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# ASSESSMENT OF DIABETIC PATIENTS, KNOWLEDGE TOWARD FOOT CARE AT AL-NAJAF CENTER FOR DIABETES AND ENDOCRINE

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**ABSTRACT:**

Diabetes considered as one of the world's biggest health problem, and it's one of the major causes of morbidity and mortality, Also its complications lead to increase in disability, reduced life expectancy and many health care costs to the community. Diabetic patients must take care of the feet because there are many problems accompanied with diabetes. Patient with diabetes are vulnerable to neurovascular damage which can result in loss of protective sensation in the feet, poor circulation, and poor healing of foot sore. All of these situations participate to increase amputation rate. Objectives of the study to order to assess patients knowledge toward foot care for patients with diabetes mellitus and to find out the relationship between patients knowledge toward foot care and their demographic and clinical data. Descriptive Cross-Sectional Design is adopted in the current study to achieve the early stated objectives. The study started from October 1st, 2016 until May, 6th, 2017. A Non-Probability (Accidental Sample) of (80) Diabetes Mellitus patients, those who visit Al-Sadder Medical City / Al-Najaf Center for Diabetes and Endocrine, are included in the study sample. Data collected through using of a well-designed questionnaire consist of three parts: part I consists of demographic data contain (7) items, and part II consists of clinical data contain (5) items, and part III consists of (11) items about knowledge toward foot care. Data collected by direct interview method with diabetic patients'. The data are described statistically and analyzed through the use of the descriptive and inferential statistical analysis procedures. The findings of the present study indicate that the overall patients' knowledge about foot care are poor . In addition, there is not found relationship between knowledge about foot care and other demographic data . also there is a non-significant relationship between the patients knowledge about foot care and clinical data except with their Foot problem at p-value 0.041. The study concludes there is diabetic patients' knowledge about foot care are insufficient. The study recommends An education program should be designed and implemented to increase people's information about self-care regimen for diabetes mellitus in order to reduce or prevent complications. And create a unit to provide health care services like educating patients with diabetes in the diabetic center for providing instruction about self-care activities.

**KEY WORDS:** Assessment , Patient, Diabetes Mellitus, Knowledge, Foot Care

## INTRODUCTION:

Diabetes is one of the biggest health problems in the world. Around 4.6% about 285 millions of diabetic patients in 2010 in the world, and the expectation will move higher in 2030 to 7.7% about 439 million [(1)]. Regardless of, The improvement in treating, diabetes in these days is considered a major reason for morbidity and mortality. It has important effect on life value of the patient, their ability to work, and high costs for the health care provided to the patients [(2) (3)]. It has predicted that in 2025 will be doubling the number of people who suffer from diabetes and 76% of them in low-income countries [(4)].

The main aim of every diabetes management is to improve controlling glucose in the blood. Management choices for diabetes be disposed to be numerous and lifetime. Away from the ordinary drug, many useful actions that could direct to improve prevention and manage of pressing complications[(5)]. Seven essential self-care behaviors for diabetic patients which portend good results, These are healthy diet used, have body with energy, observing of sugars in the blood, taking treatment regularly, have good problem-solving abilities, healthy coping skills and risk-reduction behaviors, that have been reported to be positively associated with the control of glucose in the blood which decrease complication and improve quality of life [(6) (7)].

Diabetic patients must take care of the feet because there are many problems accompanied with diabetes. Patient with diabetes are vulnerable to neurovascular damage which can result in loss of protective sensation in the feet, poor circulation, and poor healing of foot sore. All of these situations participate to increase amputation rate. The absence of nerve and vascular symptoms doesn't mean that a patient's feet are not at risk [(8)] .

Diabetic foot based on (WHO) criteria is an infection, ulceration and/ or destruction of tissues accompanied with neurological abnormalities and peripheral vascular disease of the lower extremities. Also, it is considered as a serious problem in chronic disorder of altered carbohydrate, fat, and protein metabolism due to either a relative or absolute lack of insulin or one of endocrine problems [(9)] .

Using unsuitable shoes are the main reason to diabetes foot ulcerations. Routine checking of the shoes for any strange thing, pieces, uncertain lining are important. Patients should be advised about suitable footwear, diabetic patients' requirement to focus on the size and kind of their shoes and should prevent using pointed-toe and open-toe shoes, high heels, sandals. Patient should evaluate the material and structure of footwear [(10)] .

It is reported that nerve damage can make feet less able to pain, heat, and cold. That makes it easy to hurt feet but hard to feel the hurt. Ulcers forms most often over the ball of the big toe or on the bottom of it. Ulcers can be caused by a cut, callus, or blister that is not taken care of. If patients ignore an ulcer, it may become infected ulcer which can lead to gangrene and amputation [(11)] .

Between (50%-75%) of amputation which may be performed on diabetic patient lower extremity, More than 50% of these amputation and diabetic foot problems are taught to be preventable by self-management skills so that patients are taught self-foot care skills, and this can be performed every day [(12)].

Foot complications are the most common cause of hospitalization for diabetes patients. Sensory neuropathy and peripheral arterial disease (PAD) are risk factors, and clotting abnormalities, impaired immune function, and autonomic neuropathy also play important roles, smoking is harmful to health of lower extremity blood vessels which raise the risk of Amputation [(13)].

Diabetes patients must keep their feet away from source of heat (hot sand, hot-water bottle, radiators, fires, and electrical heat) to prevent burns due to impair sensation from neuropathy, and the patient should be recommended not to walking barefoot on sand or in the water, they must use natural ointment on feet to prevent skin from drying and cracking and remember not to apply between toes, and use mild foot powder on the sole of feet [(3)] .

Patient should not wear new shoes for more than an hour at time, gently dry feet, especially between toes with avoiding rub it to prevent injuries, they must cut toenails evenly with straight method and do not cut down corners, with the best time to trim nails is after a shower or bath [(14) (15)] .

The patients need to check their feet every day, for any blisters, redness, cuts, nail problems or swelling. It is also significant to wash the feet daily in warm water with a sponge or washcloth and dry them cautiously, particularly between toes [(16)].

The nails should be cut by the patient if needed. They have to cut the nails straight and file the edges. It should not be very long, which lead to wounds, neither to short, which lead to grow the nail inwards. If there are any calluses or corns, they have to get professional help. The diabetes patients have to change socks on daily basis to dry and clean socks that fits good. The feet have to be warm during night and socks could be a solution if they are cold during night time. It is necessary to wear socks and shoes during winter and rainy days. The patient should check their shoes before put them on by look inside the shoes to see if there are any objects or break in the shoes [(17)].

## MATERIALS AND METHODS:

**Design of the Study:**

Descriptive Cross-Sectional Design is adopted in the current study to achieve the early stated objectives. The study started from October 1st, 2016 until May, 6th, 2017.

**Setting of the Study:**

The study is conducted in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate / Al-Sadder Medical City, at Al-Najaf Center for Diabetes and Endocrine.

**Sample of the Study:**

A Non-Probability (Accidental Sample) of (80) Diabetes Mellitus patients, those who visit Al-Sadder Medical City / Al-Najaf Center for Diabetes and Endocrine, are included in the study sample.

**Study Instrument:**

An assessment tool is adopted and developed by the researcher to achieve the early stated objectives. the questionnaire consist of three parts: Part 1: Demographic Data: This part consists of (7) items, which includes age, gender, level of education, monthly income, residence, marital status and occupational status. Part II: Clinical Data: This part consists of (5) items, including duration of disease since diagnosis, health education regarding foot care, sources of health education, past history of disease from father or mother and suffering from foot problems. Part III: knowledge toward foot care: This part of the questionnaire comprised of (11) items.

**Data Collection:**

The data collection is done by applying of the developed questionnaire with aid of structured interview technique with the subjects as they are individually interviewed and the researcher use Arabic version of the questionnaire. The study subjects are interviewed in a similar way. The data collection process started from February, 15th, 2017 to February, 28th, 2017. The interview technique spends about 15-20 minutes for each subject.

**Validity of the Instrument:**

A content validity of the study instrument conducted through a group of experts who have more than 10 years of experience in nursing field.

**Statistical analysis:**

The data were analyze through application of the descriptive and inferential data analysis methods, included:

- Frequency, percentage, and Statistical mean and standard deviation.
- Measures of central tendency: Mean, Mean of scores (MS) And the three points likert scales with three levels of assessment, poor (mean of score 1-1.66), moderate (mean of score 1.67-2.33), high (mean of score equal or more than 2.34) for patients' knowledge about foot care.
- Chi-square : to test independency distribution of observed frequencies, and for measuring the association between the studies variables according to its type.

## STUDY RESULTS AND FINDINGS:

**Table (1) Demographic Data of The Study Sample**

| demographical data | Rating | Frequency | Percentage % |
|---|---|---|---|
| Age Group (years) | <= 20 | 3 | 3.8 |
| | 21 - 43 | 9 | 11.3 |
| | 44 - 67 | 58 | 72.5 |
| | 68 Up | 10 | 12.5 |
| Gender | Male | 36 | 45.0 |
| | Female | 44 | 55.0 |
| Income | Enough | 17 | 21.3 |
| | Enough to some extant | 24 | 30.0 |
| | Not enough | 39 | 48.8 |
| Residence | Rural | 19 | 23.8 |
| | Urban | 61 | 76.3 |
| marital state | Single | 7 | 8.8 |
| | Married | 63 | 78.8 |
| | Window | 9 | 11.3 |
| | Separated | 1 | 1.3 |
| Level of education | Illiterate | 29 | 36.3 |
| | Reads and write | 16 | 20.0 |
| | Primary | 15 | 18.8 |
| | Intermediate | 11 | 13.8 |
| | Preparatory | 3 | 3.8 |
| | Institute | 2 | 2.5 |
| | Bachelor | 4 | 5.0 |
| Occupations | Retried | 8 | 10.0 |
| | Housewife | 41 | 51.3 |
| | Employee | 5 | 6.3 |
| | Not work | 19 | 23.8 |
| | Free job | 7 | 8.8 |
| Total | | 80 | 100% |

Table (1) shows that the highest percent of the study sample (72.5%) are within (44-67) years old. Regarding gender, the study results revealed that the majority (55%) are female. the study results reveals that (48.8%) of the sample are present not enough income, additionally. Also (76.3%) are living in urban residential area, Additionally. Concerning the subjects marital status, (78.8%) of the study sample are married. In level of education, the study results present that (36.3%) of the sample are illiterates, In regards to occupational status (51.3%) are housewives .

**Table (2): Distribution of the study sample according to their clinical data.**

| Clinical data | Rating | Frequency | Percentage % |
|---|---|---|---|
| Duration of disease (Years) | <= 5 | 19 | 23.8 |
| | 6 – 13 | 36 | 45.0 |
| | 14 – 22 | 19 | 23.8 |
| | 23 Up | 6 | 7.5 |
| Education about foot care | Yes | 65 | 81.3 |
| | No | 15 | 18.8 |
| if yes: from where | Nurse | 3 | 3.8 |
| | Doctor | 60 | 75.0 |
| | Internet | 1 | 1.3 |
| | Other | 1 | 1.3 |
| past disease from mother | Yes | 25 | 31.3 |
| | No | 55 | 68.8 |
| past disease from father | Yes | 25 | 31.3 |
| | No | 55 | 68.8 |
| Foot problems | Pain in foot | 64 | 80.0 |
| | inflammation | 13 | 16.3 |
| | pain and inflammation | 3 | 3.8 |
| Total | | 80 | 100% |

Table (2) shows that the duration of disease, the highest percentage(45%) is between (6-13)years. Relative to receiving of education about foot care , the study results show that (81.3%) of the study sample are receiving education from doctor, while (18.8%) of the patients not receive their health education. Concerning the past disease family history, the study results indicate that 31.3% and 31.3% of the study sample have a positive family history from father and mother sides respectively. Relative to the education, the highest percentage (80.0%) are suffering from pain in foot.

**Table (3) :Overall assessment for the patients' knowledge toward foot care**

| Main domain | Rating | Frequency | Percentage | .S | Assessment |
|---|---|---|---|---|---|
| Overall patients' knowledge about foot care | Moderate | **6** | **7.5** | **.37** | **Poor** |
| | Poor | **74** | **92.5** | | |
| | Total | **80** | **100** | | |

**Cut off point (0.66), M.S (mean of scores), poor (mean of score 1-1.66), moderate (mean of score 1.67-2.33), high (mean of score equal or more than 2.34)**

Table (**3**) shows that overall patients' knowledge about foot care are poor.

**Table (4) relationship between knowledge about foot care and other demographic data.**

| Category | Chi-square | d.f | P-value (sig.) |
|---|---|---|---|
| age | 5.763 | 6 | 0.450 (NS) |
| Gender | 2.651 | 2 | 0.266 (NS) |
| Educational level | 2.202 | 12 | 0.999 (NS) |
| income | 8.999 | 4 | 0.061 (NS) |
| Residence | 2.541 | 2 | 0.281 (NS) |
| Occupation | 9.480 | 8 | 0.303 (NS) |
| Duration | 4.649 | 6 | 0.590 (NS) |
| Marital status | 1.893 | 6 | 0.929 (NS) |

**NS: Non-Sig. at P>0.05, S: Sig. at P<0.05, HS: high significant at p-value less than 0.01.**

Table (4) shows there is not found relationship between knowledge about foot care and other demographic data.

**Table (5) relationship between knowledge about foot care and clinical data**

| Category | Chi-square | d.f | P-value (sig.) |
|---|---|---|---|
| education about foot care | 4.632 | 2 | 0.099 (NS) |
| past disease from father | 0.746 | 2 | 0.689 (NS) |
| past disease from mother | 3.539 | 2 | 0.170 (NS) |
| Foot problem | 2.551 | 4 | 0.041 (S) |

**NS: Non-Sig. at P>0.05, S: Sig. at P<0.05, HS: high significant at p-value less than 0.01.**

Table (5) shows that there is a non- significant relationship between the patients knowledge about foot care and clinical data except with their Foot problem at p-value 0.041 .

**DISCUSSION:**

**Part-1: Discussion of the Diabetic Patient Demographic and Clinical Data**

Tables (1) Shows that there are (72.5%) among. Diabetic patients of sample study is within (44-67 years). This outcome is reinforced by a study done by [4] who concluded in their results that the dominant age of the study sample are 55 years old and more. The danger for DM increases with the increase of age of the patient which will contribute in raising the occurrence of diabetes in those individuals when age is advanced [18]. Regarding gender, the results reveal, that the majority are (55.0%). of subjects are female. Both studies [19].mentioned that female are the dominant gender for patients are diabetic mellitus. This will lead to the fact that the diabetic mellitus more common in women than in man. Most of the sample results indicate that (48.8%) of the study sample are insufficient monthly income. Regarding residency, the current study results show that most sample (76.3%) is live who at urban area. This result in agreement with [20] they indicated that the majority (75.5%) of diabetic patients is living in urban area and the remaining is living in the countryside These results might come because of the diabetes mellitus that refer to a modern scourge of industrialized society. Therefore, the diabetes mellitus incidence increases in people who live in urban area, than those in rural, Also those individuals in rural residential area often practice daily physical exercises when compared with those in urban, so they less risky for diabetes than urban residents. Furthermore, the rural residents are lived good environment in regarding to noises, pollution, and psychological in a danger stressors so they less prone to get diabetes mellitus because of the reasons that are common in town than countryside areas e.g. psychological stress [18].Concerning to marital status, majority of (78.8%) are subjects married. Several studies are in agreement with results the present the of study [2] [7] [19] in their studies they found that the highest results of their studies samples were married patients. Concerning educational levels, the higher percentage (36.3%) are illiterates. This result is in agreement with other studies [21] [22] in their studies found that the majority of the study subjects are illiterates Regarding occupational status, the highest percentage is housewives. This result is in agreement with the results which are obtained from [23] they mentioned that most of females with advanced age prefer to work at home, because they have changes in their physical status. Regarding duration of disease, the higher percentage (45.0%) is for those who are suffering from the disease for period from (6-13) years finding is consistent with results of [24]. Concerning the results of the item which are involved they receive health education regarding the diabetic foot care , the results shows that most of the sample did not received any education. And for the remaining sample (18.8%), about (81.3%) of them have health education about (75%) from doctor. Concerning family history, the study results indicate that (31.3% and 31.3%) of the study sample have a positive family history from father and mother sides respectively. This result comes along with the findings of and other studies which are carried out by [17] [25] in their studies.

Around (80.0%) of the samples suffering from pain in foot in relation with the disease. This only finding agrees with the result [26] they concluded that of the study sample presents a chronic conditions. the study shows that the highest percentage (55.0%) of patients have negative about knowledge foot care , this result is supported with the [27].

**Part-II: Associations between the Patients knowledge toward foot care and their Demographic and Clinical Data:**

Table (4) and table (5) shows that there is a non- significant relationship between the patients knowledge about foot care and clinical data except with their Foot problem at p-value 0.041.these results are supported by Hello, *et al.*,(2014).

## CONCLUSION:

Based on the study results the study concluded the following:

1- All patients with diabetes mellitus were Female, married, housewives live in urban regions and no enough to limit in concerned to economic status.

2- The diabetic patients' knowledge about foot care are insufficient.

3- There is a non- significant relationship between the patients knowledge toward foot care clinical data except with their Foot problem at p-value 0.041**.**

## RECOMMENDATIONS:

Based on the study conclusion, the study recommends the following:

1. Patients with TIIDM need instruction with means of education, such as published materials with regard to foot care .
2. An educational program should be designed and implemented to increase patients information about self-care regimen for diabetes mellitus in order to reduce or prevent complications.
3. A booklet should be used by the center for facilitating patients with TIIDM as guidance for foot care .
4. Create a unit to provide health care services like educating patients with diabetes in the center for providing instruction about foot care and self-care activities.
5. Further studies can be carried out on large sample size to give more data about patient's daily life care.

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