. Furthermore, the third statement had the lowest mean of 4.52 with a standard deviation of 0.516, suggesting that most of the participants were not fully aware of the potential complications of uncontrolled hypertension, including stroke, heart attack, and kidney damage.

Moreover, the overall mean obtained a value of 4.56 with a standard deviation of 0.442. With that, these results suggested that the respondents generally rated their condition-related measures highly, with relatively low variability, indicating positive perceptions of their overall condition among the sample group. Thus, considering the results, this showed congruence with the study of Roddis, Holloway, Bond, and Galvin (2019), healthcare professionals may wish to talk through patients' understanding of their condition at the point of diagnosis, to identify and correct misunderstandings and provide information that patients are unaware of. They could also utilize the opportunities provided at medication and other review touchpoints to assess patients' knowledge and understanding.

Furthermore, Table 3 below highlights the Level of Knowledge among participants regarding the Purpose of their Medications.

Table 3. *Level of Knowledge among the Participants in Terms of Purpose of their Medications*

Indicators	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1. The primary purpose of hypertension medication is to lower blood pressure. (*Ang purpose sa mga tambal sa highblood kay para mo ubos-ubos ang BP*)	4.62	0.502	Strongly agree	Very high knowledge
2. The overall goal of diabetes medication is to help manage blood sugar level and prevent complication associated with diabetes (*Ang pinaka tuyo sa tambal sa Diabetes kay para ma mentinar ang normal nga level sa sugar sa dugo ug para malikayan ang mga komplikasyon sa diabetes*)	4.56	0.539	Strongly agree	Very high knowledge
3. It is important to work closely with health care provider to develop a personalized treatment plan. (*importante ang pag cooperar sa atong doctor para sa kaayuhan sa pagpanambal*)	4.47	0.556	Agree	Highly knowledgeable
4. Adherence to medication in managing hypertension and diabetes is very important (*importante ang pagsunod sa tambal nga gi resita sa doctor para ma manage ang highblood pressure ug diabetes*)	4.56	0.529	Strongly agree	Very high knowledge
5. Aside from medication, lifestyle modification is also important in managing hypertension and diabetes (*except sa mga tambal nga gipang inom, importante usab ang pag usab sa atong lifestyle para ma manage ang highblood pressure ug diabetes*)	4.58	.515	Strongly agree	Very high knowledge
OVERALL	4.55	.457	Strongly agree	Very high knowledge

Legend: Scale 5 (4.51–5.00) – Strongly Agree; Very High Knowledge; Scale 4 (3.51–4.50) – Agree; Highly Knowledgeable; Scale 3 (2.51–3.50) – Undecided; Moderately High Knowledgeable; Scale 2 (1.51–2.50) – Disagree; Low Knowledge; Scale 1 (1.00–1.50) – Strongly Disagree; Very Low Knowledge.

Table 3 presents five statements assessing the participants' knowledge regarding the purpose of their medications. The first statement recorded the highest mean score of 4.62 (SD = 0.502), suggesting that most participants were well aware that the primary purpose of hypertension medication is to lower blood pressure. In contrast, the third statement had the lowest mean score of 4.47 (SD = 0.556), indicating that many participants were less aware of the importance of collaborating with a healthcare provider to create a personalized treatment plan.

Moving further, the overall mean was 4.55 with a standard deviation of 0.457. Considering this, the results indicate that respondents rated the purpose of their medications highly, with low variability. Thus, this also indicated a good grasp of their medication purposes among the respondents. Also, this showed coherence to the study of Roy, Tayal, and Kansal (2020), that one of the significant principles of rational use of medicines (RUM) is to adequately inform the patients about their medication(s) as well as the diagnosis and make the patients share the responsibility of the therapy. The patient's involvement in understanding the prescribed treatment is of utmost importance for effective health outcomes.

In summary, the level of knowledge among participants regarding hypertension and diabetes mellitus, as well as the purpose of their medications, is very high.

Problem 2. What is the participants attitude toward health and medication use?

To begin, the analysis below presents the patient's attitudes toward health, specifically concerning health and medication use. Table 4 illustrates these findings.

Table 4. *The level of attitude among patient towards health in terms of health*

	Indicators	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1.	I believe in taking proactive steps to maintain my health *(nagtoo ko nga kung aktibo ko permi, healthy ko)*	4.66	0.503	Strongly Agree	Very High Positive Attitude
2.	I feel confident in my ability to manage my health and well-being. (*kampanti ko sa akong abilidad nga magdumala para sa akong kaayuhan sa panglawas*)	4.47	0.579	Agree	High Positive Attitude
3.	I feel optimistic about my ability to cope with my diabetes/hypertension (*positibo ko sa akong abilidad nga mosagubang sa akong highblood or diabetes*)	4.45	0.578	Agree	High Positive Attitude
4.	I believe that my lifestyle choices significantly impact my health outcomes (*nagtoo ko nga daku kaayo ug impact ang akong lifestyle sa akong panglawas*)	4.55	0.540	Strongly Agree	Very High Positive Attitude
5.	I believe that understanding my health condition empowers me to make informed decisions *(nagtoo ko nga ang pagsabot sa akong sakit mkahatag ug sakto nga desisyon*)	4.47	0.536	Agree	High Positive Attitude
	Overall Mean	4.51	0.430	Strongly Agree	Very High Positive Attitude

Legend: Scale 5 (4.51–5.00) – Strongly Agree; Very High Positive Attitude; Scale 4 (3.51–4.50) – Agree; High Positive Attitude; Scale 3 (2.51–3.50) – Undecided; Moderately High Positive Attitude; Scale 2 (1.51–2.50) – Disagree; Low Negative Attitude; Scale 1 (1.00–1.50) – Strongly Disagree; Very Low Negative Attitude.

In Table 4, the patient's attitude towards health is highlighted through five key health-related statements. Furthermore, the first statement had a mean of 4.66 with a standard deviation of 0.503 that indicated consistent high responses regarding taking proactive steps to maintain their health.

Furthermore, the third statement showed a mean of 4.45 with a standard deviation of 0.578. Also, this was the lowest obtained mean which means participants are less likely optimistic about the ability to cope with their diabetes/hypertension. In a concluded perspective, the Overall Mean had a value of 4.51 and a standard deviation of 0.430. Furthermore, these results suggested that the respondents have a good attitude towards health. Thus, this finding aligns with the study by Wang eet al. (2024), which indicates that knowledge has direct effects on attitude, and attitude has a direct impact on practice.

Moreover, Table 5 below showcases the participants' attitudes towards health in terms of medications.

Table 5. *The level of attitude among patient towards health in terms of medications*

	Statement	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1.	I am confident in the effectiveness of medications in treating my diabetes/ hypertension. (*kampanti ko nga mka ayo ang tambal nga akong gi inom para sa akong highblood or diabetes*)	4.55	0.540	Strongly Agree	Very High Positive Attitude
2.	I adhere to prescribed treatments and follow healthcare recommendations (*ako gasunod sa akong tambal nga gi resita ug mga advise para sa akong kaayuhan*)	4.49	0.532	Agree	High Positive Attitude
3.	I am concerned about the potential side effects of medications *(ako nga konsiderar sa mga posibli nga side effects sa akong mga tambal*)	4.38	0.618	Agree	High Positive Attitude
4.	I am proactive in discussing medication options and concerns with my healthcare provider (*open ko nga mo storya sa lain-lain nga option sa pag panambal ug mga concern bahin sa tambal sa akong doctor*)	4.43	0.581	Agree	High Positive Attitude
5.	I trust medical professionals in prescribing medications for my hypertension/diabetes (*nagsalig ko sa mga gipang resita nga tambal sa doctor para sa akong highblood or diabetes*)	4.54	0.565	Strongly Agree	Very High Positive Attitude
	Overall Mean	4.47	0.467	Agree	High Positive Attitude

Legend: Scale 5 (4.51–5.00) – Strongly Agree; Very High Positive Attitude; Scale 4 (3.51–4.50) – Agree; High Positive Attitude; Scale 3 (2.51–3.50) – Undecided; Moderately High Positive Attitude; Scale 2 (1.51–2.50) – Disagree; Low Negative Attitude; Scale 1 (1.00–1.50) – Strongly Disagree; Very Low Negative Attitude.

Table 5 highlights the level of Attitude Among Patients towards Health in terms of Medications, as Assessed through five statements. Moreover, the first statement had a mean of 4.55 with a standard deviation of 0.540. Also, this is considered the statement with the highest obtained mean, indicating that most participants were confident in the effectiveness of medications in treating their

diabetes/hypertension. However, the third statement showed a mean of 4.38 with a standard deviation of 0.618. Additionally, this represents the lowest mean obtained in this table, indicating that participants were less concerned about the potential side effects of medications.

Additionally, the table implied an evident confidence in the effectiveness of medications for treating diabetes or hypertension. But, somehow afraid of the side effects as reflected by the lowest mean from the third statement. Furthermore, the Overall Mean had a value of 4.47 with a standard deviation of 0.467. With that, these results suggested that the respondents generally rated their medication-related measures highly, with relatively low variability, indicating positive perceptions of their medication experiences among the sample group. Thus, this supported the study by Jiraporn et al. (2020), which identified four key themes related to medication adherence: attitudes toward disease, attitudes toward treatment, attitudes toward family support, and attitudes toward the healthcare team. In summary, the level of attitude among patients towards health and medications is very high.

Problem 3. What is the Level of compliance of the participants according to preventive measures, medication adherence, follow-up checkups; and blood pressure and blood sugar monitoring?

To gain a deeper understanding of participant compliance with preventive measures, Medication Adherence, follow-up checkups, and Blood pressure and blood sugar monitoring, Table 6 is provided below.

Table 6. *The level of compliance of the patient to preventive measures*

	Statement	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1.	I exercise regularly at least 30mins. per day (ako naga exercise ug 30 minutes kada adlaw)	3.95	0.872	Usually	Highly compliant
2.	I eat low salt and low-fat diet. (nagakaon ko sa mga pagkaon nga low salt ug low fat)	4.11	0.741	Usually	Highly compliant
3.	I eat high-fiber diet (*nagakaon ko sa mga pagkaon nga taas ug fiber sama sa mga green nga utanon ug mga lagutmon*)	4.27	0.700	Usually	Highly compliant
	Overall Mean	4.11	0.669	Usually	Highly compliant

Legend: Scale 5 (4.51–5.00) – Always; Very Highly Compliant; Scale 4 (3.51–4.50) – Usually; Highly Compliant; Scale 3 (2.51–3.50) – About Half of the Time; Moderately Compliant; Scale 2 (1.51–2.50) – Rarely; Less Compliant; Scale 1 (1.00–1.50) – Never; Not Compliant.

Table 6 presents the participants' compliance with preventive measures, highlighting three key statements. The first statement recorded a mean of 3.95 with a standard deviation of 0.872, the lowest value among the three. This suggests that most participants were less likely to exercise regularly for at least 30 minutes per day. Furthermore, the third statement had a mean of 4.27 with a standard deviation of 0.700, indicating the highest obtained mean. This suggests that most participants follow a high-fiber diet.

Moreover, the overall mean was 4.11 with a standard deviation of 0.669. Thus, these results imply that the respondents provide positive responses towards compliance with the preventive measures. With that, this showed different results from the study of Barreto, Luchiari, Wolf, Bonilha, Bovi, Assato, Breder, Kimura-Medorima, Munhoz, Quinaglia, Coelho-Filho, Carvalho, Nadruz, and Sposito (2022). Findings shed light on a concerning reality: only 3.2% of T2D individuals, and 0.6% of VHR (Very high) participants, had optimal risk factor control.

Furthermore, Table 7 below highlights the Level of Compliance of the Participants According to Medication Adherence.

Table 7. *The Level of Compliance of the Participants According to Medication Adherence*

	Indicator	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1.	I take my medication as prescribed by the physician. (*ako naga inom sa akong tambal sama sa gi resita sa doctor*)	4.65	0.509	Always	Very highly compliant
2.	I take my medication every day at the right timing (*ako naga inom sa akong mga tambal kada adlaw ug sa saktong oras sa pag inom*)	4.45	0.597	Usually	Highly Compliant
3.	I still take my maintenance medication even if my bp and sugar levels are within normal range (*ako naga inom gihapon sa akong tambal bisan ug naa na sa normal ang akong BP or sugar*)	4.56	0.577	Always	Very highly compliant
	Overall Mean	4.55	0.483	Always	Very highly compliant

Legend: Scale 5 (4.51–5.00) – Always; Very Highly Compliant; Scale 4 (3.51–4.50) – Usually; Highly Compliant; Scale 3 (2.51–3.50) – About Half of the Time; Moderately Compliant; Scale 2 (1.51–2.50) – Rarely; Less Compliant; Scale 1 (1.00–1.50) – Never; Not Compliant.

In Table 7, the Level of Compliance of the Participants According to Medication Adherence also emphasized three vital statements. Considering the first statement, the mean of 4.65 with a standard deviation of 0.509 indicates that the majority of participants take their medication as prescribed by the physician. Thus, this showed the highest obtained mean in Table 6. Furthermore, the second statement

had a mean of 4.45 with a standard deviation of 0.597, indicating the lowest obtained mean, which suggests that only a few participants take their medication every day at the right time.

Moreover, the overall mean had a value of 4.55 with a standard deviation of 0.483. Hence, these results showed that the respondents displayed good levels of adherence. This also aligns with the findings of Govindani, Sharma, Patel, Baradia, and Agrawal (2024). These findings underscore the multifaceted nature of adherence challenges, influenced by factors, namely: high medication burdens, long-term management requirements, economic constraints, and the presence of multiple chronic conditions. Practical strategies to improve adherence must include targeted patient education and counseling sessions that address medication costs, potential side effects, and the long-term benefits of adherence in managing chronic diseases and preventing complications.

Moving further, Table 8 below highlights the Level of Compliance of the Participants According to Follow-up Check-up.

Table 8. *The Level of Compliance of the Participants According to Follow-up Check-up*

Indicator	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1. I always attend my scheduled follow up check-up with my health care provider (ako nagasunod perm isa skedyul sa akong follow up check-up sa akong doctor)	4.41	0.635	Usually	Highly compliant
2. I always adhere to my health care provider's recommendations (ako nagasunod permi sa mga gipang advise sa akong doctor bahin sa panglawas)	4.41	0.560	Usually	Highly compliant
3. I still go to my follow up schedule even if I already feel better (mobalik gihapon ko sa akong doctor sa akong skedyul nga follow up check-up bisan maau na akong paminaw)	4.41	0.640	Usually	Highly compliant
Overall Mean	4.40	.551	Usually	Highly compliant

Legend: Scale 5 (4.51–5.00) – Always; Very Highly Compliant; Scale 4 (3.51–4.50) – Usually; Highly Compliant; Scale 3 (2.51–3.50) – About Half of the Time; Moderately Compliant; Scale 2 (1.51–2.50) – Rarely; Less Compliant; Scale 1 (1.00–1.50) – Never; Not Compliant.

In Table 8, the Level of Compliance of the Participants According to Follow-up Check-up highlighted three vital statements. Also, all statements had the same obtained means of 4.41. However, the obtained standard deviations were 0.635, 0.560, and 0.640, respectively.

In terms of the overall mean, this had a value of 4.41 and a standard deviation of 0.551. Hence, these results implied that the respondents indicated a good response towards the importance and effectiveness of follow-up checkups. Thus, this showed congruence to the study of Li, Zhong, Zhu, Cheng, Huang, Wang, and Li (2022), revealed a significant urban–rural divide in patients' engagement in regular follow-up attendance and blood glucose monitoring, which suggested the need for different educational approaches tailored to the local socio-economic context to strengthen the capacity of diabetes care.

As for Table 9, this shows Compliance of the Participants According to Blood pressure and Blood Sugar Monitoring.

Table 9. *The Level of Compliance of the Participants According to Blood pressure and Blood Sugar Monitoring*

Indicator	*Mean*	*Std. Deviation*	*Verbal Description*	*Interpretation*
1. I always follow my laboratory schedule and make sure to follow pre-laboratory preparations instructed by my health care provider. (*ako ngasunod sa mga skedyul sa pagpa laboratory test nga ginahatag sa akong doctor*)	4.36	0.596	Usually	Highly compliant
2. I always track my blood pressure measurement according to recommended schedule (*ako naga monitor sa akong BP sama sa gihatag nga skedyul sa doctor*)	4.42	0.602	Usually	Highly compliant
3. I am always willing to consistently monitor my blood sugar level according to recommended schedule (*ako permi naga sunod sa pag monitor sa akong blood sugar sama sa gihatag nga skedyul sa doctor*)	4.37	0.615	Usually	Highly compliant
Overall Mean	4.38	0.558	Usually	Highly compliant

Legend: Scale 5 (4.51–5.00) – Always; Very Highly Compliant; Scale 4 (3.51–4.50) – Usually; Highly Compliant; Scale 3 (2.51–3.50) – About Half of the Time; Moderately Compliant; Scale 2 (1.51–2.50) – Rarely; Less Compliant; Scale 1 (1.00–1.50) – Never; Not Compliant.

In Table 9 the Level of Compliance of the Participants According to Blood Pressure and Blood Sugar Monitoring highlighted three essential statements. Additionally, the second statement received a mean score of 4.42 with a standard deviation of 0.602, indicating that most participants consistently track their blood pressure measurements according to the recommended schedule.

Additionally, this highlighted the highest obtained mean. The lowest obtained mean was 4.36 for statement 1, with a standard deviation of 0.596, indicating that participants were less likely to adhere to their laboratory schedule and follow pre-laboratory preparations as

instructed by their healthcare provider.

In terms of the overall mean, this had a value of 4.38 and a standard deviation of 0.558. Hence, the results suggest that respondents showed a positive response toward the importance and effectiveness of blood pressure and blood sugar monitoring. Thus, this showed congruence with the study of Li et al. (2022). Regular follow-up care and routine blood glucose monitoring are essential in diabetes management.

The results of blood glucose monitoring are important information for physicians to provide appropriate treatment regimens with tailored lifestyle advice to achieve glycemic control and prevent disease progression.

To summarize the four variables of compliance indicated positive responses from the participants. The highest mean among the four sub-variables was 4.55, with a standard deviation of 0.483, indicating patient compliance with medication adherence. These results suggest that the respondents exhibited good adherence levels. The second highest mean falls under the patient's compliance with follow-up check-ups, with an overall mean of 4.4 and a standard deviation of 0.551.

This indicates that respondents generally recognized the importance and effectiveness of follow-up check-ups. Followed by the third variable with an overall mean of 4.381 and a standard deviation of 0.558 as to patients' compliance according to blood pressure and blood sugar monitoring, implied that the respondents indicated a good response towards the importance and effectiveness of blood pressure and blood sugar monitoring.

Furthermore, the lowest obtained overall mean falls under the patient's compliance according to preventive measures, with a mean of 4.11 and a standard deviation of 0.669. Thus, these results still implied that the respondents provided positive responses towards the compliance with the preventive measures.

In summary, the participants exhibited strong compliance with preventive measures, adhered well to their medications, attended follow-up checkups regularly, and consistently monitored their blood pressure and blood sugar levels.

Table 10 below shows the analysis of the relationship between participants' compliance levels and their knowledge and attitudes regarding health and medication.

Problem 4. Is there a significant relationship between patient's compliance and their knowledge and attitude toward health and medication?

Table 10. *Relationship between the level of compliance to and their level of knowledge and attitude towards health and medication*

Compliance	*Pearson R*	*P-value*	*Interpretation*
Knowledge			
Disease condition on Hypertension and Diabetes Mellitus	.355**	.000	Significant
Purpose of their medications	.503**	.000	Significant
Attitude			
Health	.464**	.000	Significant
Medications	.437**	.000	Significant

***. Correlation is significant at the 0.05 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

In Table 10, the correlation analysis revealed significant positive relationships between compliance, knowledge, and attitude at a 0.05 significance level. With that being considered, Compliance was positively correlated with both knowledge of the disease condition ($r = .355$, $p = .000$), purpose of their medication ($r = .503$, $p = .000$) to their attitude towards health ($r = .464$, $p = .000$) and medications ($r = .437$, $p = .000$).

Hence, this showed that understanding of one's health condition and the purpose of their medication was associated with compliance. Thus, this finding aligns with the studies of Pristianty et al. (2023) and Nagavi, Kumar, Shivamallaiah, and Meenakshi (2024), which indicate that patients' knowledge about the disease condition is related to adherence to treatment.

Furthermore, Compliance was positively correlated with both Health ($r = .464$, $p = .000$) and Medications ($r = .437$, $p = .000$), indicating that attitudes towards health and medications were also associated with compliance.

This finding aligns with the study of Govindani et al. (2024), which suggest that effective strategies to improve adherence must include targeted patient education and counseling sessions that address medication costs, potential side effects, and the long-term benefits of adherence in managing chronic diseases and preventing complications.

In summary, knowledge about hypertension and diabetes mellitus, including their medications and their purposes, is directly related to patient compliance with medication. Moreover, a more positive attitude toward health and medications is associated with better compliance.

Furthermore, Table 11 below shows the Regression Analysis of the Variables.

Problem 5. Which of the variables singly or in combination best predicts the level of compliance among the patients?

Table 11. *Regression analysis of the variables*

	Unstandardized Coefficients		*Standardized Coefficients*			
Model	*B*	*Std. Error*	*Beta*	*T*	*Sig.*	*Interpretation*
(Constant)	1.920	.231		8.298	.000	Significant
Health	.234	.085	.217	2.762	.006	Significant
Medications	.076	.076	.077	1.004	.316	Not Significant
Health Condition	-.283	.085	-.270	-3.347	.001	Significant
Purpose of Medication	.514	.090	.505	5.707	.000	Significant

a. Dependent Variable: Overall Compliance
b. Using 0.05 level of significance (α = 0.05)
R=.541 R Square = .292

For the R = 0.541, this is the multiple correlation coefficient, indicating a moderate positive relationship between the set of independent variables and the dependent variable (Overall Compliance). While R Square = 0.292, this means that about 29.2% of the variance in Overall Compliance can be explained by the four independent variables in the model.

In the regression analysis of the variables, it was found that several factors significantly influenced overall compliance. With that, health showed a positive and significant effect (B = .234, p = .006), emphasizing that better health was associated with higher compliance. Additionally, the variable Medications did not show a significant impact (B = .076, p = .316).

However, Health Condition had a significant adverse effect (B = -.283, p = .001). Thus, this showed that poor health conditions were associated with lower compliance. Thus, this is consistent with the findings of Pristianty et al. (2023), which showed that a higher total knowledge score is associated with a lower total adherence score.

Additionally, 'Purpose of Medication' demonstrated the strongest positive influence on compliance (B = .514, p = .000), indicating that understanding the purpose of medication is crucial for promoting adherence. Hence, this aligns with the study by Roy, Tayal, and Kansal (2020), which identifies one of the significant principles of the rational use of medicines (RUM) as adequately informing patients about their medication(s) and diagnosis, and sharing the responsibility of therapy with them. The patient's understanding and involvement in the prescribed treatment are of utmost importance for effective health outcomes.

The regression model is moderately effective in predicting overall compliance (R^2 = 29.2%). The most crucial factor affecting compliance is the Purpose of Medication, followed by Health and Health Condition. The number or type of medications alone does not significantly influence compliance. Interventions to improve patients' understanding of their medication's purpose could substantially improve overall compliance.

Finally, the regression equation is $\hat{Y}= 1.920 + .514x_1 - .283x_2 + .234x_3$, where X_1 is the purpose of medication, X_2 is health, and X_3 is medication. That would mean compliance to hypertension and diabetes mellitus among clients is dependent on the purpose of the drugs, health, and the medication itself.

Conclusions

In conclusion, there is a very high level of knowledge about their disease conditions and the purpose of their medications. Also, the study finds that the respondents had a generally very positive attitude towards health and medication. Aside from that, there is an evident high compliance with the preventive measures and medication adherence.

Moreover, there is evident relationships between compliance, health condition, the purpose of medication, attitude towards health and medication. Furthermore, the regression analysis highlights that the purpose of medication is a significant predictor of compliance. Overall, these findings show the importance of understanding health conditions and medication purposes in promoting patient compliance with diabetes and hypertension.

Based on the study's findings, the following recommendations were derived from the insights.

The Provincial Government may consider planning new strategies that can help its constituents to achieve the optimum level of health.

The Provincial Health Department and its municipal program coordinator may develop comprehensive materials to enhance understanding of patients with diabetes and hypertension towards their attitudes towards medications. Health workers should emphasize the side effects of medications and the importance of taking them on time. This improved comprehension can lead to better adherence and compliance with the treatments.

The Provincial and Municipal Health Education Program Officer may consider conducting a continuous Information Education Campaign (IEC) to inform clients and the community about the disease conditions of hypertension and diabetes mellitus, as well as the purpose of medication.

Family members of patients may benefit from gaining a better understanding of the disease, which can help them more effectively support their loved one's needs, particularly in ensuring timely daily medication and recognizing the importance of preventive measures.

Patient may be carefully provided with detailed knowledge and information about the preventive measures for hypertension and diabetes mellitus, the importance of a personalized treatment plan, and the potential side effects of their medication to ensure that patients adhere to their treatment without any fear and anxieties.

The community may regard this study as a means of raising public awareness on preventing hypertension and diabetes mellitus, while also highlighting the importance of adherence to self-care practices.

Nursing service may consider the result of the study as evidence-based practice to achieve better care standards and application for patients and families.

Nursing education may seek to identify gaps that could alter the knowledge and attitude of patients with diabetes and hypertension towards their medication and treatment.

References

Administrative Order No. 2011-0003 or The National policy on Strengthening the Prevention and Control of Chronic Lifestyle Related Non-Communicable Diseases. Retrieved November 01, 2023 from https://doh.gov.ph/lifestyle-related-diseases

Adam McKee (March 2025). predictor variable | Definition. Retrieved April 05, 2025 from https://docmckee.com/cj/docs-research-glossary/predictor-variable-definition/

Ahmad Homoud Al-Hazmi, Abdullah Dhoimi Mureed Alanazi, Ashokkumar Thirunavukkarasu, Nasser Saleh Alriwely, Mmdoh Mohammad F. Alrais, Alreem Barghash S. Alruwaili, Mona Saleh Alnosairi, (January 2025). Evaluation of hypertension knowledge and its association with medication adherence among hypertensive patients attending primary health centers: a cross-sectional study from eastern Saudi Arabia. Retrieved April 01, 2025 from https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2024.1378561/full

Aje, A. A., & Fakeye, T. O. (2024). Factors associated with disease knowledge and attitude among ambulatory patients with type 2 diabetes – a multicenter study. BMC Endocrine Disorders, 24, 158. https://doi.org/10.1186/s12902-024-01696-0

Alaofe, H,. Hounkpatin, W,. Djrolo, F,. Ehiri, J,. Rosales, Cecilia,. (2021) Knowledge, attitude, practice and associated factors among patients with type 2 diabetes in Cotonou, Southern Benin. Retrieved December 02, 2023 from https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10289-8

Alenbalu, M., Egenasi, C. K., Steinberg, W. J., & Aluko, O. (2024). Diabetes Knowledge, Attitudes, and Practices in adults with type 2 diabetes at primary health care clinics in Kimberley South Africa. South African Family Practice, 66(1). https://doi.org/10.4102/safp.v66i1.5838

American Heart Association (May 2023), The Facts about High Blood Pressure. Retrieved January 2024 from https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure

Angelo Gonzalo, BSN, RN (April 2024). Dorothea Orem: Self-Care Deficit Theory. Retrieved May 02, 2025 from https://nurseslabs.com/dorothea-orems-self-care-theory/

Asante, D., Dai, A., Walker, A., Zhou, Z., Kpogo, S., Lu, R., Huang, K., Zou, K. (2023) Assessing hypertension and diabetes knowledge, attitudes, and practices among residents in Akatsi South District, Ghana using the KAP questionnaire. Retrieved November 30, 2023 from https://www.frontiersin.org/articles/10.3389/fpubh.2023.1056999/fullCampbell, P.,

Axon, D., Taylor, A., Smith, K., Pickering, M., Black, H., Warholak, T., Chintammith, C., (2021) Hypertension, cholesterol and diabetes medication adherence, health care utilization and expenditure in a Medicare Supplemental sample. Retrieved December 01, 2023 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8416010/

David Flood, Elizabeth W Edwards, David Giovannini, Emily Ridley, Andres Rosende, William H Herman, Marc G Jaffe, Donald J DiPette, November 30, 2022. Integrating hypertension and diabetes management in primary health care settings: HEARTS as a tool. Retrieved April 01, 2025 from https://pmc.ncbi.nlm.nih.gov/articles/PMC9440730/

Dedefo, M., Gemechu, D., Fekadu, G., Dibessa, T., (2020) Blood Pressure Control among Hypertensive Diabetic Patients on Follow-Up at Chronic Clinic of Nekemte Referral Hospital in West Ethiopia. Retrieved December 03, 2023 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7322590/

Dewi Fatima Nur Alfatihah, Peptia Asrining Tyas. (July 2022) THE CORRELATION BETWEEN UNDERGRADUATE-STUDENTS' READING INTEREST AND THEIR READING COMPREHENSION. JOLLT Journal of Languages and Language Teaching. Retrieved April 02, 2025 from https://www.researchgate.net/publication/362236916_The_Correlation_Between_Undergraduate

Students'_Reading_Interest_and_Their_Reading_Comprehension/fulltext/6382b17948124c2bc674a4c7/The-Correlation-Between-Undergraduate-Students-Reading-Interest-and-Their-Reading-Comprehension.pdf

Doya, I. F., Yahaya, J. J., Ngaiza, A. I., & Bintabara, D. (2023). Low medication adherence and its associated factors among patients with type 2 diabetes mellitus attending Amana Hospital in Dar es Salaam, Tanzania: a cross-sectional study. International Health. https://doi.org/10.1093/inthealth/ihad042

Dr. Tobin Joesph, Dr. Saumya P Jose. (Dec 2021); Page No. 229-232. Preventive measures of type 2 diabetes mellitus: A retrospective analysis. Retrieved April 01, 2025 from https://www.nursingjournal.net/article/view/210/4-2-9

Farah, R., Alawwa, I., Khateeb, D., Hwidi, B., Albdour, K., Monia, O. B., Assaf, R., Aldabaibah, A., Alsaket, G., & Alshrouf, M. (2024). Factors affecting the level of adherence to hypertension medications: A Cross-Sectional study using the Hill-Bone Questionnaire. Patient Preference and Adherence, Volume 18, 893–904. https://doi.org/10.2147/ppa.s457026

Fundoiano-Hershcovitz, Y., Bacher, D., Ritholz, M. D., Horwitz, D. L., Manejwala, O., & Goldstein, P. (2022). Blood pressure monitoring as a digital health tool for improving diabetes clinical outcomes: Retrospective Real-world study. Journal of Medical Internet Research, 24(2), e32923. https://doi.org/10.2196/32923

Gianfranco Parati, Carolina Lombardi, Martino Pengo, Grzegorz Bilo, Juan Eugenio Ocho. (15 May 2021), Pages 262-269. Current challenges for hypertension management: From better hypertension diagnosis to improved patients' adherence and blood pressure control. Retrieved April 01, 2025 from https://doi.org/10.1016/j.ijcard.2021.01.070

Govindani, R., Sharma, A., Patel, N., Baradia, P., & Agrawal, A. (2024). Assessment of Medication Adherence Among Patients With Hypertension and Diabetes Mellitus in a Tertiary Healthcare Center: A Descriptive Study. Cureus, 16(6), e63126. https://doi.org/10.7759/cureus.63126

Gutierrez, M. M., & Sakulbumrungsil, R. (2021). Factors associated with medication adherence of hypertensive patients in the Philippines: A systematic review. Clinical Hypertension, 27(19). https://doi.org/10.1186/s40885-021-00176-0

Hershcovitz Y., Bacher D., Ritholz M., Horwitz D., Manejwala O., Goldstein P. (2022) Blood Pressure Monitoring as a Digital Health Tool for Improving Diabetes Clinical Outcomes: Retrospective Real-world Study. Retrieved February 15, 2024 from https://pubmed.ncbi.nlm.nih.gov/35133284/

H. S. Steyn (October 2024). Practically significant relationship between two variables. Retrieved April 02, 2025 from https://www.researchgate.net/publication/47739385_Practically_significant_relationship_between_two_variables

Jiraporncharoen, W., Pinyopornpanish, K., Junjom, K., Dejkriengkraikul, N., Wisetborisut, A., Papachristou, I., Hashmi, A., & Angkurawaranon, C. (2020). Exploring perceptions, attitudes, and beliefs of Thai patients with type 2 diabetes mellitus as they relate to medication adherence at an out-patient primary care clinic in Chiang Mai, Thailand. BMC family practice, 21(1), 173. https://doi.org/10.1186/s12875-020-01233-7

Joaquim Barreto, B. Luchiari, V. Wolf, I. Bonilha, T. Bovi, B. Assato, I. Breder, S. Kimura-Medorima, D. B. Munhoz, T. Quinaglia, O. Coelho-Filho, L. F. Carvalho, W. Nadruz and, A. C. Sposito (2022). Compliance with Cardiovascular Prevention Guidelines in Type 2 Diabetes Individuals in a Middle-Income Region: A Cross-Sectional Analysis. Retrieved December 06, 2024 from https://www.mdpi.com/2075-4418/12/4/814

Julia, G. (2005). Nursing Theories- The base for professional Nursing Practice, 5th ed. Norwalk, Appleton, and Lange

Justin P. Allen (). Predictor Variable. Encyclopedia of Research Design. Retrieved April 03, 2025 from https://methods.sagepub.com/ency/edvol/encyc-of-research-design/chpt/predictor-variable

Kassahun, C. W., Asasahegn, A., Hagos, D., Ashenafi, E., Tamene, F., Addis, G., & Endalkachew, K. (2020). Knowledge on Hypertension and Self-Care Practice among Adult Hypertensive Patients at University of Gondar Comprehensive Specialized Hospital, Ethiopia, 2019. International Journal of Hypertension, 2020, 1–7. https://doi.org/10.1155/2020/5649165

Khunti, N., Khunti, N., & Khunti, K. (2019). Adherence to type 2 diabetes management. British Journal of Diabetes, 19(2), 99–104. https://doi.org/10.15277/bjd.2019.223

Kwakye, A. O., Buabeng, K., Opare-Addo, N., and Owusu-Dabo, E. Knowledge of hypertension and diabetes comorbid patients about their medication in a municipal hospital in Ghana. African Journal of Pharmacy and Pharmacology, 15(4), pp. 53-60. Retrieved April 01, 2025 from https://academicjournals.org/journal/AJPP/article-full-text-pdf/8EA9C0266432

Li, Y., Zhong, Q., Zhu, S., Cheng, H., Huang, W., Wang, H. H. X., & Li, Y. T. (2022). Frequency of follow-up attendance and blood glucose monitoring in type 2 diabetic patients at moderate to high cardiovascular risk: A cross-sectional study in primary care. International Journal of Environmental Research and Public Health, 19(21), 14175. https://doi.org/10.3390/ijerph192114175

Liza Pristianty, Elsa Shisyana Hingis, Yuni Priyandani, Abdul Rahem, (March 16, 2023). Relationship between knowledge and

adherence to hypertension treatment. Retrieved April 01, 2025 from https://pubmed.ncbi.nlm.nih.gov/37492549/

Machaalani, M., Seifeddine, H., Ali A., Bitar, H., Briman, O., Chahine M., (2022) Knowledge, Attitude, and Practice Toward Hypertension Among Hypertensive Patients Residing in Lebanon. Retrieved November 28, 2023 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9289573/

Mustafa Basara, (May 2021). A STUDY ON THE VARIABLES PREDICTING READING COMPREHENSION. Retrieved April 02, 2025 from https://www.ulakbilge.com/makale/pdf/1616759460.pdf

McCombes, S. (2019). Descriptive research. Retrieved November 01, 2023 from https://www.scribbr.com/methodology/descriptive-research/

Malkon, S., Wettermark, B., Kahan, T., Bastholm-Rahmner, P., Hasselström, J., & Qvarnström, M. (2023). A qualitative study on patients' views on hypertension and antihypertensive medications. Patient Preference and Adherence, Volume 17, 3331–3339. https://doi.org/10.2147/ppa.s429638

Mathew, T. K., Zubair, M., & Tadi, P. (2023, April 23). Blood glucose monitoring. StatPearls - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK555976/

Naha, S., Gardner, M. J., Khangura, D., Kurukulasuriya, L. R., & Sowers, J. R. (2021, August 7). Hypertension in diabetes. Endotext - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK279027/

Md. Saleh, A. S., Rahman, M., & Mashreky, S. M. S. R. (2024). The impact of knowledge, attitudes, and practices on hypertension control and associated comorbidities among workers of a beverage company in Bangladesh. medRxiv. https://doi.org/10.1101/2024.11.19.24317597

Mojtabai, R., and Olfson, M., (2003) Medication Costs, Adherence, And Health Outcomes Among Medicare Beneficiaries. Retrieved December 03, 2023

Nagavi, J. B., Kumar, S. K., Shivamallaiah, L., & Meenakshi, C. S. (2024). Assessment of compliance in hypertensive and diabetic patients at primary health care: A prospective study. Indian Journal of Pharmacy Practice, 17(4), 325-331. https://doi.org/10.5530/ijopp.17.4.52

Nisar Abid, Sarfraz Aslam, Abdulelah A. Alghamdi, Tribhuwan Kumar. January 27, 2023. Relationships among students' reading habits, study skills, and academic achievement in English at the secondary level. Retrieved April 02, 2025 from https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1020269/full

Noor S., Tajik O., Golzar J., (2022) Sampling Method | Descriptive Research.

Retrieved July 10, 2024 from https://www.ijels.net/article_162982_c72b367615dfd1f4d7bd9d4ff60cbef6.pdf

Patrick J Campbell, David R Axon, Ann M Taylor, Karen Smith, Matthew Pickering, Heather Black, Terri Warholak, Chanadda Chinthammit (September 2021). Hypertension, cholesterol and diabetes medication adherence, health care utilization and expenditure in a Medicare Supplemental sample. National Library of Medicine. Retrieved March 20, 2025 from https://pmc.ncbi.nlm.nih.gov/articles/PMC8416010/

Peng, M., Shi, X., Zhu, L., Wang, Z., (2022) Follow-up management service and health outcomes of hypertensive patients in China: A cross-sectional analysis from the national health service survey in Jiangsu province. Retrieved December 03, 2023 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9360537/

Pornpun Oranpattanachai (June 2023) Relationship between the Reading Strategy, Reading Self-Efficacy, and Reading Comprehension of Thai EFL Students. LEARN Journal: Language Education and Acquisition Research Network. Retrieved April 02, 2025 from https://files.eric.ed.gov/fulltext/EJ1380763.pdf

Pristianty, L., Hingis, E. S., Priyandani, Y., & Rahem, A. (2023). Relationship between knowledge and adherence to hypertension treatment. Journal of Public Health in Africa, 14(Suppl 1), 2502. https://doi.org/10.4081/jphia.2023.2502

Rao, C., Kamath V., Shettey A., Kamath A. (2014) Treatment Compliance among Patients with Hypertension and Type 2 Diabetes Mellitus in a Coastal Population of Southern India. Retrieved November 10, 2023 from https://pubmed.ncbi.nlm.nih.gov/25489447/#:~:text=Results%3A%20Compliance%20to%20hypertension%20treatment,them%20had%20controlled%20blood%20pressure

Rayson Rui Sheng Lee1, BBM, Mas'uud Ibnu Samsudin1, BSc(Hons), Thiru Thirumoorthy1, MBBS, FRCP, Lian Leng Low2, MBBS, MMed, Yu Heng Kwan1, BSc(Hons) (2019) Factors affecting follow-up non-attendance in patients with Type 2 diabetes mellitus and hypertension: a systematic review. Retrieved February 15, 2024 from http://www.smj.org.sg/article/factors-affecting-follow-non-attendance-patients-type-2-diabetes-mellitus-and-hypertension

Robert M. Carey, Jackson T. Wright Jr, Sandra J. Taler, Paul K. Whelton, (April 01, 2021). Guideline-Driven Management of Hypertension: An Evidence-Based Update. Retrieved April 01, 2025 from https://www.ahajournals.org/doi/full/10.1161/CIRCRESAHA.121.318083

Robert M. Carey , Paul Muntner, Hayden B. Bosworth, Paul K. Whelton JACC. 2018 Sep, 72 (11) 1278–1293. Prevention and Control of Hypertension: JACC Health Promotion Series Free Access. JACC Focus Seminar: CV Health Promotion. Retrieved April 01, 2025 from https://www.jacc.org/doi/10.1016/j.jacc.2018.07.008

Robert A. Parker, Nancy G. Berman (November 17, 2016). 16 - Study Data: Predictor and Confounding Variables from Part III - Core Concepts Applicable to All Study Designs. Published online by Cambridge University Press. Retrieved April 03, 2025 from https://www.cambridge.org/core/books/abs/planning-clinical-research/study-data-predictor-and-confounding-variables/D3C41CEBA9A369EE004BEC977357947F

Roddis, J. K., Holloway, I., Bond, C., & Galvin, K. T. (2019). Acquiring knowledge prior to diagnosis: A grounded theory of patients' experiences. Patient Experience Journal, 6(1), 10-18. https://doi.org/10.35680/2372-0247.1317

Roslyn Wong, Erik D. Reichle, Aaron Veldre (October 2024). Prediction in reading: A review of predictability effects, their theoretical implications, and beyond. Retrieved April 02, 2025 from https://link.springer.com/article/10.3758/s13423-024-02588-z#Sec40

Roy, V., Tayal, V., & Kansal, A. (2020). Patients' knowledge of prescribed medications and factors affecting it in a tertiary care, public, teaching hospital in New Delhi, India. MAMC Journal of Medical Sciences, 6(3), 204-210. https://doi.org/10.4103/mamcjms.mamcjms_45_20

Sękowski, K., Grudziąż-Sękowska, J., Pinkas, J., & Jankowski, M. (2022). Public knowledge and awareness of diabetes mellitus, its risk factors, complications, and prevention methods among adults in Poland—A 2022 nationwide cross-sectional survey. Frontiers in Public Health, 10. https://doi.org/10.3389/fpubh.2022.1029358

Sweileh W., Aker, O., Hamooz, S. (2005) Rate of Compliance among Patients with Diabetes Mellitus and Hypertension. Retrieved November 20, 2023 from https://journals.najah.edu/media/journals/full_texts/rate-compliance-among-patients-diabetes-mellitus-and-hypertension.pdf

Shemils, T., Kassu, R., Bogale, G., Bekele, M., Getachew, A., Shewamene, Z., Abraha, M., (2021) Magnitude and associated factors of poor medication adherence among diabetic and hypertensive patients visiting public health facilities in Ethiopia during the COVID-19 pandemic. Retrieved November 19, 2023 from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249222

Shuangjiao Shi, Zhiying Shen, Yinglong Duan, Siqing Ding, Zhuqing Zhong., (July 2019). Association Between Medication Literacy and Medication Adherence Among Patients With Hypertension. Retreived April 1, 2025 from https://www.frontiersin.org/journals/pharmacology/articles/10.3389/fphar.2019.00822/full

Tahir Q., Azam N., Imran M., Hashmi A., Zeb A., Furqan A., (2018) Knowledge, Attitudes and Practices of Patients Regarding Diabetes and Hypertension Control. Retrieved July 12, 2024 from https://www.researchgate.net/publication/329672647_KNOWLEDGE_ATTITUDES_AND_PRACTICES_OF_PATIENTS_REGARDING_DIABETES_AND_HYPERTENSION_CONTROL

Thandar Soe Sumaiyah Jamaludin, Nurfatihah Masrurah Mohammad, Masmunaa Hassan, Mohd Said Nurumal (April 2021). Knowledge and practice on medication adherence among Type II diabetes mellitus patients. Retrieved April 01, 2025 from https://doi.org/10.1016/j.enfcli.2020.09.028

The 2020 Philippine Health Statistics Epidemiology Bureau Department of Health. Retrieved November 19, 2023 from https://doh.gov.ph/sites/default/files/publications/2020PHS_FINAL_PDF.pdf

Tsoumbou-Bakana, G., Kissi, D., Hassoune, S., & Nani, S. (2021). Follow-up of the diabetic patient: experience of a district of the city of Casablanca. European Journal of Public Health, 31(Supplement_3). https://doi.org/10.1093/eurpub/ckab165.209

Verulava, T., and Mikiashvili G. (2021) Knowledge, awareness, attitude, and medication compliance in patients with hypertension. Retrieved December 03, 2023 from https://journals.viamedica.pl/arterial_hypertension/article/view/AH.a2021.0021

Wang Y., Hu X., Wang H., Duan H., Chen Y., Li Y., Luo Z., Li X., Wang J., and Mercer S., (2021) Follow-up care delivery in community-based hypertension and type 2 diabetes management: a multi-centre, survey study among rural primary care physicians in China. Retrieved February 20, 2024 from https://bmcprimcare.biomedcentral.com/articles/10.1186/s12875-021-01564-z

Wang, D., Liu, Z., Liu, Y., Zhao, L., Xu, L., He, S., & Duan, B. (2024) Knowledge, attitudes, and practices among patients with diabetes mellitus and hyperuricemia toward disease self-management. Frontiers in Public Health, 12, 1426259. https://doi.org/10.3389/fpubh.2024.1426259

World Health Organization Newsroom. Retrieved November 10, 2023 from https://www.who.int/news-room/fact-sheets/detail/diabetes

Wolde, M., Azale, T., Demissie, G. D., & Addis, B. (2022). Knowledge about hypertension and associated factors among patients with hypertension in public health facilities of Gondar city, Northwest Ethiopia: Ordinal logistic regression analysis. PLoS ONE, 17(6), e0270030. https://doi.org/10.1371/journal.pone.0270030

Yirga, G. K., Mekonen, G. S., Hiruy, E. G., Shiferaw, K., & Bantie, B. (2024). Non-adherence to appointment follow-up and its associated factors among hypertensive patients in follow-up clinics in South Gondar hospitals. Scientific Reports, 14(1). https://doi.org/10.1038/s41598-024-70710-1

Youssef, G., Mohamed, M., Hamid, M. A., & Remisy, D. E. (2022). Reasons behind high rate of non-compliance to scheduled office visits in hypertensive patients: results from the Egyptian registry of specialized hypertension clinics. The Egyptian Heart Journal, 74(1). https://doi.org/10.1186/s43044-022-00285-7

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