Self Feet Care of Pregnant Women with Diabetes Who Attend Primary Health Care Centers at Baghdad City

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Abstract

Background: Pregnant women with diabetes are more vulnerable to foot problems due to damage of the nerves and reduce blood flow to feet so they need proper and regular feet care to prevent serious health problems with low and high risk feet

Objectives: To assess self feet care among pregnant women with diabetic pregnant who attending primary health care centers and to find out the relationship between self feet care and studied variables.

Methodology: A descriptive analytic design was conducted from 7 July to 30 September 2014 on Non probability (convenient sample) of 150 pregnant women with diabetes was selected from twelve Primary Health Care Centers at Baghdad city. Questionnaire format is tool for date collection which have designed and consist of three main parts including: socio demographic and reproductive characteristics and items of feet care among pregnant women with diabetes which comprised (18) items. Reliability of the questionnaire was determined through internal consistency of correlation coefficient (R= 0.940) and validity of content was determined through reviewing it by (12) experts in different specialists and was determined through pilot study. Descriptive and inferential statistics were used to analyze collected data.

Result : Result of study revealed that the (35.3%) of study sample was (35-39) years old with mean age and SD ($\bar{X}$ =33.57 ± 5.54) years, and (34.7%) of the study sample was graduated from primary school and less, half of the study sample was government employment and (42.7%) of the study sample had moderate socioeconomic status, the highest percentage (70.0%) of the study sample was nonsmokers, The result indicates that health related behaviors have moderate mean score in all items related to feet care.

Conclusions: All items related to health behavior concerning self feet care is below cut-off-point, which may expose pregnant to either low or high risk for their feet

Recommendations: Health care provider should perform a complete foot examination at least every 6 month for each woman with diabetes. Regular visit pregnant women with diabetes to primary health care centers and follow up teaching them diet, exercise, insulin, self monitor of blood sugar, urine and daily examination of their foot.

Keywords: Diabetes, Health related behavior, pregnant women and Self feet care.

I.   Introduction

Diabetes mellitus during pregnancy is one of the major medical and social problems with increase prevalence in last decades. It is ranked as the 5th cause of death in Europe and 4th cause for physicians' visits [1]. In 2005, 1.1 million people died from diabetes. 80% of diabetes deaths are now occurring in low- and middle-income countries[2].In 2012 the prevalence was 29.1 million Americans, or 9.3% of the population, had diabetes, while The incidence of diabetes in same year was 1.7 million new diagnoses/year[3]. Diabetes can cause nerve damage (peripheral neuropathy) that reduces sensation in feet neuropathy, can have an injury or condition on foot that requires medical care. Diabetes may also affect blood flow in legs and feet, making it harder for cuts or sores to heal then a small infection can become very serious. Foot infection is the most common reason admission to hospital of pregnant women with diabetes and foot ulcers and non-healing wounds are the primary causes of amputation in women with diabetes. With proper foot care, it is estimated that as many as half of these amputations could be prevented. Foot problems are the major determinant of the quality of life in women suffering from diabetes, and one the main reason for hospitalization due to foot ulceration and lesions which might lead to amputation of feet or even death[1]. Foot problem among them are the potential and most preventable complication by providing an education and instructions to reduce high risk for foot or leg amputation. So Lack of awareness about diabetes, combined with insufficient access to health services, can lead to complications such as blindness, amputation and kidney failure. So the investigators try to assess self feet care among pregnant women with diabetic pregnant who attending primary health care centers at Baghdad City and to find out the relationship between self feet care and studied variables.

II. Methodology

A descriptive analytic design was conducted from A descriptive analytic design was conducted from 7 July to 30 September 2014 on a non probability (convenient sample) of 150 pregnant women with diabetes was selected from twelve primary health care centers. A pilot study was carried out on July10th - 25th / 2014 at Al- kadhimiya primary health care center. A pilot study was conducted before starting actual data collection for the following purposes: to identify any problem with the research design and to identify any barriers which may be encountered during data collection process. Questionnaire format was a tool for date collection which have designed and consist of three main parts including: socio demographic and reproductive characteristics and 18 items of foot care among pregnant women with diabetes.

Foot care domain of health related behaviors among pregnant women with diabetes which is consisted of (18) items were scored according to likert - scale to three point as three for yes, two for sometimes & one for never. While the numeric values for the negative items of the scale were one for yes, two for sometimes, and three for never so the cut-off point was calculated equal two. So the Mean of score was rated according to the followings: Low =1- 1.4 mean of score, Moderate = 1.5 – 2.5 mean score and High = 2.6 – 3 mean score. Reliability of the questionnaire was determined through internal consistency of correlation coefficient (R= 0.940) and validity of content was determined through reviewing it by (12) experts in different specialists and was determined through pilot study. Descriptive and inferential statistics were used to analyze collected data.

III. Results

Table (1): Distribution of the study sample according to socio demographic characteristics (n=150).

Socio - demographic variables.		
Age group / years	**No.**	**%**
20-24 year	13	**8.6**
25-29 year	22	14.7
30-34 year	43	28.7
35-39 year	**53**	**35.3**
40 year & above	19	12.7
$\overline{X} \pm SD = 33.57 \pm 5.54$		
Educational Level		
Primary school graduate and less	**52**	**34.7**
Intermediate school graduate	21	14
Secondary school graduate	43	28.7
Institute graduate and above.	**34**	**22.6**
Occupation status		
Government & self employed	**79**	**52.7**
Retired	**17**	**11.3**
Housewife	54	36
Socio-Economic status		
High Socio - Economic Status (121-150 score)	33	22
Moderate Socio - Economic Status (90-120 score)	64	**42.7**
Low Socio - Economic Status (89 score & Less).	53	35.3
Smoking Status		
Yes	45	30.0
No	105	**70.0**

Table (1) shows that the highest percentage (35.3%) of study sample is at age group (35– 39) years, with the mean age and SD is (33.57 ± 5.54) years. The highest percentage (34.7%) of study sample has been graduate from primary school & less. (52.7%) of study sample is government & self employed. (42.7%) of the study sample is from the moderate level of the socio economic status. The highest percentage (70.0%) of study sample does not have smoking habit, while they exposed to indirect or Negative smokers, (52.38%) of study sample had exposed to smoking from their husband, while the lowest percentage(13.33%) of them had exposed to smoking from other resources of family members (mother, father, Aunt and uncle).

Table (2): Distribution of the study sample according to their Reproductive Characteristics (N=150).

Reproductive Characteristics	No.	%
Gravidity (No. of pregnancies).		
Primagravida	5	3.3
Multigravida	145	**96.7**
Parity (no. of deliveries)		
Primipara	24	16
Multipara (had 2-4 pregnancies)	58	**38.7**
Grand multipara (had 5-6 pregnancies)	32	21.3
Great multi pare (had ≥ 7 pregnancies).	36	24

Age At First Pregnancy / Years		
16 – 20 **year**	54	36.0
21 - 25 year	58	**38.7**
26 – 30 year	20	13.3
31 year & above	18	12
Years of Marriage / years		
15 – 19 years	53	35.3
20 - 24 years	59	**39.3**
25- 29 years	20	13.3
30 years & above	18	12
No. of abortion		
Nil	35	23.3
1-2 times	75	**50**
3 times and above	40	26.6

Table (2) Shows that the highest percentage (96.7%) of study sample is multigravida, (38.7%) is multipara (had 2-4 pregnancies), (38.7%) of study sample their age at first pregnancy is ranged between (21-25)years, (39.3%) of study sample their marriage at age is ranged between (20- 24) years and half of study sample had (1-2) times of abortion.

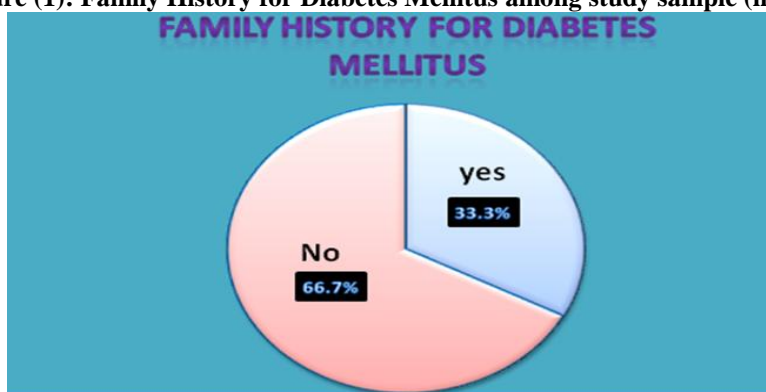**Figure (1): Family History for Diabetes Mellitus among study sample (n=150)**

Figure (1) Shows that the highest percentage (66.7%) of study sample did not have family history for diabetes mellitus, while the lower percentage(33.3%) had a family history for diabetes mellitus.

Table (3): Foot care domain of Health related behaviors among pregnant women with diabetes (n=150)

No.	Items relate foot care	Yes		Sometime		No		Ms	Result
		No.	%	No.	%	No	%		
1.	Observing feet and between the toes of the feet every day.	52	34.7	32	21.3	66	44.0	1.86	M
2.	Wash and dry between the toes well.	61	40.7	26	17.3	63	42.0	1.76	M
3.	**Be sure that there are no any cracks or wounds.**	**50**	**33.3**	**43**	**28.7**	**57**	**38.0**	**1.95**	**M**
4.	Keep the feet healthy to stay away from all sharp objects and rough surfaces that may cause injuries.	55	36.7	20	13.3	75	50.0	1.76	M
5.	Wear clean socks every day and using wool or cotton according to climates.	63	42.0	24	16.0	63	42.0	1.74	M
6.	To avoid cutting the nails very short near the skin.	54	36.0	37	24.7	59	39.3	1.88	M
7.	Cut toenails straight across and smooth with a nail file	59	39.3	24	16.0	67	44.7	1.76	M
8.	Avoid standing for long time and elevate the feet high on a pillow to reduce the pressure on them.	57	38.0	35	23.3	58	38.7	185	M
9.	Washing feet daily with soap and warm water.	66	44.0	36	24.0	48	32.0	1.8	M
10.	Avoid using very cold or hot water.	69	46.0	25	16.7	56	37.3	1.70	M
11.	Drying feet well using a clean and soft towel especially between toes.	60	40.0	37	24.7	53	35.3	1.84	M
12.	Do you make use of a small mirror to see the soles of feet	62	14.0	23	15.3	65	43.3	1.84	M
13.	Look around the inside of the shoes by hand looking for the rough areas of the shoe, foreign objects such as small stones or sharp objects	59	39.3	28	18.7	63	42.0	1.79	M
14.	Wearing shoes made from natural leather and soft or medical one.	63	43.0	29	19.3	58	38.7	1.77	M
15	Avoid wearing shoes open from front and high-heeled	60	40.0	35	23.3	55	36.7	1.83	M

	or narrow especially during pregnancy							
16.	Eager to be a wide prelude the shoe allows toes to move freely.	64	42.7	33	22.0	53	35.3	1.79	M
17.	Avoid sitting in a bad position such as cross the legs.	67	44.7	28	18.7	55	36.7	1.74	M
18.	Asking the doctor check the feet at every visit for detecting any abnormalities & disorders.	69	46.0	29	19.3	52	34.7	1.73	M

*Cut –off- points = 2

Table (3.) shows that the highest mean score (1.95) of study sample related to foot care domain in item No. (3): be sure that there are no any cracks or wounds, while the lowest mean score (1.7) of study sample in item No. (10): Avoid using very cold or hot water. All items are below cut –off - points which is equal two.

IV.   Discussion

The present study reported that the highest percentage (35.3%) of study sample is at age group was ranged between (35-39) years old with mean and SD is ($\bar{X}$ 33.57 $\pm$ 5.54) years more than half of the study sample were within ideal age between (20-34) years for pregnant as shown in table (1). The findings of present study supported evidence is available in the study that reported the highest percentage (44.2%) of pregnant women was in age group ranged between (30-39) years[4]. And also agree with a study which was reported that the (32.9%) of pregnant was with age ranging from (31-36) years[5]. The highest percentage (34.7%) of the study sample was graduated from primary school and less, while the lowest percentage (14%) were graduated from institute graduate and above as shown in table (1) This result was in agreement by a study which reported that a majority of pregnant women (65.5%) indicated that pregnant women should receive on the education[5]. It was reported that the highest percentage of women pregnant do not have an education, (52.9%) were primary school and one third was intermediate graduates and nearly two –third of the study sample were low level of education[6]. The highest percentage (52.7%) of study sample was government of self employed while the lowest percentage (11.3 %) of study sample were retired as shown in the table (1). Diabetes mellitus is the leading cause affect their continuous absenteeism from their work and between 10% to 18% of pregnant believed that it hampers functions of daily life [7]. It was reported that diabetes mellitus is the leading cause of absenteeism of pregnant women nearly half of study sample were employed so pregnant women with diabetes may affect production in their work[8].

The highest percentage (42.7%) of study sample was with Moderate Socio-economic status as shown in Table (1). The finding of the present study is not consistent with a study which revealed that pregnant women who belong to a low socio- economic status had severe symptoms of diabetes mellitus than the pregnant women of high Socio-economic status[9]. Also it was mentioned that pregnant women with higher incomes had lower prevalence of several symptoms of diabetes mellitus among pregnant than others [10]. The highest percentage (70.0%) of study sample did not expose to positive smoking status, while the lowest percentage (30.0%) has smoking habit. It was reported that the cigarette smoking has been associated with increased insulin resistance, its effect on gestational diabetes mellitus risk is uncertain. the authors evaluated the effects of smoking on glucose tolerance in the pregnant women who participated in the preeclampsia prevention experience, a compared with women who had never smoked. women who smoked were at increased risk of gestational diabetes mellitus when criteria proposed by the national diabetes plasma glucose concentration (mg/dl) it was reported that elevated in women adjusted who mean 1-hour smoked at study sample (95%) compared with women who had never smoked also (95%). women who un smoked were at increased risk of gestational diabetes[11].

The finding of present study indicates that majority of the study sample was multigravida and multipara as shown in table (2). it was reported that the lack of health education , in correct and lack of using of family planning methods and vogues of having large families (especially in rural areas) accounted for increased the complication associated with high parity. Nearly half of the sample in present study had 2-4 pregnancies which are in ideal reproductive numbers while the other half may expose too many complications. The findings of present study supported evidence is available in the study reported that in cross- sectional analysis of over 200.000 women delivered between 1992-1998 in New South Wales Australia, the incidence of diabetes mellitus complications found to be increased significantly from parity onwards[12].

The result of study sample indicated that the highest percentage (38.7%) was first pregnancy at age between (21-25) years old which means ideal age for become pregnancy. While the lowest percentage (12%) was the first to have them in the age (31years & above) which means was old primagravida . The result indicates that (39.3%) of the study sample was at age marriage is (20-24 years). The findings of present study supported evidence is available in the study reported that maternal and neonatal mortality is roughly inversely related to maternal age at marriage, mortality highest in pregnant women with diabetes who married younger than 20 years and gradually diminishing with higher age group. Both teen aged women (younger than 20 years) are associated with higher than average rates of preterm birth, growth restriction, and prenatal mortality [13].

The result indicates that half of study sample (50. %) has one to two abortion. It was stated that the major abortion risk on the pregnant women with diabetes are spontaneous abortion or with chromosomal abnormalities and as increased risk for hyperglycemia [12].

The study result in figure (1) shows that the highest percentage (66.7%) of study sample did not have family history of diabetes mellitus, while the lower percentage (33.3%) had a family history for diabetes mellitus. American Diabetes Association was mentioned the risk of developing DM impaired by insulin in resistance and enhanced by these defects in not insulin secretion, the study result of 190 pregnant women and 373 control subjects, were assessed maternal family history of chronic hypertension and type 2 diabetes in relation to preeclampsia risk. Participants provided information on first-degree family history of the 2 conditions and other covariates during postpartum interviews. Logistic regression was used to estimate odds ratios and 95% confidence intervals adjusted for confounding by age, and obesity compared with women with no parental history of diabetes mellitus [13].

Self Foot Care domain of Health related behaviors among pregnant women with diabetes

Diabetes can mean double trouble for feet and effect in two ways: First diabetes can reduce blood flow and depriving feet of oxygen and nutrients this makes any foot changes and disorders more complicated, this makes it more difficult for blisters, sores, and cuts to heal. Second, diabetic effect nerve and lead to peripheral neuropathy which can cause numbness in feet. Peripheral neuropathy can also cause sharp pain in feet can't feel cuts and blisters, more likely to get sores and infections If don't notice or treat the sores, they can become deeply infected, and lead to amputation diabetic [14]. Present study results show that there were a moderate of mean of score in all items related to foot care. The highest mean score (1.95) of study sample related to foot care domain in item No. (3): be sure that there are no any cracks or wounds, while the lowest mean score (1.7) of study sample in item No. (10): Avoid using very cold or hot water. All items are below cut –off- points which is equal two as shown in table (3). The present study finding that there was no a statistical significant Association between health related behaviors concerning self foot care among pregnant women with diabetes and other variables.

American Diabetes Association regard to the care of women with diabetes working with health care team to keep and check blood glucose daily and teach the women to look at and bare feet for red spots, wound, swelling, and blisters. by using a mirror or ask someone in her family for help and plan physical activity program with health team according to woman's condition, wash their feet every day and dry them carefully, especially between the toes keep skin soft and smooth and rub a thin coat of skin lotion over the tops and bottoms of feet[13]. So, it was mentioned that pregnant women with diabetes should inspect and seeking foot care daily in order to avoid any foot injury and disorders. Health care provider checks feet at least once a year for any problem or disorders. Daily foot care is the most important thing, for reducing foot complications and About 85% of amputations can be prevented if the pregnant women gets a treatment in time. That means checking feet daily and seeing a foot doctor every two or three months reduce problems early. Diabetes can reduce the blood supply to feet and cause a loss of feeling known as peripheral neuropathy therefore foot injuries do not heal well, pregnant women with diabetes 15 times more likely to have a limb amputated due to gangrene. So the risk of complications can be greatly reduced when blood sugar levels under control [15].

V. Conclusions

All items related to health behavior concerning self feet care is below cut-off-point, which may expose pregnant to either low or high risk for their feet

VI. Recommendations

Health care provider should perform a complete foot examination at least every 6 month for each woman with diabetes. Regular visit pregnant women with diabetes to primary health care centers and follow up teaching them diet, exercise, insulin, self monitor of blood sugar, urine and daily examination of their foot.

References
[1].   SharifiradGH, et al.: The Effect of a Health Belief Model Based Education Program for Foot Care in Diabetic Patients Type II in Kermanshah, Iran (2005), **Int. J Endocrinol Metab**, 2007;2: 82-90
[2].   WHO : 10 facts about diabetes , **WHO 2006**, available in http://www.who.int/features/factfiles/diabetes/09_en.html access on 12 may 2015
[3].   **National Diabetes Statistics Report**, 2014 (released June 10, 2014) available in http://www.diabetes.org/diabetes-basics/statistics access on 12 may 2015
[4].   Kerssen A, de Valk H, Visser GH. Increased second trimester maternal glucose levels are related to extremely large-for-gestational-age infants in women with type 1 diabetes. **Diabetes Care** 2007; 30: 1069-74.
[5].   Didarloo AR, Shojaei zadeh D, Gharaaghaji A. , Habibzadeh H, Niknami Sh and Pourali R.: Prediction of Self-Management Behavior among Iranian Women with Type 2 Diabetes: Application of the Theory of Reasoned Action along with Self-Efficacy, **(ETRA).** 2012 Feb; 14(2): 86-95.

[6]. Whittle, A Diabetes important Facts Diabetes **. EZin Articale .com**. 2011, (553): 1-5**.**

[7]. Lucinda J. England1, Richard J. Levine1, Cong Qian2, Lisa M. Soule3, Enrique F. Schisterman1, Kai F. Yu1 and Patrick M. **Diabetic care,** (2007).

[8]. Debussche X, Debussche BM, Besançon S, Traore AS: Challenges to diabetes self-management in developing countries . **Diabetes Voice, 2009**.

[9]. Pollack HA. Sudden infant death syndrome**,** maternal smoking during pregnancy, and the cost-effectiveness of smoking cessation intervention**. Am J Public Health** 2001; 91: 432--6. 54:12-14.

[10]. Wald M.R. Law J.K. Morris D.S.: Quantifying the effect of folic acid Lancet 358 2001 2069 2073 Published erratum in: **Lancet.** 2002; 16; 359: 630**.**

[11]. Montgomery SM, Ekbom A: Smoking during pregnancy and diabetes mellitus in a British longitudinal birth cohort. **BMJ** 26–27, 2002. : 324

[12]. Assiamira Ferrara, MD, PHD1, Tiffany Peng, MA1 and Catherine Kim, **Diabetes Care** , February 2009 32:2 269-274; published ahead of print November 4, 2008, 1184. Available [online] at : http:// care. Diabetes.

[13]. **American Diabetes Association**. Standards of medical care in diabetes--2013. Diabetes Care 2013; 36 Suppl 1:S11.

[14]. Ko. G. ;Tam, W. ; Chan, J. ; and Roges , M.:Prevalence of gestational diabetes mellitus in Hong Kong based on the 1998 WHO criteria. **Diabet Med**. 2002, 19:8 .

[15]. Hunt,J. and Schuller,L.: The increasing prevalence of diabetes in pregnancy. **Obstetric and gynecology clin North Am**. 2007, 34 (2): 173-99.