ASSESSMENT OF DIABETIC PATIENT'S KNOWLEDGE AND PRACTICE REGARDING DIABETIC FOOT

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Abstract

Background: Diabetes Mellitus)DM) is a multi system disease affect many tissues and lead to many complications such as diabetic foot which result in foot ulcers and lower limb amputations that are considered major causes of morbidity, disability and mortality among patients with diabetes as well as emotional and physical costs. **Aim of the study:** Assessment of diabetic patient's Knowledge and Practice regarding Diabetic Foot. **Design:** The study design was a descriptive Correlation design. **Setting:** The study was conducted at the diabetic foot outpatient clinic in Specialized Medical Hospital at Mansura University. **The study sample:** A convenience sample of 196 adult diabetic patients with diabetic foot from both sex, age ranged +18-60 years old. **Tools:** Questionnaire interview sheet. Consisted of three parts: 1) Socio demographic characteristic and patient's medical data sheet, 2) Diabetic foot knowledge questionnaire, 3) Diabetic foot self reported practice questionnaire. **Results:** Results of this study showed that A highly significant relation between total patient's knowledge and their practice related to diabetic foot as the majority of the patients who had poor knowledge had poor practice $P < 0.001$. **Conclusion:** The patients with diabetes had poor knowledge and practice regarding diabetic foot care. **Recommendation:** Development of an educational program for patients with diabetes mellitus to improve patients' knowledge and their practices regarding diabetic foot car.

Key words: Diabetic patient, Diabetic Foot, knowledge, Practice

Introduction:

Diabetes Mellitus (DM) is a main public health problem and its complications especially hypertension and hyperlipidemia cause many severe health problems and is a leading cause of renal disease, vision loss and non-traumatic amputation [24]. Egypt is one of the countries which significantly suffer from DM, in which it is considered a main emerging clinical and public health difficult among the Egyptian population and it is a growing health problem all over the world, in 2012 there were number of people estimated to be 371million having diabetes, with prevalence of 8.3% and this number is expected to increase to 552 million by 2030 worldwide. The International Diabetes Federation reported that there were over 7.8 million cases of diabetes in Egypt in 2015[12].

As this rises in prevalence of DM are possible to rise its complications among diabetic patients. One vital complications of DM is diabetic foot, this complication represent an important cause of hospitalization, non-traumatic amputation and death in patients with diabetes[5].

Diabetic foot is a major health, economic, social and a leading cause of morbidity, disability and mortality especially in the developing countries, 15% of all patients with diabetes develop foot ulcers. More than 85% non traumatic

amputations in diabetics patients occur in people who had an antecedent foot ulcer or infection [25].

Diabetic foot ulcer is a main and severe complication of diabetes and is the most common cause of hospitalization related to diabetes and the major component of the diabetic foot. [7].

The risk of diabetic foot increases in many diabetic patients because the patients not done daily foot care correctly, failing to perform a daily foot self-inspection, walking barefoot, wearing improper footwear or washing their feet with unsafe water and improperly trimming their toenails, [1]. Some environmental factors like living in urban, poor hygienic conditions, poverty, barefoot gait, low income, and cultural practices. Diabetic patients are possible to develop foot ulcer, non-traumatic amputation if they do not have good knowledge and practice of foot care [5].

Significant of the Study

The DM is a medical difficult with highly prevalence between different populations, and increase with age. Diabetes represent one of the major challenges for health care systems whole world and consuming a lot of health care resources because the disease can affect individual's health through involvement of several body systems with complications as serious as losing vision, amputation, renal failure, or Coronary Artery Disease (CAD)[3]. 15% of all diabetic patients develop foot ulcers and more than 85% of lower limb amputation is due to diabetic foot [25]. Despite recent medical advance in treatment of DM, diabetic foot remain a major medical, social, economic and this may lead to morbidity and mortality in patient with diabetic foot, the cost of diabetic foot ulcers treatment is not only the cost of a dressing multiplied by the frequency of dressing change, it includes the nursing time, hospital stay, home

health costs, and costs of complications[23]. So it is essential to conduct this study to assess diabetic patient's knowledge and practice regarding diabetic foot care, this help both the patients and health care providers to initiate measures and increase knowledge and practice of diabetic patients regarding diabetic foot care to prevent this problem.

Operational Definitions:
Patients' Knowledge:

Knowledge was classified according knowledge questionnaire into Good knowledge when the patients have a knowledge level more than 65%, Average knowledge when the patients have a knowledge level 50-65% and Poor knowledge when the patients have a knowledge level less than 50%. Scores of all answers were summed up, the higher the score the higher knowledge level (**Desalu et al,2011**)[5].

Patients' Practice:

Based on self reported practice questionnaire practice was classified according to practice questionnaire into Good practice when the patients have a practice level more than 65% , Average practice when the patients have a practice level 50-65% and Poor practice when the patient have a practice level less than 50%. Scores of all answers were summed up, higher score indicated better practice (**Saleh, Shebl, Hatata & Refiei, 2012**)[20].

Aim of the study:

1-Assess Patients' knowledge and practices regarding diabetic foot.

Study questions:

1- What are the patient's knowledge and practices regarding diabetic foot?

2- Is there a relationship between patients knowledge, practice and their socio demographic characteristics?

Methods

Research Design:

A descriptive correlation research design.

Setting

The study was conducted at the diabetic foot outpatient clinic in specialized medical hospital at Mansura University in delta region. The clinic started working from 9 AM to 1PM every day except Friday, clinic is closed. The clinic was well prepared for receiving patients with waiting places for those patients. There was a responsible nurse for calling each patient at frequent intervals to be checked by the doctor in the clinic.

Sample:

A Convenience sample of 196 adult patients (+18-60 years) diagnosed as DM with diabetic foot confirmed by diagnosis in the patient's file & willing to participate in the study.

Tools of Data Collection:

Questionnaire interview sheet: This tool was developed by the researcher after extensive review of related & recent literature and consist of three parts.

Part I- Socio demographic data sheet and patient's medical data sheet:

Socio demographic data such as age, sex, marital status, education level, occupation, nature of work and income.

Medical data sheet:

Past history: Type of diabetes, discovering diabetes, duration and felt symptoms of diabetes.

Family history: Suffering from diabetes, degree of relativity, history of diabetic foot, living with diabetic patient, affected and benefit from this.

Present history: diabetic complication, hypoglycemic coma, hyperglycemic coma and other disease.

Part II: Diabetic foot knowledge questionnaire: used to assess patient's knowledge about diabetic foot.

This part included 29 items in total and divided into 6 categories. Meaning of diabetic foot, causes, signs & symptoms, complications, prevention of diabetic foot, effect of diabetes on the foot.

Scoring system: It consisted of 29 items in total. Questions were in the form of multiple choice questions (MCQ), the total score are 29 marks graded as the following: One Point for a correct answer, Zero Point for an incorrect or I don't know answer.

The total patient's score were collected and evaluated as following:-

- Less than 50% considered poor knowledge.
- 50-65% considered average knowledge.
- More than 65% considered good knowledge (**Desalu et al, 2011; Rocha et al, 2009**)[5 &19].

Part III: Diabetic foot self reported practice questionnaire: used to assess patient's self reported practice about diabetic foot.

This part included19 items in total and divided into 15 categories [5&19]. Daily foot examination, Washing foot daily, Dryness between fingers after washing, Putting cream to moisture the feet, Elevating the feet from time to time, wearing socks, Changing socks daily, Keeping socks dry, Wearing shoes with smooth leisure, inspecting the shoes before wear, Walking barefoot in the home, Cutting nail by themselves, Intervention in case of wound injury.

Scoring system: All question in the form Yes and No and only one question in the form of multiple choice questions (MCQ) .A correct answer was scored 1;an incorrect answer was scored 0.Scores of each item were summed up, and the total score ranged from 0 to 19. The total

patient's score were collected and evaluated as following:-
 - Less than 50% considered poor practice.
 - 50-65% considered average practice.
 - More than 65% considered good practice [5&19].

Tool development:
1. Tools were constructed and developed by the researchers after reviewing recent related literature.
2. Validity: the tools were tested for content related validity by seven experts (Jury) from Mansoura University. Six Professors in field and one professor in internal medicine in Mansoura University, they reviewed the tool for clearance and applicability for implementation. Modifications was done accordingly.
3. Reliability of the developed tool was estimated using the Cronbach's Alpha test to measure the internal consistency of the tools r = 0.815
4. The researcher started data collection by introducing herself and explaining the purpose of the study.
5. The researcher collected data from 4 to 6 patients daily. Filling questionnaire required 20 -30 minutes. Data Collection Started from beginning of August 2014 to the end of November 2014.
6. The investigator coded the questionnaires to assure the anonymity of the subjects. Finally, the investigator scored the responses, and compiled them for data analysis.
7. Pilot Study**:** It was applied on 10% (20 patients) of total number of diabetic patients with Diabetic foot to test the simplicity, clarity of the questions and time frame needed for interview. This sample were excluded from the study. Minor modifications were done accordingly.

8. Field of work: Tools were completed through interviewing the patient individualized and use patient medical records. Patients were interviewed during the morning in the diabetic foot outpatient clinic.

Ethical Consideration and Patients' Rights:
1. An official approval for conducting the study was obtained from the Ethical Committee of Faculty of Nursing of Mansoura University.
2. An official approval for conducting the study was obtained from the responsible administrative personnel of Faculty of Nursing of Mansoura University As well as permission from director of specialized medical hospital.
3. The researcher should obtain consent from patients to participate in this study after explaining the study aims. Patients were assured that the information is confidential and used for study purposes only.
4. Official permission to use patients' medical record.
5. The researcher emphasized that participation is absolutely voluntary and confidential.
6. Anonymity and privacy was assured during the study.
7. Honest was assured when dealing with patients and their data and findings.

Statistical Analysis:
The collected data were organized, categorized, tabulated and analyzed using the statistical package for social science "SPSS" the computer program "version 11.0". Data was presented in tables and charts using actual percentages. Test of significance was used. The tests used to summarize the data as mean and stander deviation test to compare mean scores for numerical data and chi square test to test the relationships.

- The value of < 0.05 was used as a cut-off point for determination of significance.

The value of > 0.05 was used as a cut-off point for determination of non-significance.

Results:

Table(1): Shows the distribution of study sample according to their socio-demographic data. Regarding age, less than two third of patients (62.2%) were in the age ranged from 50-60years old. Concerning genders, more than half of patients were females (55.1%).Regarding residence, more than half of patients (51.5%) were living in the urban

.Regarding marital status, less than two third of patients (63.8%) were married. The educational level, slightly more than one third of patients (38.3%) were illiterate followed by (30.1%) were moderate education. Regarding occupation status, more than half of patients (58.2%) weren't working and in working group slightly more than one third of patients (39.0%) were worked in governmental sector followed by (25.6%) were farmers. Concerning monthly income, most of patients (86.7%) have enough income. Regarding diabetic type, nearly the most of patients (79.1%) were type II.

Table (2): Shows total knowledge level of diabetic patients about diabetic foot, most of patients (90.3%) had poor total knowledge level about diabetic foot.

Table (3): Shows total diabetic patient's practices about diabetic foot, less than two third of patients (62.8%) had poor total practices about diabetic foot.

Table (4): There is highly significant relation between total patients knowledge and total patient's practice related to diabetic foot as the majority of the patients who had poor knowledge had poor practice P=0.000*

Table (5):Shows the relationship between patient's knowledge related to diabetic foot and socio-demographic characteristics. It was noticed that there were statistically significance relation between patient's knowledge, residence, sex, education and job. Also, no statistically relation between patient's knowledge, age, marital status, income, body mass index and diabetic type.

Table (6): Shows relationship between patient's practices related to diabetic foot and Socio demographic data. There is statistically significance relation between patient's practices, residence, marital status, education, job and income. While there were no statistically significance relation between patient's practices, age, sex, body mass index and diabetic type.

Table (1): Distribution of diabetic patients according to socio demographic characteristics (N =196).

Item	No=196	)%(
Age groups (in years):		
20 - >40yrs	3	**1.5**
40- >50yrs	71	**36.2**
50-60yrs	122	**62.3**
Gender:		
Male	88	**44.9**
Female	108	**55.1**
Residence:		
Rural	95	**48.5**
Urban	101	**51.5**
Marital status:		
Single	4	**2.0**
Married	125	**63.8**
Divorced	21	**10.7**
Widowed	46	**23.5**
Level of education:		
Illiterate	75	**38.3**
read and write	38	**19.4**
moderate	59	**30.1**
academic	24	**12.2**
Employment:		
Working	82	**41.8**
Not working	114	**58.2**
Occupation:		
Governmental sectors	32	**39.0**
Private sector	20	**24.4**
Worker	9	**11.0**
Farmer	21	**25.6**
Monthly Income		
Enough – More than 1500	170	**86.7**
Not enough – Less than 1500	26	**13.3**

Table (2): Total knowledge level of diabetic patients about diabetic foot in study sample (N =196).

Total patient's knowledge	No =196	(%)	Mean± SD
Poor	177	90.3	9.55 ± 4.77
Average	19	9.7	

Table (3): Total diabetic patient's practices related to diabetic foot (N =196).

Total patient's practices	No =196	(%)	Mean± SD
Poor	123	62.8	
Average	35	17.9	6.11 ± 2.57
Good	38	19.3	

Table (4): Relationship between total patients knowledge score and total patient's practice score related to diabetic foot (N=196).

Total practice score	Total Knowledge score				x^2	P-Value
	Poor <50%		Average 50-65			
	No	%	No	%		
Poor	120	67.8	3	15.8	28.306	.000**
Average	31	17.5	4	21.1		
Good	26	14.7	12	63.2		
Total	177	90.3	19	9.7		

Table (5): Relationship between patient's knowledge related to diabetic foot and socio-demographic characteristics (N=196).

Item	Patient's knowledge				x^2	P-Value
	Poor<50% No =177		Average 50-65% No =19			
	No	%	No	%		
Age:						
<40yrs	3	1.7	0	0	.0576	.750
40-50yrs	65	36.7	6	31.6		
>50yrs	109	61.6	13	68.4		
Residence:						
Rural	90	50.8	5	26.3	4.134	.042*
Urban	87	49.2	14	73.7		
Gender:						
Male	75	42.4	13	68.4	4.706	.030*
Female	102	57.6	6	31.6		
Marital status:						
Single	3	1.7	1	5.3	1.778	.620
Married	112	63.3	13	68.4		
Divorced	20	11.3	1	5.3		
Widow	42	23.7	4	21.1		
Education:						
Illiterate	74	41.8	1	5.3	36.497	.000*
Read& write	37	20.9	1	5.3		
Moderate	52	29.4	7	36.8		
Academic	14	7.9	10	52.6		
Job:						
Working	66	37.3	16	84.2	15.525	.000*
Not working	111	62.7	3	15.8		
Income:						
Enough	151	85.3	19	100.0	3.218	.058
Not enough	26	14.7	0	0.0		

Table (6): Relationship between patients practices related to diabetic foot and Socio-demographic characteristics (N=196).

Item	patient's practice						X^2	P-Value
	Poor<50% No =123		Average 50-65% No =35		Good >65% No =38			
	No	%	No	%	No	%		
Age:								
<40yrs	2	1.6	0	0	1	2.6	4.901	**.298**
40-50yrs	38	30.9	16	45.7	17	44.7		
>50yrs	83	67.5	19	54.3	20	52.6		
Residence:								
rural	69	56.1	14	40.0	12	31.6	8.211	**.016***
Urban	54	43.9	21	60.0	26	68.4		
Gender:								
male	53	43.1	15	42.9	20	52.6	1.140	**.565**
Female	70	56.9	20	57.1	18	47.4		
Marital status:								
single	4	3.3	0	.0	0	.0		
married	74	60.2	19	54.3	32	84.2	12.963	**.044***
divorced	12	9.8	7	20.0	2	5.3		
widow	33	26.8	9	25.7	4	10.5		
Education:								
illiterate	69	56.1	5	14.3	1	2.6		
read& write	27	22.0	8	22.9	3	7.9	91.957	**.000****
moderate	25	20.3	18	51.4	16	42.1		
academic	2	1.6	4	11.4	18	47.4		
Job:								
working	39	31.7	14	40.0	29	76.3	23.800	**.000****
not working	84	68.3	21	60.0	9	23.7		
Income:								
enough	99	80.5	34	97.1	37	97.4	11.202	**.004***
not enough	24	19.5	1	2.9	1	2.6		

Discussion:

The discussion will be presented in the following sequence:

1- Socio demographic characteristics
2- Patient's knowledge regarding diabetic foot.
3- Patient's practice regarding diabetic foot.
4- Relationship between patient's knowledge related to diabetic foot and socio-demographic characteristics.

5- Relationship between patient's practices related to diabetic foot and Socio-demographic characteristics.

Regarding socio demographic characteristics: Regard patients' age, the finding of this study represents that less than two third of patients aged ranged from 50-60 years old. This result is in agreement with **Al –Asmary,Mostafa and Al –Khaldi (2013)**[2]; **Gholap and Mohite (2013)** [10]; **Luttfi, Zaraihah and Ramadhan (2014)** [16]they found more

than half of study subject aged ranged from 50-60 years old. This result could be attributed to increase age associated with many problems as peripheral disease, diabetic neuropathy and chronic venous insufficiency.

Concerning gender, more than half of subjects were females, this result comes in agreement with **Ez –Eldeen , Fathey , Hassaballah and Basal (2012)**[9]; **Saleh , Shebl , Hatata and Refiei (2012)**[20] they found that the higher incidence was among females . This result might be due to most of patients were not working , staying at home , obese ,illiterate , busy with other things as housewife, caring with other family member and not having health awareness so they were not caring with their feet.

Regarding residence, more than half of patients were live in the urban, this result supported by with **Seid and Tsige (2015)**[22] who found more than half of patients were live in the urban. This result could be attributed to increase awareness about diabetic foot clinic in urban than rural in addition to the clinic is far from the rural area.

Regarding marital status, less than two third of patients were married, this result is consistent with **Ali (2013)**[3]; **Al – Asmary ,Mostafa and Al –Khaldi (2013)**[2]; **Salmani and Hosseini (2010)** [21]they mentioned that the majority of patients were married .

Concerning educational level ,slightly more than one third of patients were illiterate, this result come in accordance with **Mohamed , Elsaher , Aref and Fouad (2015)**[17]who reported the same result.

Regarding employment, more than half of patients were not working this result is agreement with **Elshenawe, Shalan and Abdelaziz (2013)**[8] who reported that the majority of patient is house wife, this could be attributed to most

of patients in study were female and illiterate and the female with increase age and deterioration of their health, the female prefer to stay in home.

Concerning monthly income, most of patients had enough income, these result is agree with **El – Khawaga and Abdel – Wahab (2015)**[6]who reported that the majority of patients had enough income.

Regarding total patient's knowledge about diabetic foot, the finding of this study showed the most of patients had poor knowledge level about diabetic foot. This result is agreement with **Khamseh, Vatankhah and Baradaran (2007)** [14]; **Luttfi,Zaraihah and Ramadhan (2014)** [16]they reported that the majority of patients had poor knowledge about diabetic foot.

Regarding total patient's practice about diabetic foot: The finding of this study showed that less than two third of patients had poor total practices about diabetic foot. This study agreement with **Desalu et al., (2011)**[5]; **Khamseh, Vatankhah and Baradaran (2007)**[14]; **Luttfi,Zaraihah and Ramadhan (2014)**[16] they demonstrated the same result. This result could be attributed to the most of patient had poor total knowledge about diabetic foot this lead to poor total practice about diabetic foot.

Regarding the relationship between total knowledge score and total practice score related to diabetic foot, the present study revealed there is highly statistically significance relation between total knowledge score and total practice score related to diabetic foot which means that the higher the knowledge score the higher the practice total practice score. This result is consistence with **Desalu et al., (2011)**[5]; **Gholap and Mohite (2013)** [10]; **Jeewantha and Madushan (2011)** [13]they reportedthe same result.

Regarding relationship between patient's knowledge related to diabetic foot

and socio-demographic characteristic, this study revealed statistically significance relation between patient's knowledge about diabetic foot and residence, as it was shown increase knowledge level with patients live in urban than patient live in rural , this result might be due to increase awareness in urban than rural. These result is consistence with **El – Khawaga and Abdel – Wahab (2015)**[6] who found the same result.

Also the finding showed that there were statistically significance relation between patient's knowledge about diabetic foot and their gender. The knowledge level about diabetic foot is increase in male than female, these result is agree with **Saleh,Shebl , Hatata and Refiei (2012)**[20] who reported the same result. This finding might be due to males are more better educated and going outdoor the home than females which may expose them extra to information than females.

Another marked finding in this study is that there was statistically significance relation between patient's knowledge about diabetic foot and education level. The knowledge level about diabetic foot is increase in academic patients than other level of education, this finding might be due to academic educated patient is able to read more about the disease. These result in the same line with **Hasnain and Sheikh (2009)** [11]**; Saleh ,Shebl , Hatata and Refiei (2012)**[20] they reported the same result.

The present study represent statistically significance relation between patient's knowledge about diabetic foot and employment, the patients were working had average knowledge score than not working patients, these result is agreement with **Al –Asmary , Mostafa and Al –Khaldi (2013)**[2] **; Gholap and Mohite (2013)** [10]they found the same finding. The working patients had average knowledge than not working, these result

might be due to work and social contact with other people increase knowledge level.

Also the present study represent no significant relation between patient's knowledge about diabetic foot and their age , as the patient age ranged from 50-60 had poor knowledge than other age group, this result might be due to the process of aging and weakness of memory. These result is agree with **Luttfi,Zaraihah and Ramdhan (2014)** [16]**; Saleh,Shebl, Hatata and Refiei (2012)**[20].

One of the marked findings in this study that there were no statistically significance relation between patient's knowledge about diabetic foot and marital status, these result is not agreement with **Gholap and Mohite (2013)** [10] **; Saleh ,Shebl , Hatata and Refiei (2012)**[20]**; Seid and Tsige (2015)**[22]they found there was statistically significance relation between patient's knowledge about diabetic foot and marital status .The knowledge level is rise in married than divorced, single, as married patients encourage and assistance each other to increase their knowledge about the disease.

The present study revealed no statistically significance relation between knowledge of diabetic patients about diabetic foot and income , these result is agreement with **Hasnain and Sheikh (2009)**[11]**; Luttfi , Zaraihah and Ramdhan (2014)**[16] they reported the same result ,but these result is not agree with **Saleh ,Shebl , Hatata and Refiei (2012)**[20] who reported statistically significance relation between knowledge of patients about diabetic foot and income

This study represent no significant relation between knowledge about diabetic foot and diabetic type, these result is agree with **Al –Asmary , Mostafa and Al –Khaldi (2013)**[2]who found the same result.

Relationship between patient's practices about diabetic foot and socio demographic data, the present study represent significant statistical relation between patient's practices about diabetic foot and residence. The patients in urban had good practice level than patients in rural this result might be due to increase awareness in urban, these result is agreement with **Gholap and Mohite (2013)** [10] who found that there was a significance relation between practices of diabetic patients about diabetic foot and residence

An interesting finding in this study is that there was significance relation between patient's practices about diabetic foot and marital status ,the married patients had good level of practice about diabetic foot than widow and divorced because married patients remember, support and encourage each other to perform self care activities to avoid any complication as diabetic foot ,these result is agreement with **Gholap and Mohite (2013)** [10] **; Seid and Tsige (2015)**[22] they found the same finding.

The present study revealed statistically significance relation between patient's practices about diabetic foot and education, this result in same line with **Al –Asmary , Mostafa and Al –Khaldi (2013)**[2] **; Salmani and Hosseini (2010)**[21] they reported that significant relation between patient's practices about diabetic foot and education ,it means that diabetic patients with higher education had good practice about foot care than illiterate, this finding might be due to educated patient is able to search on update self care practice to avoid any complication.

One of the marked findings in the present study that there was significant relation between patient's practices about diabetic foot and employment. The patients were working had good practice than patients were not working, these

result is agreement with **Gholap M. C. and Mohite (2013)**[10]who found the same result . This finding might be due to the working patients had good practice about diabetic foot due to social contact.

The present study represent significant statistical relation between patient's practices about diabetic foot and income, these result is agree with **Desalu et al., (2011)**[5] they reported that significant statistical relation between patient's practices about diabetic foot and income, but these result is not consistence with **Luttfi , Zaraihah and Ramdhan (2014)**[16] who demonstrated that no statistically significance relation between patient's practices about diabetic foot and income.

Also the present study revealed no statistically significance relation between patient's practices about diabetic foot and their age , as the patients age ranged from 50-60 had poor practice than other age group, this result might be due to older patients are not able to perform daily foot care practice because of aging. These result is agree with **Luttfi , Zaraihah and Ramdhan (2014)** [16] who reported that no significant statistical difference between patient's practices about diabetic foot and their age, but these result is not agree with **Al –Asmary , Mostafa and Al –Khaldi (2013)**[2]who found statistically significance relation between patient's practices about diabetic foot and their age.

Another marked finding in this study , there was no significant relation between patient's practices about diabetic foot and gender, As the male had good practice level than female, this finding may be due to males are more educated and going outdoor the home than females which may expose them more to knowledge and experience than women. These result is agree with **Luttfi, Zaraihah and Ramdhan (2014)** [16] who reported the same finding.

The present study represent no statistically significicance relation between patient's practices about diabetic foot and diabetic type. The patients in type II had good practice than patients with type I, these result is consistence with **Al – Asmary, Mostafa and Al –Khaldi (2013)**[2] who found the similar finding.

Conclusion:

The present study concluded that: The majority of patients with diabetes had poor knowledge and practice regarding diabetic foot, There is statistically significance relation between patient's knowledge and practice related to diabetic foot .

Recommendation:

Based on the findings of the study the following recommendations are suggested: 1) An educational program should be developed for patients with diabetes mellitus to improve patients' knowledge and their practices regarding treatment regimen of diabetes to prevent diabetic complications especially diabetic foot.2) Implementing program for all diabetic patients in hospital about foot care to provide them with required necessary knowledge and skills about foot care.3)Constant health education by brochures and booklet to enhance patient's knowledge and practice regarding diabetic foot. 4) Further research; is recommended to provide a standard guidelines for nurses in order to enhance their practice in diabetic foot outpatient clinic and improve patients' knowledge and their practice. 5)Replication of the study in different geographical areas.

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