

# Challenges in the Assessment of Diabetic Patients in Fako Division, Southwest Region of Cameroon

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## ABSTRACT

The purpose of the study was to elaborate a contextualized comprehensive model for the assessment approach for diabetic patients by nurses in the regional hospital of Limbe in the Southwest region of Cameroon. The study was guided by the Orlando's theory of The Deliberative Nursing Process, the Abdellah's 21 Nursing Problems Theory, and the Self-Determination Theory by Ryan and Deci. A concurrent mixed method combining a survey and quasi-experimental designs was used. The study's population was made of nurses supported by observation. Convenience sampling method was used to select nurses. A total of 110 nurses were involved in the study following sample size determination considering one-population proportion with the support of Epi Info 6.04d and Power Sampling using G Power 3.1. Data were collected using a semi-structured questionnaire and observational checklist. The questionnaire equally served as evaluation tool for the interventional study. The training of nurses on the assessment of diabetic patients was done using a standardized training protocol contextualized following the results of the baseline survey. An application to carry out the research was sent to the ethical review board of the University of Bamenda. Upon approval, data were collected while abiding to the necessary ethical requirements. Data were digitalized with the support of EpiData version 3.1, and analyzed descriptively and inferentially using SPSS 21.0. As for the textual data (qualitative data), their abstraction was reduced following the process of thematic analysis. The most highlighted patient-related challenge faced during the assessment of diabetic patients was lack of patient education with respect management plan 54.1% (49); the most highlighted assessment-related challenge being patient giving inaccurate or incomplete information leading to incorrect assessments and diagnoses 80.9% (76); the most highlighted nurse-related challenge being lack of knowledge or experience in assessing diabetic patients 60.4% (55) while the most highlighted environmental-related challenge was limited resources (lack of glucometers or laboratory tests) 63.8% (60). Cumulatively, practice was poor (poor or very poor) for 75.5% of them. It was recommended that these challenges be taken into consideration by policy-makers and medical administrators and practitioners in their endeavours towards improving the well-being of diabetic patients.

## INTRODUCTION

Assessment is a core component of nursing practice, especially as it is intended to guide clinical decisions in the delivery of safe patient care. The nursing assessment process offers a perfect chance to assess and record patient needs, problems, and risks (1). At

admission to an acute care hospital, patients undergo routine nursing assessment which includes the collection of important data, physiological measures, and functional and psychological evaluation and risk appraisal to enable the nurse plan care. Assessment

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**KEYWORDS:** Assessment, Diabetes, Patients, Hospital, Model.



gives complete information that is used by nurses to make a decision quickly and accurately (2). Clinical judgment is an imperative, not only in the collection of cues and recognition of changes in the patient, but also in processing information, initiating the medical intervention, and evaluating outcome (3) (4).

A nursing assessment is a process where a nurse gathers, sorts and analyses a patient's health information using standardized tools in order to learn about a patient's overall health, symptoms and concerns. During physical assessment the nurse documents and interprets information (subjective and objective) in order to plan patient's care or make decisions about the patient's health status and identify urgent, emergent or life-threatening conditions (1). The physical assessment is done by the professional nurse. The Assessment data provides the nurse with the necessary information to diagnose the client's status (5). When the data is got, the nurse uses it to model the client's world by interpreting the relationships amongst the diagnoses and to develop an image of the client's situation from his/her perspective. The perception facilitates the client in attaining, maintaining or promoting health through purposeful interventions.

### Background

Diabetes Mellitus is a metabolic disease characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood. Diabetes mellitus is caused by several factors, including lifestyle factors and genes. Overweight, obesity, and physical inactivity. The symptoms of diabetes include: increased thirst and urination, increased hunger, Fatigue, blurred vision, numbness or tingling in the feet or hands, sores that do not heal, unexplained weight loss. The chronic hyperglycaemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels. Several pathogenic processes are involved in the development of diabetes. Long term complications of diabetes include retinopathy with potential loss of vision; nephropathy leading to renal failure; autonomic neuropathy causing gastrointestinal, genitourinary and cardiovascular symptoms and sexual dysfunction. Common diabetes health complications include heart disease, chronic kidney disease, nerve damage, and other problems with feet, oral health, vision, hearing, and mental health.

The prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030. The total number of people with

diabetes is projected to rise from 171 million in 2000 to 366 million in 2030. The prevalence of diabetes is higher in men than women, but there are more women with diabetes than men

About 38 million Americans have diabetes (about 1 in 10), and approximately 90-95% of them have type 2 diabetes. Type 2 diabetes most often develops in people over age 45, but more and more children, teens, and young adults are also developing it. The urban population in developing countries is projected to double between 2000 and 2030. The most important demographic change to diabetes prevalence across the world appears to be the increase in the proportion of people >65 years of age.

In Cameroon, the prevalence of diabetes mellitus was estimated at around 6% in 2018. This prevalence is increasing in the general population, rising from 2.0% in 1999 to 4.7% in 2002 and 5.8% in 2018 respectively. The 2021 international diabetic federation reported that 620,800 adult lived diabetes .

Assuming that age-specific prevalence remains constant, the number of people with diabetes in the world is expected to approximately double between 2000 and 2030 .

Patients with diabetes frequently attend their healthcare practitioners, either specifically for diabetes-related issues, for complications of their chronic illness, or for unrelated problems. Each visit can be viewed as an opportunity to assess and improve the patient's understanding of their illness, and their ability to control the disease. Consequently, nurses have the responsibility to promptly recognize changes in a diabetic patient's condition and intervene to prevent severe adverse events (6). For this reason, a detailed assessment of the person with diabetes should be made at diagnosis (7, 8, 9); thus taking time to perform a full physical assessment upon admission or at the beginning of the shift along with timely and accurate documentation, allows nurses to get the information necessary to establish a patient's current clinical status thereby facilitating early recognition of changes that could indicate worsening of the condition .

The nurses need to be knowledgeable and understands why they assess a patient. Accurate patient assessment is an important element to determine the status and needs of the patient and the delivery of appropriate patient care. For this reason, nurses must be skilled in conducting accurate and timely patient assessments in order to deliver quality and safe patient care. The components of physical assessment include; Interviewing, Inspection, Palpation, Percussion and auscultation (10).

Considering that the goal of nurses in caring for clients is 'to achieve a state of perceived optimum health and contentment, it is important that, nurses assess clients appropriately to ascertain the human responses, to which they direct their actions. Consequently, recognizing normal and abnormal patient physiology helps nurses to prioritize interventions and care delivery. Unfortunately, nurses do not do complete assessment due to some reasons. Liyews et al identified that the use of physical assessment techniques was not routinely integrated into the nursing care facilities they examined. Their studies identified several barriers that explained that situation, such as nurses lacking confidence in their abilities, a lack of time and a lack of encouragement to perform assessment. The results also indicated that the perceived primary barriers to performing nursing physical assessments were the specialty of practice area, the lack of nursing role models and the lack of time and interruptions during assessment (11). Douglas et al, Liyew, Tilahun and Kassew, also found the following barriers to nursing assessment, reliance on others and technology; lack of time and interruptions; ward culture; lack of confidence; lack of nursing role models; lack of influence on patient care; and specialty area (11) (12). Although health assessments are performed regularly and routinely by nurses, the physical assessment are not conducted and documented in detail. This study "An elaboration of physical assessment approach for diabetic patients in limbe regional hospitals is therefore aimed to develop assessment models to facilitate the implementation of nursing assessment of diabetes mellitus patient to formulate tools to facilitate nursing physical assessment of diabetic patient.

### Statement of Problem

Nursing assessment is vital to quality nursing care. However, there is not enough value placed on the role of the assessment in nursing practice, especially the assessment of diabetic client which can be depicted from the lack of its implementation and incomplete patient documentation. Barriers to conduct nursing assessment have been identified and include lack of nursing role models, and influence on nursing care and on patient outcomes (13). The lack of a nursing framework to guide nursing assessment may lead to inaccurate diagnosis of patients' needs from a nursing perspective and invisibility of the nursing profession (4). There is not enough value placed on the role of the assessment in nursing practice, which can be depicted from the lack of its implementation and incomplete patient documentation (14). According to Douglas et al, there is rising evidence of failure to identify hospitalized patients at risk of clinical deterioration which is partly due to inadequate

physical assessment by nurses. It was also identified that the use of physical assessment techniques was not routinely integrated into the nursing care. Their studies identified several barriers such as nurses lacking confidence in their abilities, lack of time and a lack of encouragement to perform evaluations. Colwel and Smith also identified that, only one third of nurse perform physical assessment. In a study by Serest, Norwood and duMont out of 92.5% of the skills taught and practiced in class during training, only 29% were used on a daily/weekly basis, with 34% used on a monthly/occasional basis (15).

Assessment being a core component of nursing practice, is designed to guide clinical decisions in the delivery of safe patient care. By comprehensively assessing individual patients and identifying problems early, nurses can initiate specific interventions that may stabilise and/or improve patient outcomes and help prevent unnecessary intensive care unit admission. Despite the importance of a physical assessment of patients on admission, the process is often sub-optimal due to a lack of assessment skills and standardized assessment practices. Nurses do not appear to follow systematic criteria but are strongly influenced by the medical model which may be detrimental to holistic assessment and the development of nursing diagnosis based on nursing needs. Structured assessment tools can improve nurse's performance around patient assessment. In an integrative literature review, it was found that structured assessment tools increased the relevance of the data collection because they ensured that relevant data was collected from patients. Although several structured nursing assessment tools are available, they are not always based on or organized within a discipline-specific framework. Consequently, the detection of patients' clinical deteriorations and the implementation of the necessary interventions is slow. This could lead to unintended consequences as grave as the patient's early death (5). Particularly as Incorrect nursing judgment arises from inadequate data collection which can adversely affect the remaining phases of the nursing process (diagnosis, planning, implementation, and evaluation). Practical skill is the most important principle for any nurse, such that the most urgent issue at work is the ability to perform health assessment skills that lead to quick reaction, accurate decision-making, and assessment of problems.

### Aim

The study aimed at appraising challenges faced by nurses in the use of the developed standardized tool for the assessment of diabetic patients in Buea and Limbe regional hospitals and response measures.

### Significance of the Study

Nursing assessment is vital to quality nursing care. However, there is not enough value placed on the role of the assessment in nursing practice, especially the assessment of diabetic client which can be depicted from the lack of its implementation and incomplete patient documentation. Barriers to conduct nursing assessment have been identified and include lack of nursing role models, and influence on nursing care and on patient outcomes. The lack of a nursing framework to guide nursing assessment may lead to inaccurate diagnosis of patients' needs from a nursing perspective .

Nursing assessments is a fundamental responsibility of the nurse especially as assessment and care are inseparable. Nursing assessment is vital to quality nursing care. Without assessment care will be given blindly. Assessment is the first and most critical phase of the nursing process. The nursing assessment includes gathering information concerning the patient's individual physiological, psychological, sociological, and spiritual needs. The information is gotten from what the patient tells the nurse (Subjective data) and from the nurses' observation and examination (objective data) and are an essential part of the process. Even though the different system of the body are assessed differently, the two very common types of assessments are head-to- toe assessments and focused assessments. Recognizing normal and abnormal patient physiology using techniques such as inspection, palpation, percussion and auscultation helps nurses to prioritize interventions and care delivery. However, several studies have observed that, physical assessments are an underused skill in nurses' clinical practice. There is not enough value placed on the role of the assessment in nursing practice, which can be depicted from the lack of its implementation and incomplete patient documentation. It was found that the prevalence of diabetic foot lesions was high, because of poor foot care. According to Douglas et al, there is rising evidence of failure to identify hospitalized patients at risk of clinical deterioration which is partly due to inadequate physical assessment by nurses. It was identified that the use of physical assessment techniques was not routinely integrated into the nursing care. Their studies identified several barriers such as nurses lacking confidence in their abilities, lack of time and a lack of encouragement to perform evaluations. Only one third of nurses perform physical assessment. In a study by Serest, Norwood and du Mont out of 92.5% of the skills taught and practiced in class during training, only 29% were used on a daily/weekly basis, with 34% used on a monthly/occasional basis.

During nursing training in Cameroon, registered Nurses are taught assessments generally such as vital signs and head to toe assessment. However little or no emphasis is placed on a complete physical assessment by nurses. Consequently, practicing nurses do not use many of the skills taught. Although health assessments are performed regularly and routinely, they are not conducted and documented with great thoroughness and attention to detail. A standardized initial nursing assessment tool for diabetic patient in Regional Hospitals will probably address a gap in the comprehensive patient care process practiced by nurses. This study is therefore aimed to identify exiting forms of diabetic patient assessment, and develop assessment models to facilitate the assessment of diabetes mellitus patient by nurses in Limbe and Buea Regional Hospitals.

Considering that the number of diabetic patients is rising globally and specifically in Cameroon, the present study is significant because it will prepare nurses of the Limbe and Buea Regional hospitals on how to assess the diabetic patient for better nursing care and good health thereby decreasing complications and the mortality rate of diabetic patients.

### Scope of the Study

#### Thematic Scope

The study appraised assessment practices of diabetic patients and identify factors hindering their successful assessment. The study was centred on assessment of diabetic patients by nurses. These terms are well explained under the section 'Definition of key terms' below.

#### Geographical Scope

Geographically, the work was limited to two regional hospitals in Fako division, notably Buea and Limbe regional hospitals was the fact that these are reference hospitals that serve as referral centres for front-line health facilities.

#### Time Scope

As regards temporal delimitation time-period scope, the work was a cross-sectional study that started in November 2023 and ended in October 2024.

#### Theoretical Scope

Concerning the theoretical scope, the study was guided by Orlando's nursing process theory the Abdallah's 21 Nursing Problems Theory, and the Self-determination theory by Ryan and Deci. These theories are all centred on professional consciousness and self-confidence which are paramount for a satisfactory output and much more important in a critical sector like that of health and more specifically delivery.

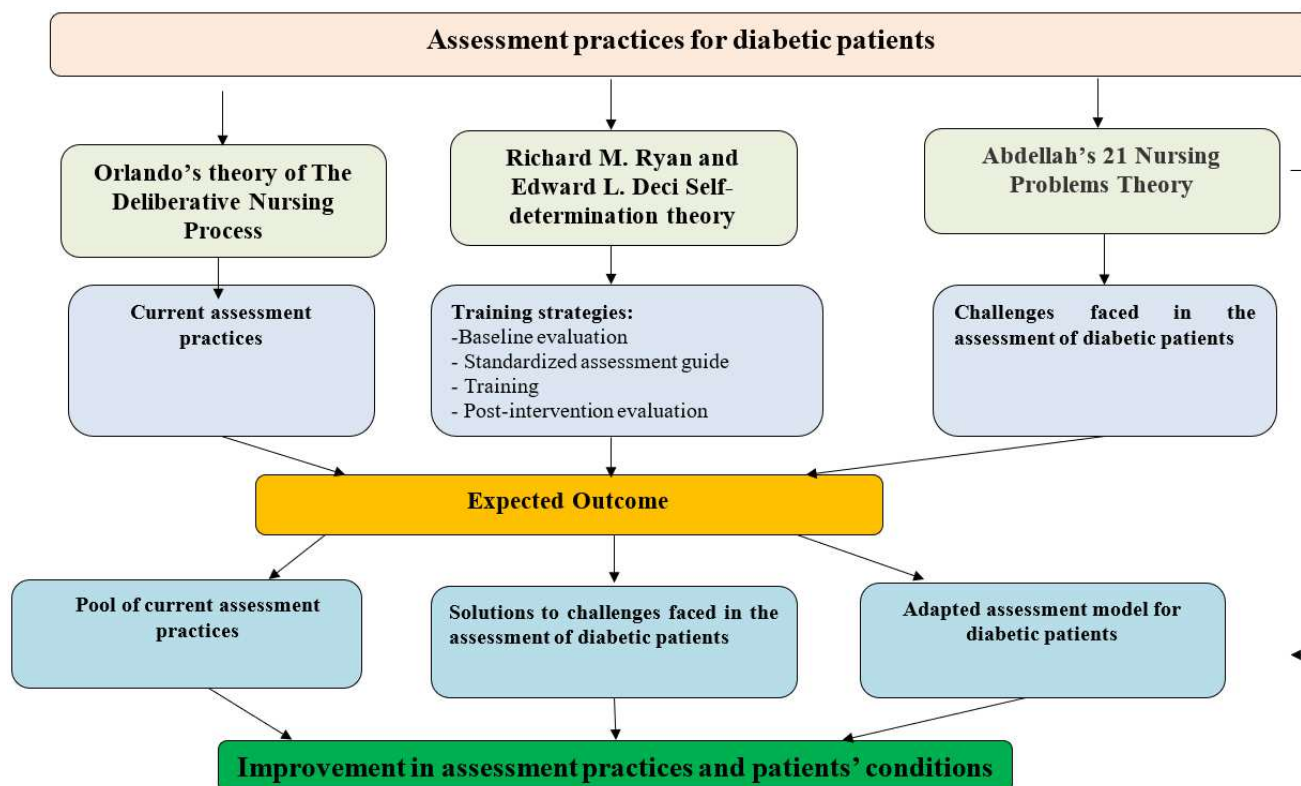
### **Operational Definition of Key Terms**

**Assessment:** A nursing assessment is a process where a nurse gathers, sorts and analyses a patient's health information using evidence informed tools to learn more about a patient's overall health, symptoms and concerns. Assessments are the basis for making diagnoses and performing interventions that match patient needs. It should be performed accurately to avoid mistakes or loopholes or using unsuitable instruments can affect the next steps of the nursing process and result in fragmented welfare and incomplete health care with repercussions on healthcare quality, user satisfaction and on the development of adverse effects. The initial nursing assessment, the first step in the five steps of the nursing process, involves the systematic and continuous collection of data; sorting, analysing, and organizing that data; and the documentation and communication of the data collected. Critical thinking skills applied during the nursing process provide a decision-making framework to develop and guide a plan of care for the patient incorporating evidence-based practice concepts. This concept of precision education to tailor care based on an individual's unique cultural, spiritual, and physical needs, rather than a trial by error, one size fits all approach results in a more favourable outcome. The nursing assessment includes gathering information concerning the patient's individual physiological, psychological, sociological, and spiritual needs. It is the first step in the successful evaluation of a patient. Subjective and objective data collection are an integral part of this process. Part of the assessment includes data collection by obtaining vital signs such as temperature, respiratory rate, heart rate, blood pressure, and pain level using an age or condition appropriate pain scale. The assessment identifies current and future care needs of the patient by allowing the formation of a nursing diagnosis. The nurse recognizes normal and abnormal patient physiology and helps prioritize interventions and care.

**Diabetes:** Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself. For people living with diabetes, access to affordable treatment, including insulin, is critical to their survival. There is a globally agreed target to halt the rise in diabetes and obesity by 2025. It can be further explained that your body breaks down most of the food you eat into sugar (glucose) and releases it into your bloodstream. When your blood sugar goes up, it signals your pancreas to release insulin. Insulin acts like a key to let the blood sugar into your body's cells for use as energy. With diabetes, your body doesn't make enough insulin or can't use it as well as it should. When there isn't enough insulin or cells stop responding to insulin, too much blood sugar stays in your bloodstream. Over time, that can cause serious health problems, such as heart disease, vision loss, and kidney disease. There isn't a cure yet for diabetes, but losing weight, eating healthy food, and being active can really help. There are three main types of diabetes: type 1, type 2, and gestational diabetes (diabetes while pregnant). So generally, Diabetes is a disease that occurs when your blood glucose, also called blood sugar, is too high .

**Diabetic patients:** Person who is challenged with diabetes.

**Challenges:** Challenge is the situation of being faced with something that needs great mental or physical effort in order to be done successfully and therefore tests a person's ability (23). Challenges are difficult and demanding tasks (24).



**Figure 1: Conceptual framework for the study**

## Materials and methods

### Research Design

It was a hospital-based cross-sectional study that employed qualitative survey design. Data were collected using interview guide which is a typical survey instrument (25). Survey consists essentially of collecting people's opinions or viewpoints on a given issue (25). The study is cross-sectional because it makes just an appraisal or snapshot of the current situation.

### Area of Study

The study was carried in Cameroon, in Fako division of the Southwest region. Cameroon is a sub-Saharan central African country with over 28 million inhabitants and made up of ten regions. Fako Division lies at the foot of Mount Cameroon. It covers a surface area of 2093 km square and an average altitude of 2833 m with 534854 inhabitants and the average yearly temperature is about 26.4°C around the coast area. In terms of health, the Southwest Region of Cameroon possesses a regional delegation of public health, training schools for medical and health staffs and health supply centres. The Southwest Region comprises 19 health districts as follows: Buea, Limbe, Ekondo Titi, Kumba, Mamfe, Mbonge, Ekondpo, Fontem, Eyumojock, Bakassi, Muyoka, Nguti, Mundemba, Tombel, Wabane, Konye, Tiko, Bangem and Akwaya. This study was carried out in the Limbe and Buea Health Districts. The two health districts solicited for our study gain their grounds on their accessibility and their heavily populated state thank to their relative calmness patterning the socio-political crisis in Northwest and Southwest regions (26).

### Study Setting

This hospital-based study was conducted in Buea and Limbe regional hospitals.

### Population of the Study

It was made of nurses.

### Inclusion and exclusion Criteria

- Inclusion Criteria
  1. Health facilities having diabetic treatment centres.
  2. Nurses
- Exclusion Criteria

Nurse aid and Brevete nurse for the intervention study.

## Sampling Methods and Sample Size

### Sample size

The sample size was calculated probabilistically using sample calculation for one population proportion with the support of EpiInfo 6.04d (27).

$$n = \frac{NZ^2P(1-P)}{d^2(N-1) + Z^2P(1-P)}$$

Where N=Considering a population of nurses of 361.

Z= Z value corresponding to the 95% confidence level.  $Z_{\alpha/2}$  =level of significance = 1.96.

P= prevalence; the prospected prevalence used is 31.4% from a previous study representing the percentage of nurses with satisfactory level of assessment practice for diabetic patients (28)

d= Absolute precision set at 5%.

n effective=n\*Design Effect. The Design Effect used is 1.05, which is greater than 1 because the convenience sampling is used.

### Sampling method

The sampling method was purposive, cluster sampling and convenience. The sampling was purposive because only the two regional hospitals of the region were included in the study and the study targeted essentially nurses. Within hospital clusters given that it was a hospital-based study, nurses were then involved in the study conveniently until the targeted number was met. Convenience sampling consists in entering the study unit, meeting a targeted participant as one is opportune to come across him, seek his concern and administer the questionnaire. This process is then repeated until the targeted number is met.

### Data Validation

**Table 1: Sample flow table**

Hospital	SRN and above only	Sample size	Minimum	Validated for analysis	Return rate
Limbe regional population	46	35	28	41	146.4
Buea regional hospital	90	68	56	53	94.6
Total	136	103	84	94	111.9

The sample size was estimated at 35 for Limbe and 68 for Buea considering only SRN and above. The validated questionnaires for analysis were 41 for Limbe and 53 for Buea making a total of 94 out of the 103 actually expected, thus a very good return rate of 91.3%.

### Instruments for Data Collection

Data were collected using an interview guide.

### Validity of the Instruments and Data Validation

#### Validity of the instrument

A major concern in research is the validity of the procedures and conclusions (28). Validity is the quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure. A valid research finding is one in which there is similarity between the reality that exists in the world and the research results. Content validity, construct validity, face validity, internal validity and external validity were given prime attention (29). Guba's model for trustworthiness addresses ways for warding off biases in the results of qualitative analysis (30). In this study, however, the model is used to develop strategies that would introduce standards of quality assurance in the processing and analysis of the data. The five strategies are identified in (31). This considers credibility, transferability, comparability, dependability and conformability. The pilot study was conducted in a health facility in Buea municipality that was later excluded from the sampling process. After the trial-testing phase, minor understanding concerns were reported and were adjusted.

### Data Collection Process

Data was collected using the face-to-face approach while abiding to the necessary ethical considerations.

### Ethical Consideration

#### Ethical clearance

Ethical approval was obtained from the Faculty of Health Sciences Institutional Review Board of the University of Bamenda. An informed consent form was used and approved by each participant.

### Administrative clearance

Administrative approval was obtained from the Regional Delegations for Public Health and from the administration of the sampled Hospitals.

### Consent

The protection of human subjects through the application of appropriate ethical principles is important in any research study. The researcher ensured that the subjects were aware of the purpose of the research and the manner in which it would be conducted. Participation in the research was voluntary, and withdrawal was possible at any time. Measures were taken to ensure confidentiality. Specific details or references which could easily lead a reader to deduce the identity of the participant were made more generic. This was a particular concern in sections dealing with potentially sensitive issues.

### Data Management and Analysis

Interviews were transcribed verbatim and revised by the promoters and the statistician. Each interview was prepared as a single primary document and assigned for coding and analysis in Atlas.Ti 5.2 software (Atlas.ti Scientific Software Development GmbH, Berlin, Germany) (32). This program easily automates the coding process and examines huge amounts of data and a wider range of texts quickly and efficiently, once the coding is done. The researcher can now examine the data and draw possible conclusions and generalizations. These textual data were analysed using the process of thematic analysis whereby concepts or ideas were grouped under umbrella terms or key words. The first stage consists deciding on the level of analysis. At this level, single words, clauses and sets of words or phrases were coded. The researcher did not initially decide on how many different concepts to code and for this reason, a pre-defined or interactive set of concepts/categories was not initially developed and concepts or umbrella terms emerged from the data. However, pre-established standardized terminology was used to enrich the umbrella terms that emerged from the study as to make the findings more comparable. The primary documents of textual data were coded for every independent idea as it emerged from the data and for frequency of concepts following the positivism principle, but the theoretical perspective guiding the interpretation of findings was dominantly qualitative. However, the frequency or grounding also reflects how many times a concept emerged and was a major indicator of emphasis. Precautions were taken to clearly determine the meaning of themes or umbrella term and what they stand for. In the context of this study, to satisfy this requirement, findings were organized in code-grounding-quotation tables whereby themes or codes were clearly explained or described, followed by their grounding or frequency of occurrence and at the same time backed by their related quotations presented verbatim. The code-quotation table ensures the objectivity and reliability of qualitative analysis in the sense that if codes / concepts / umbrella terms and their descriptions can be subjected to relative bias, quotations are grounded and real, thus helping compensate for potential bias (25). Though positivism was applied, the dominant theoretical perspective was qualitative. A conceptual diagram concluded the analytical stage which consisted in relating concepts or ideas in a meaningful and logical manner, what is termed concept-building in qualitative analysis (25).

### Findings

#### Socio-demographic information

**Table 8: Demographic characteristics of participants**

<b>Hospital</b>	<b>n</b>	<b>%</b>
Regional hospital Buea	53	56.4
Regional hospital Limbe	41	43.6
<b>Age</b>	<b>n</b>	<b>%</b>
18-30	51	54.3
31-40	21	22.3
41-50	21	22.3
51-60	1	1.1
<b>Sex</b>	<b>n</b>	<b>%</b>
Male	12	12.8
Female	82	87.2

<b>Level of school attained</b>	<b>n</b>	<b>%</b>
HND	22	23.4
SRN	46	48.9
Bachelor degree in nursing	24	25.5
Mater degree in nursing	2	2.1
<b>Years of experience</b>	<b>n</b>	<b>%</b>
1-5	54	57.4
6-10	19	20.2
11-15	8	8.5
16-20	10	10.6
21+	3	3.2
<b>Previous training</b>	<b>n</b>	<b>%</b>
Yes	48	51.1
No	46	48.9
<b>Would like to be trained on diabetic assessment</b>	<b>n</b>	<b>%</b>
Yes	69	73.4
No	25	26.6

### **Hospital**

Nurses were sampled in the regional hospital Buea and regional hospital Limbe with proportion of 56.4% (53) and 43.6% (41) respectively.

### **Age**

The mode age was 18-30 years with proportion of 54.3% (51), followed by 31-40 years and 41-50 years with the same proportion of 22.3% (21) while the least represented was 51-60 years with proportion of 1.1% (1). Cumulatively, 76.6% of the nurses were aged between 18 and 40 years, thus indicating a relatively young population. The stratification of age was good and this was an added value to the representativeness and validity of the sample.

### **Sex**

Though females were quite more represented than males with proportion of 87.2% (82) and 12.8% (12) respectively, both sexes were represented and this stratification was good for the validity of the sample.

### **Level of school attainment**

The mode was SRN with proportion of 48.9% (46), followed by Bachelor degree in nursing 25.5% (24), HND 23.4% (22), then Mater degree in nursing 2.1% (2).

### **Years of experience**

The mode year of experience was 1-5 years 57.4% (54), followed by 6-10 years 20.2% (19), 16-20 years 10.6% (10), 11-15 years 8.5% (8), then 21 years and above 3.2% (3). Cumulatively, 77.7% had 10 years of experience and below and 86.2% had 15 years of experience and below. Nurses were generally young and this could explain their relatively young experience. However, the stratification was good.

### **Previous training**

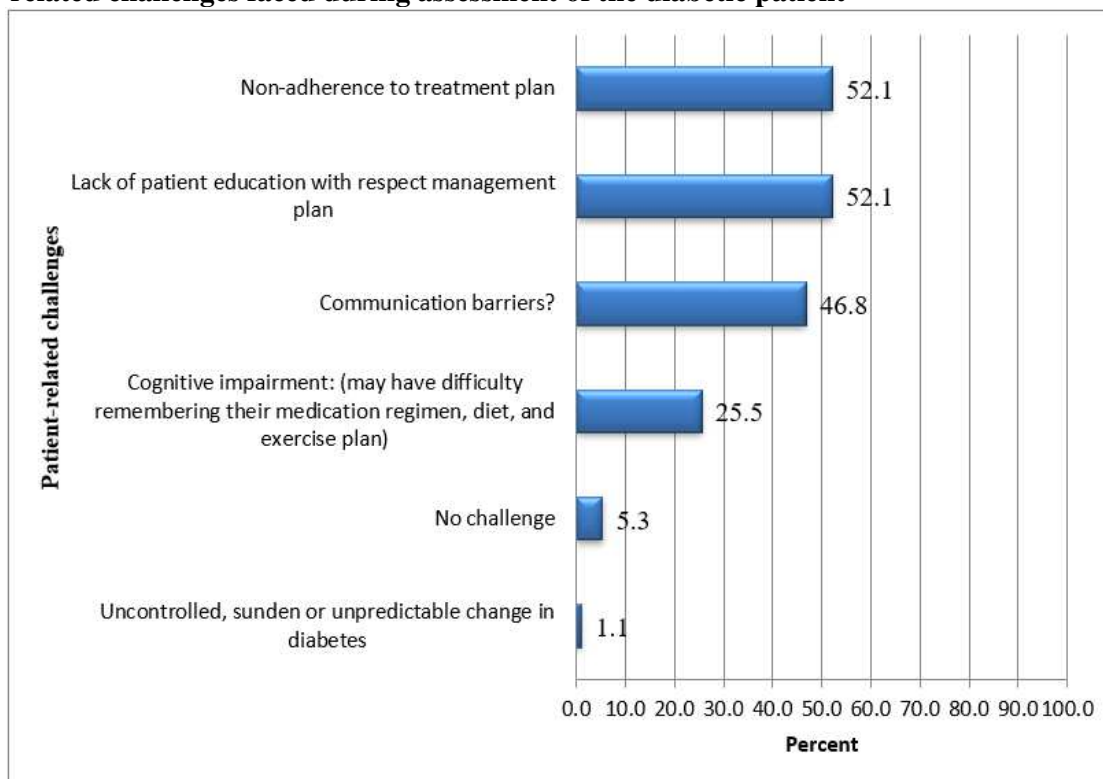
Roughly half of them 51.1% (48) had had a previous training on the assessment of diabetic patients either during the training or a seminar / workshop.

### **Would like to be trained on diabetic assessment**

A strong majority of the nurses 73.4% (69) would like to be trained on diabetic assessment.

### Challenges in assessment of Diabetic patient

#### Patient-related challenges faced during assessment of the diabetic patient

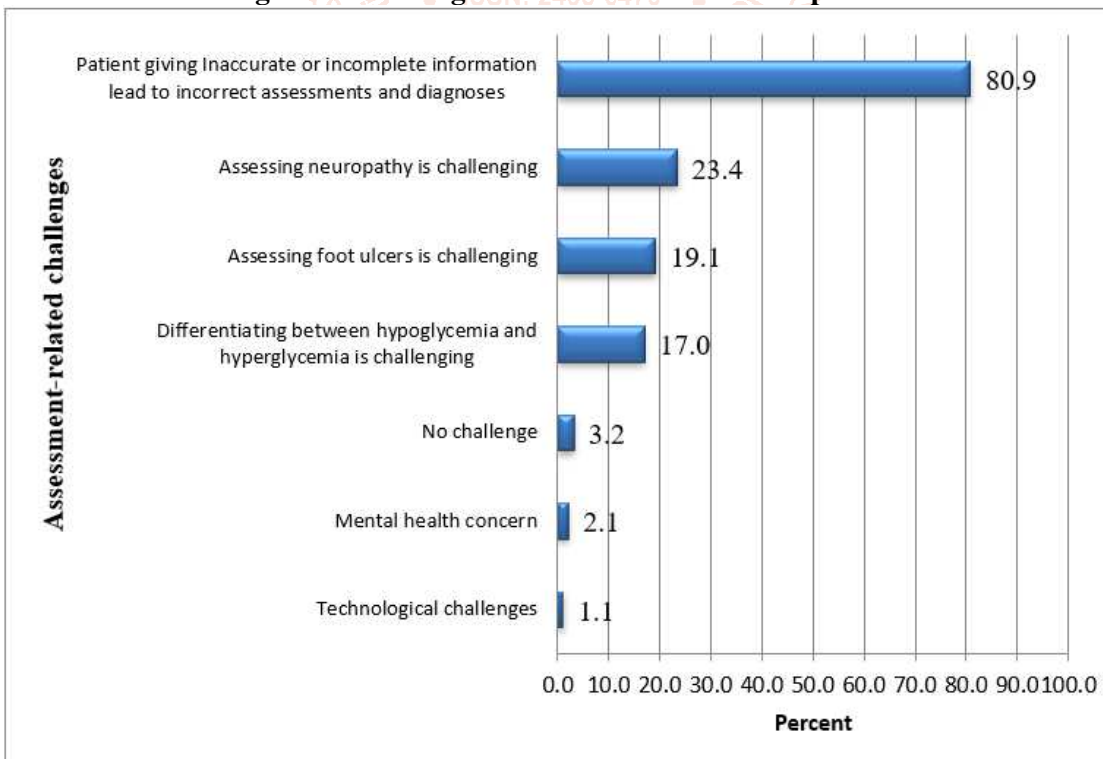


N=94

**Figure 12: Patient-related challenges faced during nurses' assessment of diabetic patients**

The most highlighted patient-related challenge faced during the assessment of diabetic patients was lack of patient education with respect management plan 54.1% (49) having the same percentage with non-adherence to treatment plan.

#### Assessment-related challenges faced during assessment of the diabetic patient

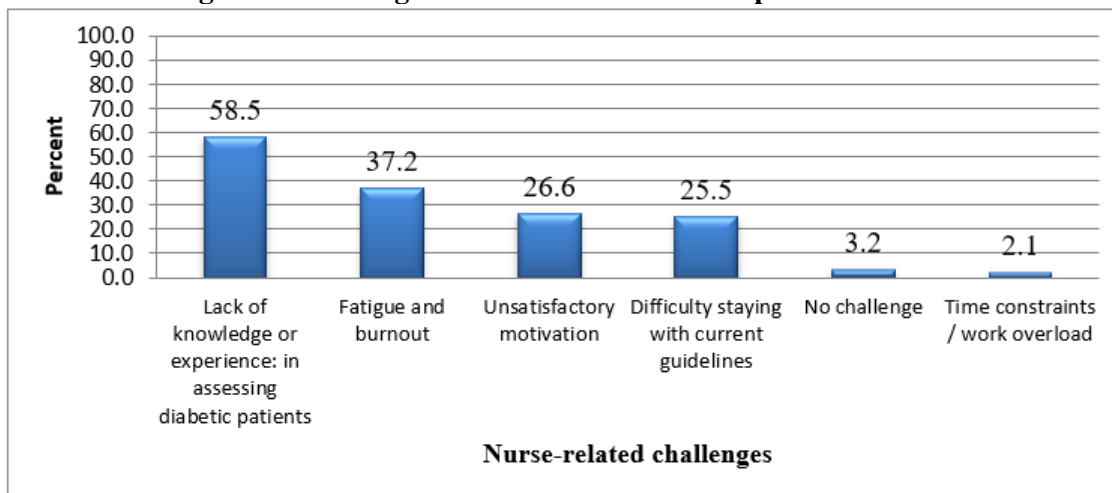


N=94

**Figure 13: Assessment-related challenges faced during nurses' assessment of the diabetic patient**

The most highlighted assessment-related challenge faced during the assessment of diabetic patients was patient giving inaccurate or incomplete information leading to incorrect assessments and diagnoses 80.9% (76).

**Nurse--related challenges faced during assessment of the diabetic patient**

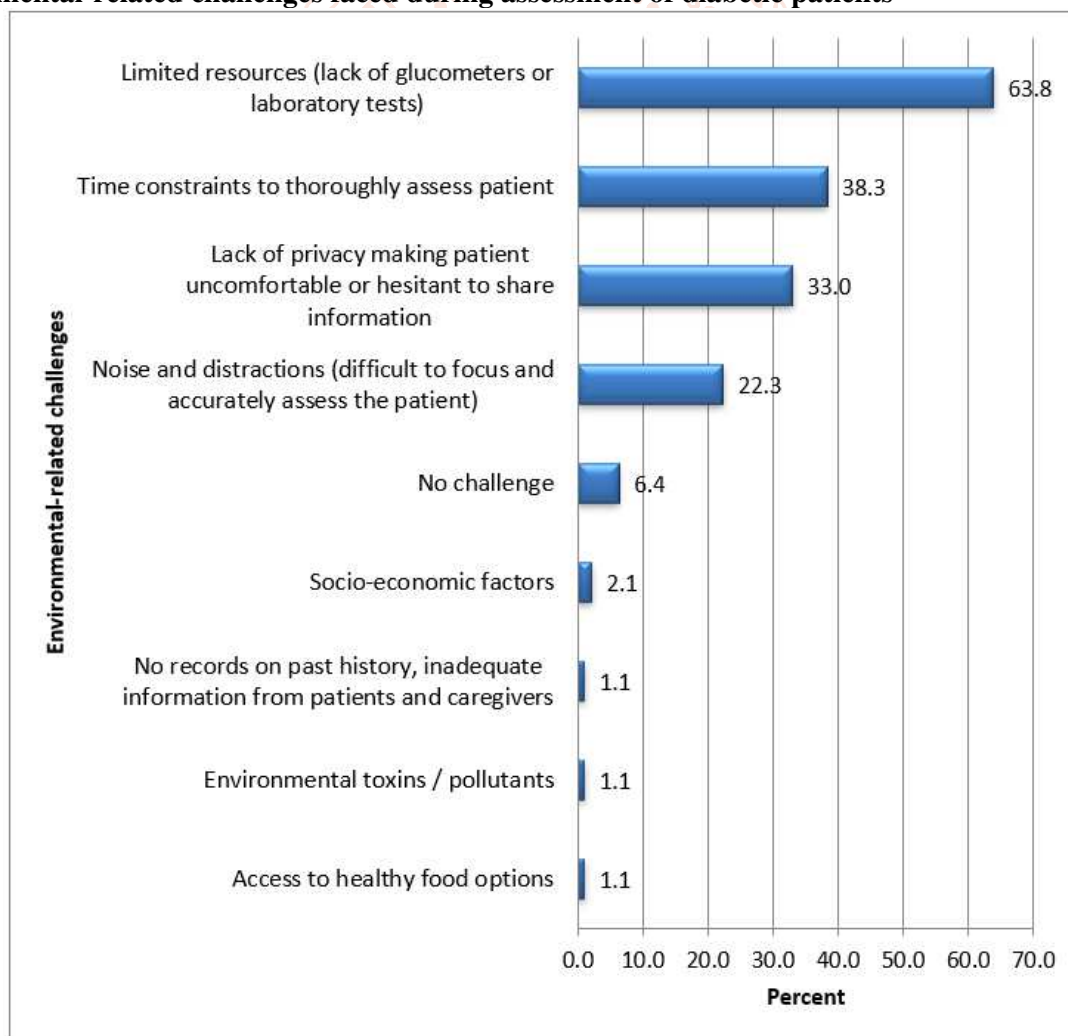


N=94

**Figure 14: Nurse-related challenges faced during assessment of the diabetic patient**

The most highlighted nurse-related challenge faced during the assessment of diabetic patients was lack of knowledge or experience in assessing diabetic patients 60.4% (55).

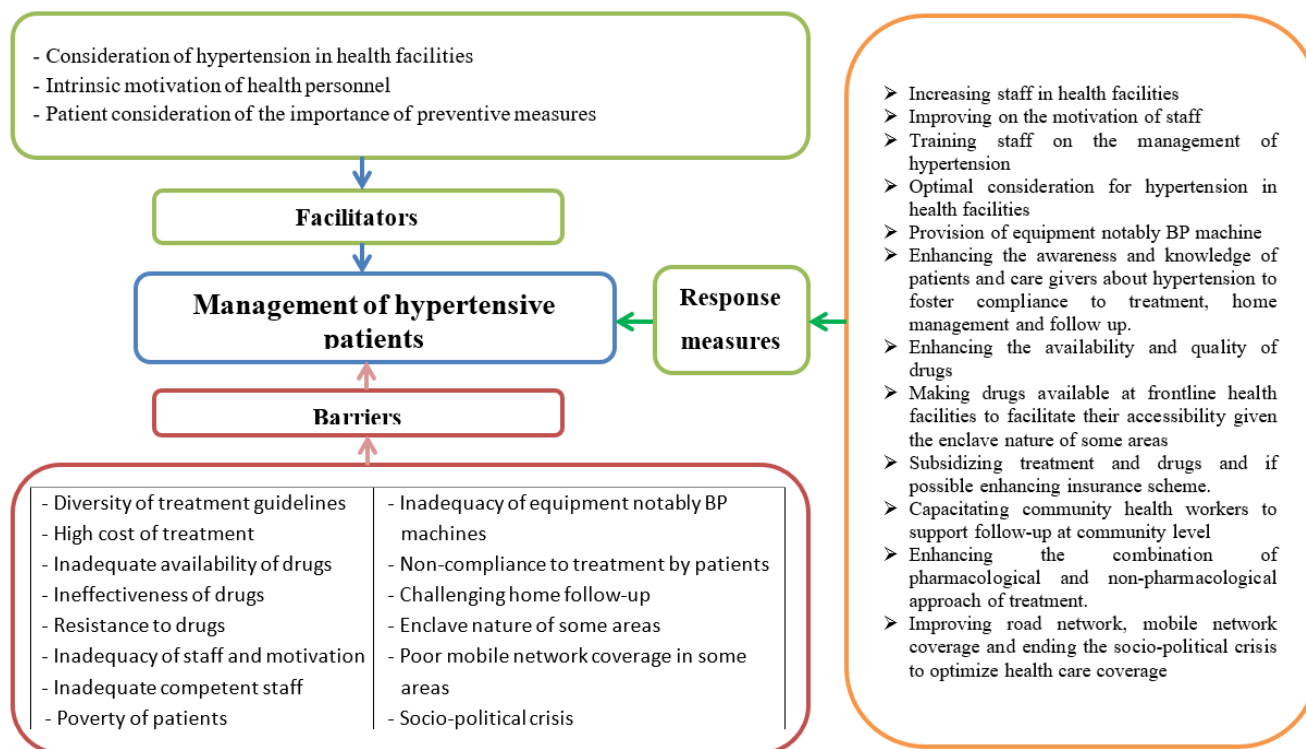
**Environmental-related challenges faced during assessment of diabetic patients**



N=94

**Figure 15: Environmental-related challenges faced during assessment of the diabetic patient**

The most highlighted environmental-related challenge faced during the assessment of diabetic patients was limited resources (lack of glucometers or laboratory tests) 63.8% (60).



**Figure 2: Conceptual diagram depicting an adaptable approach to be used in care and follow up of hypertensive patients**

## Discussion

Several barriers are associated with uncontrolled hypertension particularly treatment-related barriers. Findings suggest further studies to determine new effective strategies to solve this problem (33).

## Challenges in assessment of diabetic patient

Identification of nursing problems in hospitalized diabetes mellitus patients was earlier paid attention (34). In this very vision frame, it was recalled the importance of identifying the barriers to the expansion of the roles of nurses in health care systems (35). Challenges faced during the assessment of the diabetic patient in this study context were classified into patient-related challenges, assessment-related challenges, nurse-related challenges, and environmental-related challenges.

### Patient-related challenge

The most highlighted patient-related challenges faced during the assessment of diabetic patients was lack of patient education with respect management plan having the same percentage with non-adherence to treatment plan, followed by lack of patient education with respect to management plan, communication barriers, cognitive impairment, then uncontrolled, sudden or unpredictable change in diabetes. Instability of patients' blood glucose levels was equally revealed in addition to the risk of decreased cardiac output not highlighted in this study context. In patients with diabetes mellitus, complications of peripheral arterial disease (PAD) were highlighted (30). Patient education and empowerment was emphasized as major resort to enhance participatory health care (31). It was acknowledged that personal preferences and unique needs as well as the personal and environmental resources available to each client must always be considered in the delivery of care thus emphasizing patient-centred care (32).

### Assessment-related challenges

The most highlighted assessment-related challenges faced during the assessment of diabetic patients was patient giving inaccurate or incomplete information lead to incorrect assessments and diagnoses. This was followed by challenge in assessing neuropathy, foot ulcer, differentiating between hypoglycemia and hyperglycemia, mental health concern and technological challenges. The inability of nurses to prescribe medicines was a major barrier from a system or legal perspective in Kyrgyzstan, a low-income and middle-income country (LMIC). The perception of the roles of nurses in providing care for non-communicable diseases including diabetes by general

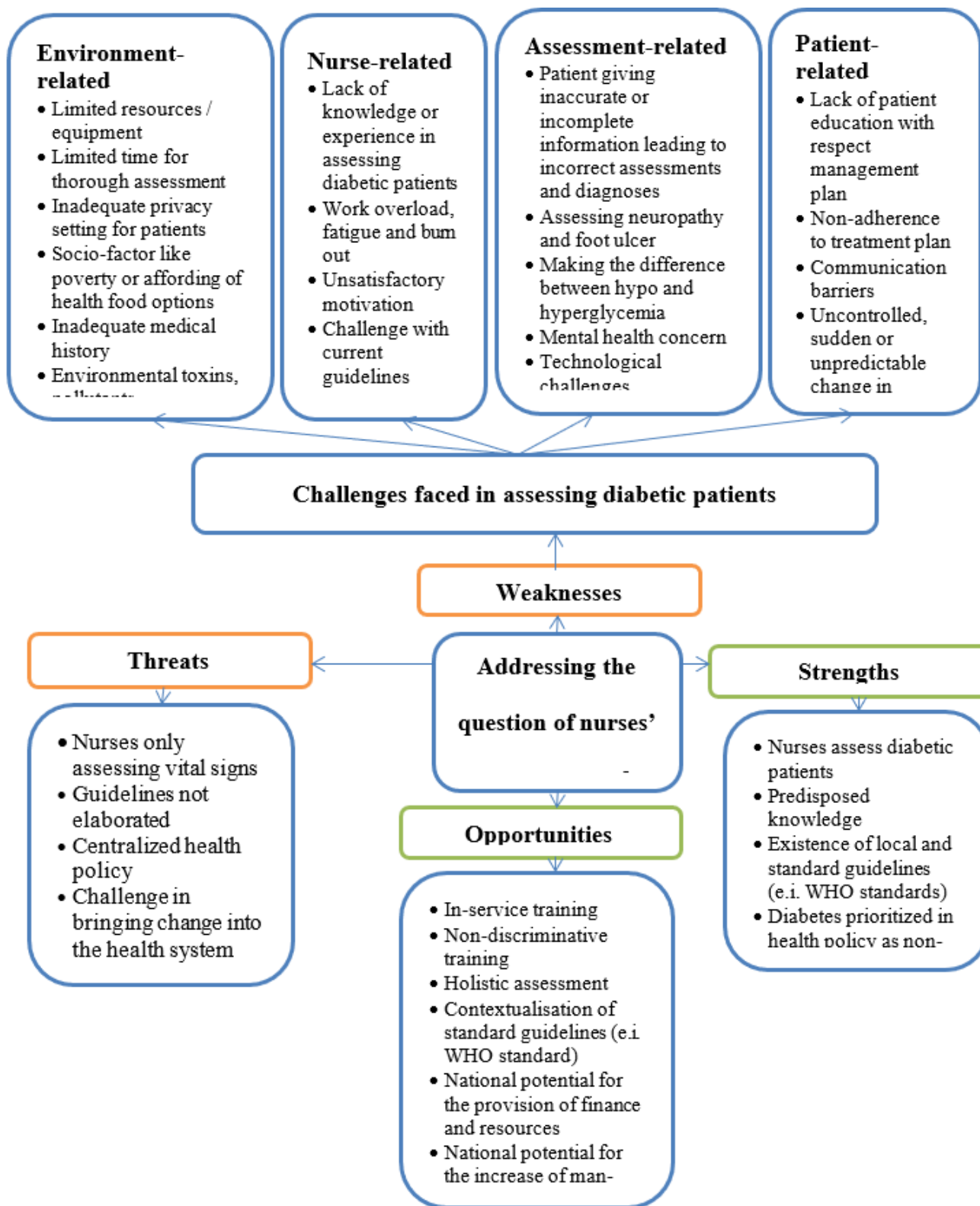
people and even doctors is another limitation to the roles of nurses (30). This particular question as per the extent to which nurses can intervene in patient care was highlighted in this study context though not really pointed out as barrier as if nurses adhere or conform to the on-going standard or practices. In fact nurses emphasized the paramount role played by doctors whereby they are highly limited in their assessment scope.

### **Nurse-related challenges**

The most highlighted nurse-related challenges faced during the assessment of diabetic patients was lack of knowledge or experience in assessing diabetic patients. Lack of confidence and knowledge about diabetes management were the two main challenges highlighted following a survey study including patients, nurses and midwives (38), thus supporting the findings of this context. It is in this frame that it was stressed the need to overcome such challenges (35) whereby emphasis was placed on proper training, perceived essential to make fundamental changes in nursing education, health system, policy, and societal levels in order to extend the role of nurses in diabetes care, management, and prevention. These measures are important to ensure that nurses can actually achieve their potential in tackling global challenges. In-service training was equally paid sufficient attention in this study context. Other nurse-related challenges include fatigue and burnout, unsatisfactory motivation, difficulty staying with current guidelines and time constraints / work overload. This aligns with other scholars as shortages or personnel, remuneration concerns, heavy workload, and negative relationships with staff were highlighted as challenges faced by nurses. The authors concluded that the role performed by diabetes nurses is complex and requires appropriate preparation and support. To enhance their diabetes care role, nurses should be empowered through specialised training in diabetes and associated complications (38). Earlier studies revealed that the problems most frequently found problems include the risk of infection (39) which essentially contrasts with those of this study context. Lack of structured educational planning, lack of needs assessment practical patterns, managers' insufficient support and supervision, and managers' insufficient attention to motivational factors were also stressed out (40). It was assessed important to address more practical elements along with the introduction of Diabetes Specialist Nurses (DSNs) to enable nurses to exert roles in prescribing medicines, running nurse-directed diabetes clinics, carrying out diabetes research, and providing diabetes education (41). It was emphasized that along with societal recognition by the population and policymakers, the health system ought to completely acknowledge the significance of the roles played by nurses within the health system. Other resort measures included involving the use or empowerment of diagnostic tools, inter-professional patient education, supportive supervision, task sharing, training on certain disease areas, and prescribing (42) (43). Inter-professional patient education and empowerment or use of diagnostic tools shall be considered. These roles need recognition in terms of qualifications and positions, with opportunities for higher pay and career progression. One way to support such a strategy would be promotion of an inter-professional approach, which involves medical and nursing students learning together during their formative training, so they are better prepared to work together in future professional settings (43). It is also important to provide better employment opportunities with clear career paths and better professional recognition. Global issues of migration and retention need customised solutions to ensure that resolving staff shortage issues in one country does not lead to the depletion of nurses in other countries (42). A successful extension of nursing roles has been implemented in Thailand, where nurses play various roles as advanced practice nurses, case managers, and educators in diabetes (41). Nurses require clearly defined responsibilities and roles to provide diabetes care in a health system in order to provide the finest care to the patients they serve. Nurses also require skills and tools to carry out their tasks in different settings. This approach might involve the use or empowerment of diagnostic tools, inter-professional patient education, supportive supervision, task sharing, training on certain disease areas, and prescribing. These roles require recognition in terms of positions and qualifications, along with opportunities for career progression and higher pay. Elevation of an inter-professional method could be an approach to assist such strategies, which includes nursing and medical students learning together during the period of their formative training so that they are well equipped to work as a team in future professional scenarios (42).

### **Environmental-related challenges**

The most highlighted environmental-related challenge faced during the assessment of diabetic patients was limited resources (lack of glucometers or laboratory tests). This was followed by time constraints to thoroughly assess patients, lack of privacy making patient uncomfortable or hesitant to share information, noise and distraction making it difficult to focus and accurately assess patients, socio-economic factors, inadequacy of records on patients' history, inadequate information from patients and care givers, environmental toxins / pollutants and access to healthy food options. It was regarded as crucial the need to exert fundamental changes within the general nursing environment (42).



**Figure 18: SWOT analysis to inform strategic frame for diabetic patient’s assessment by nurses**

Practice was dominantly poor, which was a real course of concern in this study context.

The need for an assessment model was recommended by other authors. It was found that reliable patient reported outcome measure (PROM) tools are needed to confirm improvement in symptoms and patients’ general well-being after lacrimal surgery since a successful anatomical surgical outcome does not

necessarily confer an improvement in patient satisfaction. Even is such model is developed; constant improvement of such supportive care needs and resources shall be paid prime attention (44). A study by Temel and kutlu found that Majory Gordons model of assessment was effective in improving the health of people with depression and could be introduced as routine care especially as Gordon's

Functional Health Pattern Model ensures a holistic approach for the patient.

In the same perspective and more specifically, most nursing assessment tools found included medication and/or treatment adherence, current state of health or current symptoms, smoking, alcohol or other substances use, past medical history or problems, health seeking behaviour, allergies, and knowledge about disease or treatment equally considered in this study context.

In their study on the assessments of patients' pain, nutrition and skin in clinical practice, found that there is a blurring of boundaries between assessment done by register nurse (RNs) and enrolled (ENs) regarding pain, nutrition and skin assessments the authors hold that RNs and ENs usually work jointly through the assessment phase regarding the nursing care, however, performance of the assessments depended on the education levels of RNs and ENs. This is contrasting the findings of this study whereby nurses' practice of assessment of diabetic patients was not dependent ( $P > 0.05$ ) of demographic information, thus implying that it was general concern as practice was dominantly poor. The mode developed here thus should be implemented comprehensively and holistically.

The model developed in this study context recommends team or collaborative work. Teamwork between doctors, nurses, and other health workers in hospital was recommended as it increases assessment response to patients, as well as a better and sophisticated Medical system which improves the response time of health workers, especially nurses in giving action as well as reducing patient mortality and improving service quality (45).

By placing emphasis on psychological needs, the model developed in this study context corroborates these authors who earlier emphasized that acute Care has been designed as a comprehensive and efficient system to assess functional and psychosocial needs of adult inpatients in acute care, thus addressing standards for quality patient care (46).

### Conclusion

The most highlighted patient-related challenge faced during the assessment of diabetic patients was lack of patient education with respect management plan, the most highlighted assessment-related challenge being patient giving inaccurate or incomplete information leading to incorrect assessments and diagnoses, the most highlighted nurse-related challenge being lack of knowledge or experience in assessing diabetic patients while the most highlighted environmental-related challenge was limited resources (lack of glucometers or laboratory tests).

Practice was generally poor thus posing acute need for in-service training. The study thus emphasized the need for in-service training to continuously rehearsing and updating nurses on assessment practices for diabetic patients.

### Recommendations

Following the empirical findings of this study, the following recommendations were made:

Sustaining in-service training to keep nurses abreast of the changing standards and dynamisms in the assessment of diabetic patients;

Considering the psychological needs of patients is more and more recommended by other scholars or scientist, thus, this should be highly considered in this context as well, and this was highlighted in the assessment model here developed.

Collaborative or team work was perceived paramount if effective and conducive assessment should be achieved. This should be paid sufficient attention if our vision for continuously improving the wellbeing of diabetic patients should be sustained.

Practice was generally poor and was not dependent of demographic characteristics or profile of nurses; thus implementation of the model in this study context should not be discriminative but a general application.

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