

FOOT PROBLEM AMONG THE PATIENTS WITH DIABETES MELLITUS.



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DECLARATION

This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirmed that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the Thesis.

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1.1 Background

Diabetes is the most frequent metabolic sickness encountered by using a surgeon. A sound knowledge of symptomatology, clinical signs and symptoms and etiology can forestall most of the sickness burden and complications and thus minimize social burden. The study tells about frequent foot issues among diabetes and correlates it with the focus amongst people (Mehra.B.R,et al;2008).

Diabetic foot is a complication of Diabetes mellitus ,which is a group of metabolic disorders sharing the phenotype of hyperglycemia .The purpose of the remedy is to keep away from diabetic foot complications, salvage the limb with reachable modalities in hospitals, stopping recurrences and rehabilitation (Gohel.B.J,et al;2012).

Diabetes foot has high quality burden on the fitness gadget also, as it is the most typical cause for hospitalization of diabetes patients (about 30% of admission) and absorb some 20% of the complete health care prices of the disorder greater than all other diabetic complications. Especially in a growing country ,like India ,treating diabetic foot may count 40 % of fitness resources. Limb amputation itself is related with many socioeconomic consequences for patients like , loss of production hours inpatients department ,everlasting loss of income, diminished social acceptance etc .Also, following main limb amputation ,contralateral limb amputation after two years will be determined in almost 9% of the patients and mortality is 14% in India . But with the practice of suited prevention and therapy guidelines ,85% of these amputation are preventable (Suriya.K.P,and Kharadi.A;2016).

It is a metabolic multifactorial ailment associated with altered glucose homeostasis as nicely as macro and microvascular complications including

preventable foot issues that are common occurrences in these patients (Khan.A,et al;2015).

Diabetic foot issues are fundamental purpose are morbidity and untimely mortality and contribute drastically to health care fess (Guell.K and Unwin.J ;2015). That occur when foot ulceration are additionally a major complication in diabetes sufferes >25% and infected diabetes foot ulceration are responsible for 60% of nontraumatic decrease limb amputation(Mottola.K,et al;2015). Diabetes foot is the one of the common problem of diabetes mellitus . Many risk factor are concerned in its causation. This study was once conducted to determine hazard elements accountable for uler in diabetic patients (Ahmad.W,et al;2013). It is the most vital disease that are chronically non communicable which incidence has reached an alarming proportion pers. The Prevalence of diabetes mellitus ailment has reached in 2015 to 8.8%, which corresponded to 415 million patients. This leads to rising number of individuals with foot disorder related to diabetes and lower extremity amputations performed in up 75% of those diabetic affected on (Refaat.O.D,et al ;2019). Diabetes foot is a crew of syndrome in which neuropathy, ischemia, and infection leads to tissue breakdown ensuing in morbidity and variable amputation. Uncontrolled diabetes and peripheral neuropathy were said as its foremost risk factors. The diabetes foot may additionally began as simple as minor trauma, impeded toe nails, dryness and inter digital infection procced to ulceration, extreme infection, gangrene and amputation. Dealing with preventable threat factors will reduce the fee of hospitalization and management for instances with diabetic foot but this requires first identification of this risk elements and decides it for each patients. The position of household doctor in close comply with up for diabetic patients to reduce to impact of chance elements and strengthen defensive elements through primary and screening asymptomation patients via secondary prevention may be the corner stone for removal of this serious complication(Salama.A.A and Zorin.K.S;2017)

Diabetic foot is a diabetes mellitus complication main to recurrent ulcerations,chance of osteomyelitis and tissue necrosis which may also in the end of neuropathic foundation manifesting as autonomic and sensory motor neuropathy is

the most common type of this complication. The intention of this study was to perceive risk factors of diabetic foot of neuropathic beginning occurrence in patients with kind two diabetes (Nehring.P et al;2015)Foot issues are viewed to be a serious end result of diabetes mellitus, posing a major clinical and reasonably priced threat. Identifying the extent of this hassle and its threat factors will allow health caries to set up higher prevention programs. Beings a massive database source, would be the nice device to evaluate this throuble (Rubeaan.K.A,et al;2015)

Foot ulceration is preventable ,and simple interventions can limit amputation by up to 80%.Good manipulate of hemoglobin, blood pressure and lipid levels are properly installed as being quintessential elements in the reduction of risk for complication of diabetes. Regularly evaluation and early remedy are the most effective mechanisms to prevent the devastating diabetic foot complications. Unfortunately the majority of patients admitted to the hospitals for diabetic foot complications receive a much less than sufficient lower extremity evaluation. Through there is an apparent enlarge in diabetic foot care awareness, there are exceptional gaps in activities foot evaluation (Shailesh.K,et al;2012)

Diabetes and its complications together with foot ulcer represent a global public health task attributing to a widespread motive of morbidity and mortality. Foot ulceration is the one of the long term complication of diabetes mellitus which leads to infection and amputation of decrease extrimities. Findings from few studies were inconsistence and there is a need to systematically pool current records to decide the magnitude of foot ulcer in diabetics and factors contributing to it(Tolossa.T, et al;2020) Diabetes associated in 1987,the first international symposium on the Diabetic foot in the Netherlands in 1991, the foundation of the Diabetic foot study of the European association for the study of Diabetes in 1998,and the booklet of an world wide consensus and tips on the management and prevention of the diabetic foot in 1998.It would increased the risk of foot ulceration through the loss of protective sensation , in the absence of which patients become vulnerable to trauma ,small muscle losing and muscle atrophy related to peripheral neuropathy result in foot deformaties, growing the chance of breakdown of skin in excessive strain area, Moreover, the loss of sweating precipitated with the aid of autonomic neuropathy

makes the skin dry ,consequently contributing to the breakdown of the skin and callus formation,soft tissue trauma is a major causative thing in the improvement of diabetic foot ulcers in patients in Diabetes mellitus prone to develop ,and less likely to notice ,wound in their lower extremities because of the loss of protective sensation .The likelihood of growing a foot ulcer in a life time is estimated to be up to 25% for diabetic sufferers (Markakis.K ,et al ;2015). Foot deformities and preceding record of foot ulcers are determinates of diabetic foot ulcers. Since diabetes mellitus is growing at epidemic proportions worldwide ,the prevalence of diabetes-related complications is sure to increase. Diabetes foot disorders, a fundamental supply of disability and morbidity, are a good sized burden for the neighbourhood and a genuine public fitness problem. Many epidemiological records have been posted on the diabetic foot however they variability in the methodology and in the definitions used in these studie.

Moreover, there is a lack of consistency in population characteristics and how consequences are expressed (Richard.J.L and Schuldiner.S ;2008)

1.2 Justification

Bangladesh is the developing country and many people live in Bangladesh, their number is about crores, about thousand of them are suffering from various disease, the most terrible and permanent among them is Diabetes Mellitus. Which has taken a very terrible form nowadays.

Many problems and disorders are happening due to Diabetes Mellitus, which is unknown to people such as heart disease, kidney disease, eye problem, foot problem, blood vessels problem. Many people know about this problem, but the unknown problem was foot problem. The foot problem was ulcer in the foot than amputation, foot pain during walking, and some risk factor related to Diabetes.

After that, I search many articles and found that although there was many research in other countries, but no research had been done in our country. Then I thought how many people in our country did not know about foot problems and how much prevalent related are the risk factor associated with foot pain.

1.3 Research Question

What are the foot problems among the patients with Diabetes mellitus?

We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

FOOT PROBLEM AMONG THE PATIENTS WITH DIABETES MELLITUS

Submitted by **Hasiba Karim Elma** for the partial fulfillment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc.PT)

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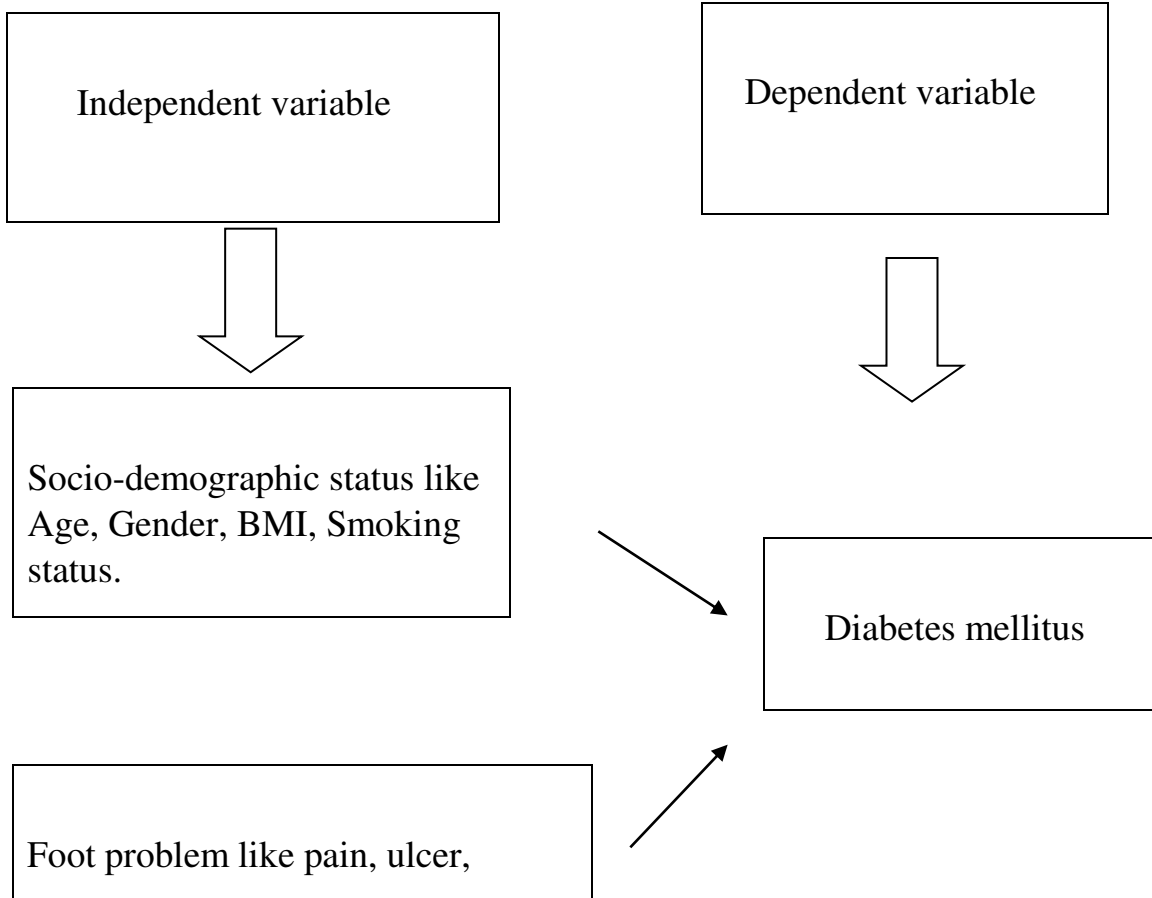
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1.5 Conceptual Framework:



1.4 Objectives of the study:

1.4.1 General objective:

- To explore the foot problems among the patients with diabetes mellitus in Dhaka city.

1.4.2 Specific objectives:

- To identify the type of foot problems by using pre-tested questionnaire.
- To determine the type of pain of the diabetic patients.
- To inquire about pain during walking of the participants.
- To examine the association between pain and diabetes status.

Diabetes mellitus is the important public health trouble with rising occurrence worldwide and in the 12 months 2015 round 415 million people were recognized to have diabetes. This estimate is predicted to amplify to 642 million of the population through 2040. Further, it is the sixth leading motive of demise, attributing to 5 million deaths globally in 2015. According to current estimates, 69.2 million humans are effected with diabetes in India(Alexidou.K and Doupis.J,2012).

India with about 42 million instances is ranked first in the listing of the ten nations most affected with diabetes, two among diabetes mellitus related complications, foot ulceration is the most common, affected about 15% of diabetic patients in the course of their life time(Shankhdhar.K,et al,2008).

Diabetes foot ulcers are a main cause for diabetic foot infection. About 10% -30% of patients with a foot ulcer will ultimately development to an amputation. It is a metabolic multifactorial ailment associated with altered glucose homeostasis as nicely as macro and microvascular complications including preventable foot issues that are common occurrences in these patients (Khan.A,et al;2015).).

It is the most vital disease that are chronically non communicable which incidence has reached an alarming proportion. The Prevalence of diabetes mellitus ailment has reached in 2015 to 8.8%,which corresponded to 415 million patients. This leads to rising number of individuals with foot disorder related to diabetes and lower extremity amputations performed in up 75% of those diabetic affected person (Refaat.O.D,et al ;2019).

Data on the epidemic diabetic foot ulcers in the middle east including Jordan in 2019 looking at lower limb amputation. At diabetic limb ulceration of foot 4%. A similar rate was reported in a diabetes clinical based study in Iran. Diabetic clinical based study among 1477 patients found the prevalence of ulcers to be 5.9%, with neuropathy and peripheral vascular disease identify as the major risk factor(Faris.G., H. Allan., et., 2012)

3.1 Study design:

It was a cross sectional type of descriptive study carried out with the objective of exploring the foot problems of the diabetic patients in Dhaka city.

3.2 Study site:

Diabetic foot care hospitals, Ibrahim Khalek diabetic foot care hospital in Dhaka city.

3.3 Study period:

The duration of the study was 1 years from 3 July 2022 to 30 June 2023

3.4 Sample size:

$$n = \frac{z^2 pq}{d^2}$$

Here,

n = required sample size.

z = confidence level at 95% (standard value of 1.96)

p = the expected rate of prevalence, here researcher taken the prevalence of (13.0%) 0.13 from the previous published literature by

(Mbanya.J,Tchakonte.B,Ndip.A.E.,2006)

d = margin of error at 5% (0.05)

q = 1-p

$$z = 1.96$$

$$p = 0.13$$

$$q = (1-p)=0.87$$

$$d = 0.05$$

$$(1.96)^2 \times 0.13 \times 0.87 \quad / \quad (0.05)^2$$

= 172

So the sample is 172. Researcher has collected 81 due to time limitation and unavailability to permission from others hospitals.

3.5 Study population:

Diabetes mellitus patients attending different health centre constituted the study population for the present study.

3.6 Sample technique:

The participants for the study were selected by using convenience sampling technique. In this method samples were chosen according to the inclusion and exclusion criteria set by researcher.

3.7 Method of data collection:

Data were collected from the participants by face to face formal interview.

3.8 Instrument of data collection:

A pre-tested questionnaire was used to collect data from the respondents.

3.9 Procedure of data collection:

The researcher obtained permission from the authority of the health centres to carry out the study. The target group that is the diabetic patients attending the health centres were approach by the researcher. The researcher explained the aims and objectives of the study to the diabetic patients in details. The patients who agreed were included in the study. Participants guaranteed that their private information would never be disclosed. The researcher started interview with the participants. A participant required around 15 -20 minutes to gather response to questions. The questions were formulated in Bangla. The questionnaire consisted of two parts. The first part contained questions on socio-demographic characteristics and the second part contained pain related questions. Both open and closed ended questions were included in the questionnaire. At the end of the interview the researcher thanked the participants.

3.10 Data analysis:

At the end of each day the collected questionnaires were checked for any mistake or inconsistency. Necessary corrections were done accordingly. The responses were coded and entered into the computer. The data were analyzed with Microsoft Office Excel 2019 with SPSS version 25 software program, and both descriptive (mean, standard deviation, frequency, percentage) and inferential statistics(eg: chi-square test)

3.11 Inclusion criteria:

- Diabetes mellitus patients.
- Age group was 25 to 60 years.
- Patients who were suffering Diabetes mellitus at least 2 years.
- Willingness to participate.

3.11 Exclusion criteria:

- Unconscious patients.
- Who were not interested.
- Those who had amputation for ulcer.

3.12 Ethical consideration:

- Bangladesh Medical Research Council (BMRC) and World Health Organization (WHO) guideline also were followed to conduct the study.
- The research proposal was submitted to the ethical committee that ethical review board of Saic College of Medical Science and Technology approval was obtained from the board.
- Written informed consent was taken at the time of enrolling the respondents
- All respondents were informed that they are free to leave or to refuse to take part in study at any time.

- The personal information of the respondents was kept totally confidential.

Diabetes mellitus is international epidemic, and diabetic foot problem (pain, ulcer) is one of the most serious and highly –priced issues leading to extreme monetary and non public loss in the future. So, there is more important to want furnish great training to both most important care on their health and suffers the related to the relationship between glucose level control and problem encountered in the foot and uses proper foot wear, regular glucose level chekup. Do to my time limited, I could not work more patient then these problems would be more common.

Diabetes is a world-wide disease. The number of these patients is high in Bangladesh. So once this disease occurs, even if there is no way to get rid of it. So it is possible to keep control the glucose level.

It was in the study that 51.9% participants had foot ulcer, 93.8% muscle weakness, 84.0% swelling. The study showed that 88.9% participants complained of different grades of pain. In order to eliminate these problems, diabetic patients must change their life style so that maintain their glucose level. Maintain proper food, diet are also important in diabetes patients. Avoid any sweet, oily and heavy food. Take proper medicine. Continuous monitoring of blood pressure and blood glucose level.

Patients should take proper care of the foot ulcer. If not taken proper care in due time ulcers might cause severe problem of the foot.

The study had few limitations.

1. The calculated sample size was 172. But the researcher collected the from 81 diabetic patients due to shortness of time. As a result the sample size became small. The generalization of the result could not be achieved.
2. The convenience sample technique was used to select the study participants. The representativeness of the participants could not be ensured. Random sampling method should be applied to select the participants for better results.
3. The were collected from the participants of two hospitals. It would be better if more hospitals from other parts of the country could be included in the study.
4. Some of the participants refused to complete the interview in the study due to their limited time or fear to share their own information.
5. The researcher was students of 4th year B Sc in Physiotherapy. This is her first research work. The present thesis bears a number of shortcomings due to lack of experience.

Abstract

Background: Diabetic foot is a complication of Diabetes mellitus, which is a group of metabolic disorders sharing the phenotype of hyperglycemia. The purpose of the study is to keep away from diabetic foot complications, salvage the limb with reachable modalities in hospitals, stopping recurrences and rehabilitation. **Objectives:** To explore the foot problems among the patients with diabetes mellitus in Dhaka city. To identify the type of foot problems by using pre-tested questionnaire. To determine the type of pain of the diabetic patients. **Methodology:** it was a cross sectional type of descriptive study. Total 81 sample were selected by convenience sample technique in Dhaka city. The data was collected by pre- tested questionnaire. **Result:** 88.9% participants had found foot pain in their foot. 51.9% participants had found ulcer on their foot. 84.0% participants had found swelling on their foot. **Conclusion:** Diabetes mellitus is international epidemic, and diabetic foot problem (pain, ulcer) is one of the most serious and highly – priced issues leading to extreme monetary and non public loss in the future.

Key word: Foot problems, Diabetic mellitus.

Contents

Serial no.	Chapter	Page no.
------------	---------	----------

A	Cover page	
B	Submission page	
C	Declaration Page	
D	List of content	
E	Acknowledgment	
F	List of table	
H	List of figure	
I	Abstract	

Chapter-I	Introduction
------------------	---------------------

1.1	Background	
1.2	Justification	
1.3	Objectives	
1.4	Research question	
1.5	Conceptual framework	

Chapter-II	Literature review
-------------------	--------------------------

Chapter- III	Methodology
---------------------	--------------------

3.1	Study design	
-----	--------------	--

3.2	Study area	
3.3	Study period	
3.4	Study population	

3.5	Sample size	
3.6	Sample technique	
3.7	Inclusion criteria	
3.8	Exclusion criteria	
3.9	Method of data collection	
3.10	Instrument of the data collection	
3.11	Analysis of data	
3.12	Ethical consideration	

Chapter-V Discussion	
Chapter -VI Conclusion	
Chapter- VII Recommendation	
Chapter- VIII Limitation	
Chapter- IX Reference	

Appendixes	
1.1 consent form	
1.2 Questionnaire	
1.3 Time line of the study	

:

List of the tables

Table no. 1	Age of the participants.....
Table no.2	Living area of the participants.....
Table no.3	Type of the family of the participants.....
Table no.4	Monthly income of the participants.....
Table no.5	BMI of the participants.....
Table no.6	Diabetes status of the participants.....
Table no.7	Type of the diabetes.....
Table no.8	Pain on the foot of the participants.....
Table no.9	Proper foot wear of the participants.....
Table no.10	Pain during walking on the participants.....
Table no.11	ulcer on foot of the participants.....
Table no.12	Any changes of the foot since 2 weeks.....
Table no.13	Any deformities or abnormal shape on the foot.....
Table 14	Temperature on foot.....
Table 15	association between diabetes status and pain on foot.....

List of figure

Serial no.	Descriptions	Page no.
------------	--------------	----------

Figure no.1	Gender of the participants	
Figure no.2	Occupation of the participants.....	
Figure no.3	Marital status of the participants.....	
Figure no. 4	Religion of the participants.....	
Figure no.5	Smoking status of the participants	
Figure no. 6	Foot pain of the participants.....	
Figure no. 7	Types of the pain of the participants.....	
Figure no.8	Swelling on the foot of the participants.....	
Figure no. 9	Skin condition of the participants.....	

The result of the study confirm impression of the foot problem of the diabetes mellitus in the diabetic patients. The reasons behind the appear to be multifunctional. First, demographic characteristic of the population studied should be taken into account. One of the most consider was diabetic patients.

The population of the studied was elder (mean of the ages 65 years) and smoking of the history proportion of the patients with type-2 and type-1 diabetes mellitus. Of those with diabetes patients according to the binded be counted 42.2% of the sample size (Heather.H.,et al, 2016). According to the my research, I found to the study, the mean of the study of ages 49.67 and the standard deviation 10.955.

The range of the pain on the foot indicated less than optimal control. Both the diagnosis of the diabetes patients and high range of foot pain 78.9% on the population of 245 patient in the hospital(Faris.G and Ali.H.,2012). The pain of the present study was accompied by the patient with diabetes mellitus. According to the 88.9% of the participants.

In the previous study the swelling and infection of the 66.9% participants of the study given to the hospitals to Jordan medical due to patients interview. In the present result of the study the swelling on the foot of the participants was 78.9% the participants of the study have to permission the swelling problem according to the managing their swelling and not found any infection on the foot.