Illness-Perception Among Diabetes Mellitus Patients in Selected Hospitals, Benin-City, Edo State, Nigeria

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ABSTRACT: *The study determined illness-perception among diabetes mellitus patients in selected hospitals, Benin-city, Edo State, Nigeria. The study specifically assessed the level of illness-perception among people living with diabetes mellitus in Benin-City. This study adopted descriptive cross-sectional method. The sample for the study was obtained from the total population of Nine hundred and sixty-eight (968), using Slovin's Formula. The instrument used for data collection was a self-designed questionnaire which consisted of two sections. Internal consistency method was used to ascertain the reliability of the instrument. The reliability of the instrument was calculated using Cronbach's Alpha which yielded coefficient value 0f 0.813. Data collected from respondents through questionnaire were analysed using descriptive statistics. Results showed that the respondents demonstrated high level of illness- perception with mean scores of; perceived susceptibility 4.05± .939, perceived severity 3.76± 1.112, perceived threat 3.89± 1.107 and perceived benefit 3.60± 1.077. Result also showed that 66.7% of participants had high level of ill-perception. The study concluded that respondents have high illness-perception which is likely to inform them about specific diabetes self-care management actions. It was recommended that there was need for nurses to continuously educate patients on characteristics of the diabetic disease that seems severe, symptoms of DM that interfere with their activity, complications that may occur due to diabetes and complex treatment rules.*

KEY WORDS: illness-perception, diabetes mellitus, selected hospitals

INTRODUCTION

Diabetes mellitus (DM) as defined by Tella et al (2021) is a syndrome characterized by inappropriate fasting or postprandial hyperglycemia, caused by absolute or relative insulin deficiency, and its metabolic consequences which include disturbed metabolism of protein and fat.

This syndrome results from a combination of deficiency in insulin secretion and its action. Diabetes mellitus occurs when the normal constant of the product of insulin secretion times insulin sensitivity, a parabolic function termed the "disposition index", is inadequate to prevent hyperglycemia and its clinical consequences of polyuria, polydipsia, and weight loss. A high degree of insulin sensitivity, small declines in the ability to secrete insulin cause only mild, clinically imperceptible defects in glucose metabolism as opined by Sperling, (2020).

According to Nwawuba et al (2019), diabetes mellitus is a diagnostic term for a group of disorders characterized by abnormal glucose homeostasis resulting in elevated blood glucose. It is among the most common chronic disorders affecting about 5-10% of the adult population of the Western world. The prevalence of diabetes will increase by more than 50% between the years 2000 and 2030 (Nwawuba et al, 2019). It has been established that diabetes mellitus is not a single disease, but a genetically heterogeneous group of disorders that share glucose intolerance in common.

Understandably, diabetes mellitus has a great toll on the individual suffering the illness, yet they still need to move on with their daily affairs of the living. On this note, one's definition of health remains the cornerstone to one's illness- perception which in turn determines the extent to which these individuals get involved in their self-care management practices. Kugbey, et al (2017) stated that rather than the objective characteristic of chronic disease, its subjective cognitive and emotional representation encourages or discourages health management and self-care practices of such illness. Illness perception as with the definition of health takes on different attributes with each living with a chronic illness. Therefore, the burden of chronic illness is related to for example the type of disease and treatment, disease severity or stage, and other objective disease characteristics. Illness- perception or perceived health status is a subjective rating by the affected individual of his or her health status. Some people perceive themselves as healthy despite suffering from one or more chronic diseases, while others perceive themselves as ill when no objective evidence of disease can be found.

According to Addisu, et al (2014), diabetes mellitus is a chronic and irreversible disease that lasts lifelong directly concerns any individual of all ages and their relatives, brings heavy economic burden, affects self-care activities, and shortens life expectancy due to chronic damages it causes. Patients with chronic illnesses like diabetes mellitus face significant challenges with self-care management activities which include monitoring daily glucose levels, regulating medication, exercise, and diet in the context of their work, home, and leisure lives, weight and stress management, self-monitoring of blood glucose. These activities represent significant challenges for many patients especially those with limited social support, time constraints, and limited health literacy (Hashimoto et al, 2019).

In a cross-sectional study carried out by Kugbey, et al (2017) on Illness Perception, Diabetes Knowledge and Self-Care Practices among type 2 diabetes patients. From the results of the study, a total illness belief or perception score was computed by adding the responses on all the nine scales (illness consequences, duration, personal control, treatment control, symptoms, coherence,

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concern, emotional responses and causes) with possible scores ranging between 0-80. A higher score indicates a more threatening view about diabetes that is, the individual perceives diabetes to be fatal and dangerous to one's survival. The study also revealed that illness perception and diabetes knowledge significantly predicted overall diabetes self-care practices. Analysis of domain-specific self-care practices showed that patients' diet was significantly predicted by illness perception and diabetes knowledge. The exercise was significantly predicted by illness perception. In another study carried out by Albargawi, et al (2016) on the Perception of Persons with Type 2 Diabetes mellitus in Saudi Arabia, a descriptive correlation design was used to analyze self-report questionnaires completed by 30 respondents, selected using a convenient sampling technique. The results showed that the value of health was perceived as very high by a majority (87%) of participants. Almost all (97%) of the participants acknowledged that they need to manage their T2DM, and 70% viewed diabetes as the worst thing that had ever happened to them. Additionally, a large number (64%) of respondents reported that managing their diabetes was more important than enjoying their life.

Afaya, et al (2020) reiterated that a positive perception of diabetes illness enhances effective self-care management to reduce the risk of diabetes-specific complications, such as hypertension, amputation, nephropathy, neuropathy, retinopathy, cardiovascular disease, impotence, and skin lesions. In same vein Kugbey, et al (2017) opined that illness perception has been identified in some studies as a significant factor that influences self-care management practices, psychological distress, and other health outcomes among persons living with diabetes.

Therefore, the researcher finds it imperative to assess illness-perception among diabetes mellitus patients in selected hospitals, Benin-city, Edo State, Nigeria. The study specifically assessed the level of illness-perception among people living with diabetes mellitus in Benin-City

Theoretical Framework
This study adopted the Health Belief Model (HBM). The Health Belief Model (HBM) was developed in the **1950s** by social psychologists Irwin, Godfrey, Hochbaum, Rosenstock, and Kegeles, to explain why people did or did not take part in programs to detect or prevent disease, such as blood glucose screenings to detect diabetes mellitus. Health Belief Model posited that, six (6) constructs predict health behaviour: perceived susceptibility, perceived severity, perceived benefits, perceived barriers to action, cues to action, and self-efficacy.

Perceived Susceptibility: This refers to subjective assessment of risk of developing a health problem. The Health Belief Model predicts that individuals who perceived they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky behaviors. Individuals who perceived a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition. The combination of perceived severity and perceived susceptibility is referred to as perceived threat. Perceived severity and perceived

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susceptibility to a given health condition depend on the knowledge about the condition. The HBM predicts that higher perceived threat leads to a higher likelihood of engagement in health-promotion behaviors.

Perceived Severity: Perceived severity refers to the subjective assessment of the severity of a health problem and its potential consequences. The HBM proposes that individuals who perceived a given health problem as serious are more likely to engage in behaviors to prevent the health problem form occurring (or reduce the severity). Perceived seriousness encompasses beliefs about the disease itself (for example, whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles.

Perceived Benefits: Health-related behaviors are influenced by perceived benefits of taking action. Perceived benefits refer to an individual's assessment of the advantages of the health behavior suggested for reducing the severity of the acquired disease or illness. The individual identifies benefits to engaging in treatment and belief treatment will be effective in reducing symptoms. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, a diabetes patient who believe that taking the medications daily as recommended will help control blood glucose levels, and averts complications associated with hyperglycemia, will continue to adhere to taking the medications.

Perceived Barriers: Health- related behaviours are also a function of perceived barriers to taking action. Perceived barriers refer to obstacles to participating in suggested health behavior. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the treat, barriers may prevent engagement in the health-promotion behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. For example, perceived barriers in diabetes management may include; perceived inconvenience of daily pills, cost, lack of access to affordable health care, perception that the illness is incurable, emotional upset, discomfort from insulin injections.

Cues to Action: The HBM posits that a cue or trigger is necessary for prompting engagement in health-promotion behaviours (Gbenga-Epebinu & Ogunrinde, 2020). Cues to action can be internal or external. Physiological cues for example, pain, symptoms are internal cues. External cues include events or information significant others, the media, or health care providers promoting engagement in health-related behaviors. Examples of cues to action include reminder postcards from healthcare providers, the illness of a friend or family member, mass media campaigns on health issues, and even product health warning labels. The intensity of cues needed to prompt action varies between individuals by perceived susceptibility, seriousness, benefits, and barriers. For example, individuals who believe they are at high risk for a serious illness and who have an established relationship with a primary health care provider may be easily persuaded to keep to

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clinic appointment, monitor blood glucose levels, check the feet daily, exercise, and take prescribed medications daily.

Self-efficacy: Self-efficacy refers to an individual's perception of his or her competence to successfully perform a behavior. Self-efficacy is essential for modifying lifestyle behaviors and long -term change. For example, increasing physical exercise, quitting smoking, eating healthier, taking recommended medications
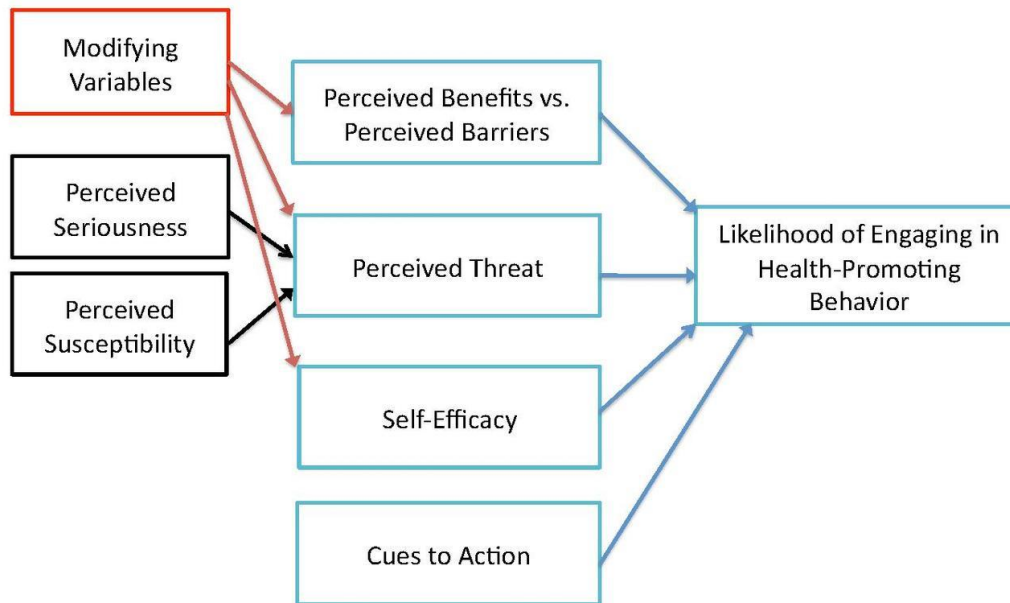

Figure 1: The Health Belief Model (Pennsylvania, 2018).

Application of Health Belief Model (HBM) to the study

The HBM can be applied to how diabetes patients responded to the diagnosis of their illness, including adherence to medical regimens, exercise, dietary control, and daily monitoring of blood glucose levels. The model proposed that prevention of high blood glucose levels and therapeutic recommendations by the clinician is more likely to be followed if the diabetes patient feels that; they are susceptible to the disease; believe that the disease is serious; believe that the benefits of the recommended treatment will outweigh the costs or barriers involved in following it; and also

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have confidence that they can carry out recommended treatment successfully. This model can be illustrated by assessing the motivation for blood glucose monitoring behaviour: the diabetic patient must believe persistent hyperglycemia is possible; that retinopathy, nephropathy, hypertension, would be unfortunate consequences of persistent increase in blood glucose levels; that daily monitoring of blood glucose levels, and adherence to dietary and drug regimen can prevent such complications; and that the benefits of adhering to diabetes management strategies outweigh the inconvenience, time, and cost of maintaining a euglycemic status over time.

METHODOLOGY

This study adopted descriptive cross-sectional method was used to study the illness-perception among people living with diabetes mellitus in Benin-City. Five (5) selected hospitals were used for the study namely; University of Benin Teaching Hospital (UBTH); Edo Specialist Hospital, Benin Medical Care; Faith Mediplex Hospital; and Irowa Medical Centre.

Table 1: Distribution of Target Population from the Hospitals

Setting	Average Monthly Attendance from July to December 2021
University of Benin Teaching Hospital	387
Edo Specialist Hospital	242
Benin Medical Care	140
Faith Mediplex Hospital	150
Irowa Medical Center	49
Total	**968**

Source of population: Attendance Register for Diabetic Patients in the Selected Hospitals from July to December, 2021.

Inclusion Criteria: All diabetes patients ≥ 20 years who have been diagnosed with the illness in the past one year on follow-up health visits in the clinics were included in the study. Diabetes patients who are blind, cognitively impaired, or otherwise unable to consent independently were excluded. Also, patients taking anti-diabetic medications for less than one year were also excluded from the study.

The sample for the study was obtained from the total population of Nine hundred and sixty-eight (968), using Slovin's Formula as shown below while multi-stage sampling procedure was used to select the calculated sample size. Nine hundred and sixty-eight (968) represent monthly clinics attendance of diabetes patients in the selected hospitals.

$$n = \frac{N}{1+ N\,(e)^{2}}$$

Where n = Number of Sample; N = Total Population; e= Margin of error
N=968, e=0.05

Thus   n= $\quad$ 968 / 1+ 968 (0.05) ^{2}

n = $\quad$ 968/1+ 968× 0.0025

n= $\quad$ 968/1+2.42

n= $\quad$ 968/3.42

n= $\quad$ 283

Considering 10% contingency for attrition rate, the final sample size to be used is;

$^{10}/_{100} \times {}^{283}/_1 = 28.3$

Therefore, the Sample n = 283+ 28.3

n = 311

The proportion for each selected hospital would:

For the University of Benin Teaching Hospital, the quota = $^{387}/_{968} \times 100 = 39.9\%$

For Edo Specialist Hospital quota $\qquad = {}^{242}/_{968} \times 100 = 25\%$

For Benin Medical Care quota $\qquad = {}^{140}/_{968} \times 100 = 14.5\%$

For Faith Mediplex Hospital, the quota $\quad = {}^{150}/_{968} \times 100 = 15.5\%$

For Irowa Medical Center, the quota $\qquad = {}^{49}/_{968} \times 100 = 5.1\%$

Therefore, participants from each hospital were;

University of Benin Teaching Hospital = $^{39.9}/_{100} \times 311$ (the sample size) = 124

Edo Specialist Hospital $\qquad = {}^{25}/_{100} \times 311 \qquad = 78$

Benin Medical Care $\qquad = {}^{14.5}/_{100} \times 311 \qquad = 45$

Faith Mediplex Hospital $\qquad = {}^{15.5}/_{100} \times 311 \qquad = 48$

Irowa Medical Center $\qquad = {}^{5.1}/_{100} \times 311 \qquad = 16$

Total $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ **311**

The instrument used for data collection was a self-designed questionnaire which consisted of two sections. Section A sought for the socio-demographic characteristics of the respondents while section B comprises of 15 items on illness-perception of people living with diabetes. The responses were measured using a 5-point Likert scale, 5-Strongly Agree (SA), 4-Agree (A), 3- Undecided (U), 2- Disagree (D) and 1- Strongly Disagree (SD), and a criterion mean score of 3.0. The validity was done to ascertain the extent to which the instrument reflects the variable under study and the objectives to assess illness-perception among people living with diabetes, thereby affirming the face and content validity. Internal consistency method was used to ascertain the reliability of the instrument. The reliability of the instrument was calculated using Cronbach's Alpha which yielded coefficient value 0f 0.813

Data collected from respondents through questionnaire were analysed using descriptive statistics. The sole objective on illness- perception was analysed on a 5-point Likert Scale, using 3.0 as the criterion mean or decision rule. Illness-perception was rated as high or low perception.

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RESULTS AND DISCUSSION

Table 2: Showing Illness-Perception among the respondents
Key: SA =Strongly Agree, A = Agree, U= Undecided, D = Disagree, SD = Strongly Disagree

SN	Items	Response						Remark
		SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean ± SD	
	Perceived Susceptibility							
1	Diabetes is an inherited disease	113 (37.7)	119 (39.7)	43 (14.3)	17 (5.7)	8 (2.7)	4.04 ± .994	High
2	An overweight or obese person can develop diabetes	104 (34.7)	130 (43.3)	51 (17.0)	11 (3.7)	4 (1.3)	4.06 ± .884	High
	Average mean score						**4.05 ± .939**	
	Perceived Severity							
3	Diabetes illness is incurable	73 (24.3)	118 (39.3)	36 (12.0)	46 (15.3)	27 (9.0)	3.55 ± 1.260	High
4	Diabetes is a very serious illness.	80 (26.7)	139 (46.3)	43 (14.3)	25 (8.3)	13 (4.3)	3.83 ± 1.052	High
5	Diabetes symptoms are so unpleasant and they interfer with your activity of daily living.	83 (27.7)	148 (49.3)	32 (10.7)	26 (8.7)	11 (3.7)	3.89 ± 1.025	High
	Average mean score						**3.76 ± 1.112**	
	Perceived Threat							
6	If blood sugar is always high, it can cause loss of vision	112 (37.3)	113 (37.7)	49 (16.3)	15 (5.0)	11 (3.7)	4.00 ± 1.035	High
7	Uncontrolled high blood sugar can cause hypertension	90 (30.0)	122 (40.7)	44 (14.7)	20 (6.7)	24 (8.0)	3.78 ± 1.179	High
	Average mean score						**3.89 ± 1.107**	
	Perceived Benefit							
8	Someone with diabetes can live optimally when the illness is well managed.	102 (34.0)	125 (41.7)	33 (11.0)	32 (10.7)	8 (2.7)	3.94 ± 1.057	High
9	Controlling your blood glucose will improve your quality of life.	113 (37.7)	134 (44.7)	38 (12.7)	13 (4.3)	2 (.7)	4.15 ± .845	High
10	You feel healthy living with diabetes.	30 (10.0)	82 (27.3)	44 (14.7)	114 (38.0)	30 (10.0)	2.89 ± 1.203	Low

11	Your health condition has been stable since diagnosed of diabetes	57 (19.0)	116 (38.7)	47 (15.7)	59 (19.7)	21 (7.0)	3.43 ± 1.201	High
	Average mean score						**3.60 ± 1.077**	
	Perceived Barrier							
12	Diabetes self-care management is very expensive and burdensome.	96 (32.0)	114 (38.0)	46 (15.3)	34 (11.3)	10 (3.3)	2.16 ± 1.098	Low
13	You are not really concern about what you eat.	79 (26.3)	98 (32.7)	38 (12.7)	59 (19.7)	26 (8.7)	2.52 ± 1.302	Low
14	Visiting your doctor is so inconveniencing	56 (18.7)	111 (37.0)	54 (18.0)	57 (19.0)	22 (7.3)	2.59 ± 1.200	Low
15	Your family members are becoming weary of your illness	61 (20.3)	87 (29.0)	52 (17.3)	66 (22.0)	34 (11.3)	2.75 ± 1.311	Low
	Average mean score						**2.505 ± 1.228**	
	Grand mean						**3.25 ± 1.120**	

Criterion mean = 3.0;
Decision Rule: Mean <3.0 = low perception,
Mean >3.0 = high perception.

Table 2 shows 4.05 ± 0.93 average mean score for perceived susceptibility to diabetes mellitus, and 3.76 ± 1.11 average mean score for perceived severity. Perceived threat shows 3.89 ± 1.10 mean while perceived benefit shows 3.60 ± 1.07 average mean score. Perceived barrier has an average mean of 2.50 ± 1.12.
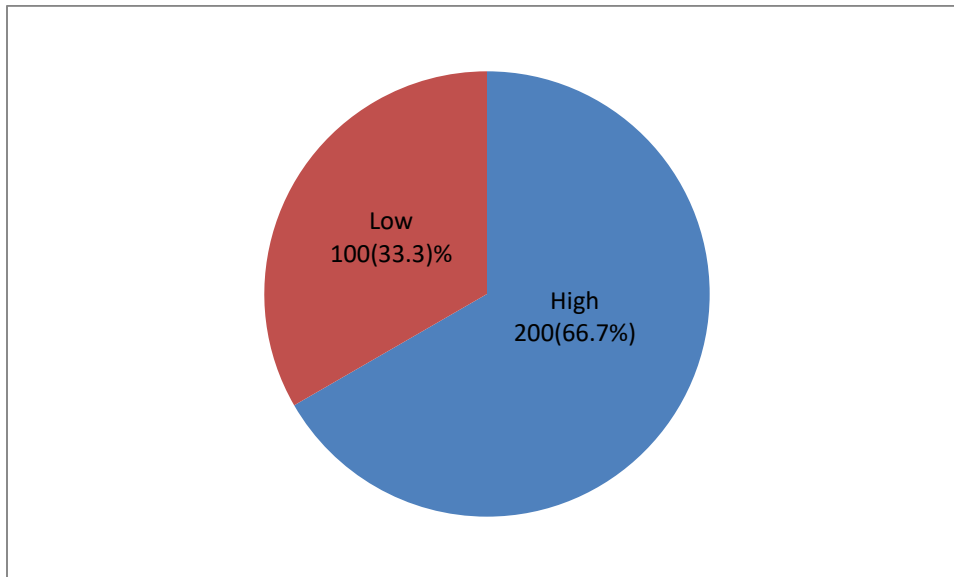
Figure 1: Showing composite Illness - Perception among the respondents

Figure 1 shows that 200(66.7%) of the participants demonstrated high illness – perception while 100(33.3%) demonstrated low illness – perception

In this section, a total number of fifteen (15) items was used to measure diabetes illness-perception among people living with diabetes mellitus. These items were generated according to the constructs in the HBM with which illness-perception was measured. The results of the study revealed 4.05 average mean score for perceived susceptibility, 3.76 mean score for perceived severity, 3.89 average mean score for perceived threat and 3.60 average mean score for perceived benefit. Form this analysis, it can be deduced that the study participants have high level of illness-perception of diabetes mellitus. This is because all the variables have mean score greater than the decision mean of 3.0.

Inferences can be made from this study that the participants are more likely to engage in self-care management practices because they have high perceived threat (perceived susceptibility plus perceived severity) of the illness, and sees the disease entity to be fatal to their quality of life and survival. Also, the participants have low perceived barrier with average mean score of 2.50, and high perceived benefit that outweighs their perceived barrier to diabetes self-care management. This is a motivating factor for involvement in activities that enhances good glycemic control and prevention of complications.

The results align with Kugbey, et al (2017) on Illness Perception, Diabetes Knowledge and Self-Care Practices among type 2 diabetes patients, a total of 160 participants (45males and 115 females) were sampled from a General Hospital in Accra, a self-administered questionnaire measuring the variables under study was used to collect data. From the results of the study, a total

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illness belief or perception score was computed by adding the responses on all the nine scales (illness consequences, duration, personal control, treatment control, symptoms, coherence, concern, emotional responses and causes) with possible scores ranging between 0-80. A higher score indicates a more threatening view about diabetes that is, the individual perceives diabetes to be fatal and dangerous to one's survival. The study also revealed that illness perception and diabetes knowledge significantly predicted overall diabetes self-care practices.

On the contrary, Giri and Putra (2019) found out that respondents have a bad perception of their health due to diabetes and its planning therapy. In the study, several fears made some informants declare that they have been in fear of a few things about diabetes. The respondents said that the things that cause stress when diagnosed with diabetes are characteristics of the diabetic disease that seems severe, symptoms of DM that interfere with their activity, complications that may occur due to diabetes, complex treatment rules, and fears of not being able to support the family due to the chronic illness.

CONCLUSION

The study concludes that most of the respondents demonstrated high illness – perception. A high perception of diabetes illness enhances effective self-care management practices to reduce the risk of diabetes-specific complications, such as hypertension, amputation, nephropathy, neuropathy, retinopathy, cardiovascular disease, impotence, and skin lesions. The more the patients have good perception about their illness, the more likely they are to comprehend their illness and take up self-care management behaviours such as diet, exercise and blood glucose testing among others. It is recommended that there is need for nurses to continuously educate patients on characteristics of the diabetic disease that seems severe, symptoms of DM that interfere with their activity, complications that may occur due to diabetes and complex treatment rules

Implication for Nursing Practice
The outcome of this study serves as a well of information that can be used by nurses and other health care professionals in the management of diabetes patients. Nurses are key players in the care of diabetes patients. Empowering nurses with information about the illness-perception can improve the outcomes of patients with diabetes.

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