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## RESEARCH ARTICLE

### The Interpretation of Prescribed Medication Instructions by Diabetes Mellitus Patients at a Selected Clinic in the Capricorn District of Limpopo Province, South Africa: A Pilot Study

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#### Abstract:

#### Background:

Misinterpretation of medications instructions due to poor health literacy is common in diabetic patients, leading to suboptimal medication therapy. The aim of this study was to investigate patients' interpretation of prescribed medication instructions at a selected Clinic in the Capricorn District of Limpopo Province, South Africa.

#### Methods:

The study used a qualitative research approach. Non-Probability purposive sampling was used to select five participants for the study. Semi-structured interviews with a guide were used to collect data. Tesch's steps for qualitative data analysis were adopted.

#### Results:

The study findings revealed inadequate explanation of instructions, poor health outcomes, lack of information related to poor health outcomes, lack of knowledge on using the medication correctly, and medication noncompliance. The findings imply that there is poor education regarding medication use by diabetic patients.

#### Conclusion:

The study indicated that diabetic patients have poor medication instructions comprehension such as an inadequate explanation of the medication instructions. Therefore, healthcare professionals must provide in-depth explanation of medication instructions to enhance comprehension.

**Keywords:** Instructions, Diabetes mellitus, Misinterpretation, Non-Communicable Diseases (NCDs), Prescribed medication, Lack of medication knowledge.

#### Article History

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## 1. INTRODUCTION

Misinterpretation of medications instructions due to poor health literacy is common in diabetic patients, leading to suboptimal medication therapy. Zullig, Gellad, Moaddeb, Crowley, Shrank, Granger, Granger, Trygstad, Liu, and Bosworth [1] aver that there are many health service interventions designed to provide resolutions to augment medication adherence. So far according to Zullig *et al.* [1], these interventions are less effective due to poor implementation.

Globally, 50% of adults have been reported to have misunderstood medication instructions which could be the cause of not using medication as prescribed [2]. Muhammed, Jibril, and Dauda [3] recommend that patients should be encouraged to comply with their prescribed medications through educational and training programs. The Professional Nurses who prescribe the medication in PHC could be the targets for medication adherence interventions [4].

In South Africa, a study conducted by Wright, Biya, and Chokwe [5] revealed that the pregnancy leaflet did not improve pregnant women's knowledge to the extent where they were knowledgeable about their health during pregnancy. This study shows that instructive materials alone cannot improve health literacy, but further patient education is still needed to explain

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what the instructions really means. Therefore, the study sought to investigate how diabetes mellitus patients interpret prescribed medication instructions at a selected clinic of the Capricorn district, Limpopo province. The study also sought to pilot the main study ahead.

**2. METHODOLOGY**

**2.1. Research Design**

A qualitative, explorative descriptive contextual design was used to explore the knowledge and practices of diabetic patients’ treatment literacy on prescribed medication instructions. The design allowed the researcher to get an insight view of how diabetic mellitus patients carry out their medication instructions.

**2.2. Study Setting**

The study was conducted in four clinics (Dikgale clinic, Seobi-Dikgale clinic, Sebayeng clinic, and Makotopong clinic) situated at Ga-Dikgale village of the Capricorn District in Limpopo Province, South Africa. Dikgale is an established Health and Demographic Surveillance System (HDSS) which is run by the University of Limpopo with a high prevalence of NCDs, hence it was chosen as a study site.

**2.3. Population and Sampling Strategy**

The population of the study comprised of all diabetic patients at Makanye clinic. The clinic caters about 5000 people and has 89 diabetes patients on treatment. Non-probability purposive sampling was used to obtain five participants who met the inclusion criteria and consented for study; the participants comprised of four females and one male. Data saturation was reached at participant five.

**2.3.1. Inclusion and exclusion criteria**

Patients who were on treatment for more than a month and free from hearing problems were included, and those who were physically unfit were excluded.

**2.4. Data Collection Procedures**

Semi-structured interviews using an interview schedule guide and audiotape were used to collect data. Field notes were written to jot down non-verbal cues which the voice recorder could not capture. A central question was posed in the same manner to each participant as follows: **“Could you please share with me how you take your medication”?** The central question was followed by probing questions after each participant’s response. The participants were also requested to hand in the packets of medications when they were explaining in order to compare what they were saying with what is written.

**2.5. Data Analysis**

The researchers adopted Tesch’s eight steps to analyse the data as suggested by Creswell [6]: The researchers listened to the tape repeatedly and transcribed all information verbatim onto a script. The transcripts and field notes were read to obtain a sense of the whole. The data were organised into themes and

sub-themes. The researchers came up with the most descriptive wording for the themes and sub-themes and the researcher re-coded existing material. A summary of the themes and sub-themes was sketched, and the data were sent to the independent coder.

**2.6. Measures to Ensure Trustworthiness**

Trustworthiness was ensured by applying the criteria of credibility, dependability, Confirmability, and Transferability [7]. Credibility was ensured through engaging with the participants for about thirty minutes and conducting an audit trial. Dependability was ensured by use of the independent coder who is an expert in qualitative research to analyse data and a consensus meeting was held with the researchers to agree on the codes reached independently. Confirmability was ensured by providing a detailed methodology of the study. Transferability was ensured by providing enough details of the research methodology which entails the research design, the population, the sampling method, and the ethical considerations.

**2.7. Ethical Clearance and Ethical Considerations**

The researcher obtained Ethical clearance from the University of Limpopo’s Turfloop Research Ethics Committee (TREC), number: TREC/373/2017/PG. The researcher asked Permission to conduct the study from the Department of Health Limpopo Province (approval number: LP\_2017 11 016), Department of Health Capricorn District and the Nursing manager of Makanye clinic by writing requisition letters attached with the research proposal.

The participants agreed to take part in the study voluntarily and were made aware that they could withdraw from participating at any time without being victimised. They were also assured that their identity will not be revealed by assigning them alphabets as their identification instead of their names.

**3. RESULTS**

The results are presented below as reflected by diabetes mellitus patients. Table 1 presents the themes and sub-themes emerged from the study.

**Table 1. Themes and sub-themes of the findings.**

Themes	Sub-themes
1. Poor medication instructions comprehension	1.1 Inadequate explanation of instructions 1.2 Poor health outcomes
2. Lack of knowledge related to diabetes mellitus as a disease	2.1 Lack of information related to poor health outcomes 2.2 Lack of knowledge on taking medication correctly 2.3 Medication non-compliance observed

**3.1. Poor Medication Instructions Comprehension**

The findings revealed that patients with diabetes mellitus do not understand medication instructions. Two sub-themes emerged from this theme namely; inadequate explanation of instructions and poor health outcomes.

### 3.1.1. Inadequate Explanation of Instructions

The results revealed that there is an inadequate explanation of instructions of medication instructions which left the participants with the responsibility of having to figure out how they should take the medications themselves. This is, however, placing more burden on the participants as they must be health literate for them to interpret the instructions. **This challenge is confirmed by this participant who alleged:** “They just write on the medication package that I should take how many a day according to their types. Then I have to sit down and divide them that I should take them so and so”.

Nonetheless, participants indicated that they were told how to take their medication though some report that they were not told. In support of this view, **one participant said:** “Myself, I was told to take my medication in the morning before food, in the evening before food also...I mean after food”.

### 3.1.2. Poor Health Outcomes

The findings revealed that participants suffer poor health outcomes which are associated with poor management of diabetes mellitus. These poor health outcomes could be prevented if individuals could consume their medications correctly accompanied by lifestyle modification. The study participants reported having poor health outcomes since being diagnosed with diabetes mellitus. This is evident in the **following participants:** “I want to know the reason why I often faint while having taken my medication that I sometimes do not know that I have fainted”. **Another participant asked:** “why is this illness (of diabetes) affects the eyes whereas am just taking the treatment normally, but it still affects the eyes. I am trying to eat whatever they told me to eat; the balanced diet so that I could get well but it affects my eyes badly”. **Yet another participant also added by asking:** “ke be ke nyaka go tseba gore maoto a, go swa mo a hlolela ke eng. Gape ke a swa, boshego ei.. ga ke rob ale. Ke go fisha ka tseba e.. ntje ke hlwele meriting, a fisha go fisha. Ga a bohloko, ke no swa o kare ke gatile mollo”. **Translation:** I wanted to know the reason why my feet burning. I am burning at night, I do not sleep. Burning this way even though I spend time on the shadows; they are really hot. They are not painful, but I burn like I am standing on hot fire”.

## 3.2. Lack of Knowledge Related to Diabetes Mellitus as a Disease

The study findings portrayed poor awareness on diabetes mellitus which emerged in the following three sub-themes namely: lack of information related to poor health outcomes, lack of knowledge on the correct way of taking medication, and medication non-compliance observed.

### 3.2.1. Lack of Information Related to Poor Health Outcomes

The findings revealed a lack of information related to poor health outcomes by participants. Taking medication wrongly is one of the information that participants lack that contribute to poor health outcomes. **This challenge is evident in one participant who said:** “The dangers are many, it might be overdose. There are many problems even though I am unable to explain what types”.

**Another participant agreed with the findings and said:** “Ke nokwa bare swikiri e ne go hlolela stroke”. Translation: “I just heard that it can cause stroke”. **Yet another participant completely does not know what could befall them and hence said:** “There I do not know but you are going to be badly affected because you do not take medication properly. It is just that I do not know the effect that I could encounter and that is the problem. (The researcher says ok) I just see myself skipping the time that I should be taking medication and take them at the time that is favours me”.

### 3.2.2. Lack of Knowledge on the Correct Way of Taking Medication

The findings revealed lack of knowledge on the correct way of taking medication by participants. The participants use their discretion on deciding their best way of taking medication. When asked about how they take their medication, **the participants said:** “I am taking pills; I am taking them three times a day. I take them at 08h00, 14h00 and at 21h00. I did not know how I should take my medication then my sister’s other child is a nurse; after I explained how I take my medications to her she said I am not taking them well. She said I must count; if I took my tablets around 08h00 AM. I can take the next dose at around 14h00 so forth. I should count seven hours”.

In agreement with this encounter, **another participant said,** “I am taking the first ones at 10h00, then during the day at 13h30 I take the second doses and at 20h00”.

Yet, another participant portrayed a different factor which contributes to the reason for not taking medication correctly. **The participant said:** “I am taking my medications twice a day only. There it would be determined by what time was my food ready. I can say at around past 08h00 to 09h00 after eating my food then I take my medication. Then the second dose, I am going to take it at night after watching ‘skeem sam’. I do not know at what time it is showing on TV, is it minutes after 19H 00 or after 20h 00 I do not know”.

### 3.2.3. Medication Non-Compliance Observed

The findings have also revealed the observation of medication non-compliance by participants. Some participants are however aware that they are not taking their prescribed medication correctly. **This challenge is evident in the participant who said:** “By right I should take my medication once. The big diabetic one I should take it thrice a day; but I cut the one I was supposed to take at 12h00 PM then I only take the pill in morning and at night because I think it will make me collapse, since I am injecting insulin and then I have to also take the pill in the morning, afternoon and at night”.

Agreeing with this finding, **another participant said:** “I check on my time; on which time suits me. At 10h00 AM is when I am taking my breakfast, 13h30 is when I am taking my lunch and 20h00 is when am taking supper, and usually go to bed”. **Yet another one also said:** “With time I am scared to talk because to tell the truth I am taking the medication in the morning at 08h00 and then in the evening I take it again, but I sometimes forget. I forget, especially the morning one; sometimes I eat my food with the aim of taking my medication”.

thereafter, but you find that I forget and remember around 12h00 pm and that will be the time that I take it. Then in the evening I skip the time that I usually take the drug to cover up the morning time. I will wait till a bit late thereafter will take the drug”.

#### 4. DISCUSSION

The study sought to explore how diabetes mellitus patients interpret medication instructions. The interpretation of prescribed medication instructions by diabetes mellitus patients displayed poor medication instructions comprehension. Participants do not get an adequate explanation of the medication instructions from professional nurses. Koster *et al.* [2] agree that medication non-adherence and treatment ineffectiveness may be negatively influenced by the inability to comprehend medication instructions. The problem is not with the individuals using the medications alone but also with the dispensing health practitioners.

The participants had to make an extra effort in interpreting the instructions where most of them were not consuming the medication correctly and subsequently suffering poor health outcomes. Souza, Apolinario, Magaldi, Busse, Campora, and Jacob-Fihlo [8] study indicates that good glycaemic control in diabetes mellitus patients is compatible with adequate health literacy. Gelaw, Mohammed, Tegegne, Defersha, Fromsa, Tadesse, Gunasekaran and Ahmed [9] also support Souza *et al.* [8] by reporting that most diabetic patients are presently managed with the most effective available medications. Nonetheless, the results from their study indicate a different outcome where the anticipated blood sugar level could not be controlled and maintained effectively. This outcome was due to poor knowledge related prescribed medication usage.

The participants also portrayed lack of knowledge related to diabetes mellitus as a disease. The participants did not only suffer poor health outcomes but also lacked information related to poor health outcomes. This was also found in Johnson [10] study where it is recorded that individuals with low health literacy have less knowledge about their disease's management.

Furthermore, participants lacked information on taking medication correctly and hence medication non-compliance was observed. Patients with low health literacy have been shown to suffer less medication knowledge on how to comply with the medications for their diseases compared to those patients who have enough health literacy [11]. It is also evident in the study conducted by Zullig *et al.* [1] that half of chronic diseases medications are estimated to be not taken as prescribed including diabetes mellitus medications. This non-adherence has been associated with poorer treatment outcomes and progression of disease symptoms and complications.

#### 5. LIMITATIONS

The study was conducted in one selected clinic of the Capricorn district of Limpopo, South Africa as a pilot study. The findings of the study could therefore not be generalized in other settings.

#### 6. IMPLICATIONS OF THE FINDINGS

The study findings confirm that medication instructions should be explained intensely accompanied by writing to promote understanding and health literacy to patients while promoting adherence.

##### 6.1. The Healthcare Professionals

Health professionals issuing medications need to provide an in-depth explanation of medication instruction to patient to enhance comprehension. The explanation must include the exact times on which the medications should be consumed.

##### 6.2. Limpopo Department of Health

The Limpopo department of health must conduct workshops on interpretation of medication instruction to professional nurses.

##### 6.3. Department of Education

Health literacy related to the interpretation of medication instructions must be incorporated in schools' curriculum for children to learn how a medication is consumed properly and to teach other members at home.

#### CONCLUSION

The study indicated that diabetic patients have poor medication instructions comprehension such as an inadequate explanation of the medication instructions. This poor medication instructions comprehension led to poor medication comprehension of medication instructions.

#### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance was obtained from the University of Limpopo's Turfloop Research Ethics Committee (TREC) (TREC/373/2017/PG). Permission to conduct the study was given by the Department of Health Limpopo Province (approval number: LP\_2017 11 016), Department of Health Capricorn District and the Nursing manager of the concerned clinics.

#### HUMAN AND ANIMAL RIGHTS

No animals/ humans were used for the studies that are the basis of this research.

#### CONSENT FOR PUBLICATION

Informed consent was obtained from all the participants.

#### AVAILABILITY OF DATA AND MATERIALS

Due to confidentiality issues, it is not permitted to share the data.

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**CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

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