# Assessment of knowledge, attitude and practice regarding diabetic foot care among patients visiting Diabetic clinic.

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***Abstract:*** *A quantitative study with descriptive study design was done to assess the knowledge, attitude and practice on diabetic foot care among patients visiting diabetic clinic of GMCH-32, Chandigarh. Purposive sampling technique was used to collect 100 samples. Findings revealed that 78% of diabetic patients have average knowledge, 18% have poor knowledge and 4% have good knowledge regarding diabetic foot care. 86% of diabetic patients have adequate practice and 17% have inadequate practice regarding diabetic foot care, 89% of diabetic patients have positive attitude and 11% have negative attitude regarding diabetic foot care. The association of age, educational status, occupation, residence, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity was calculated with knowledge , attitude and practice where compliance to treatment had association with knowledge and occupation and personal habit had association with attitude scores. There was weak positive correlation calculated between knowledge and attitude (r = 0.318, p = 0.003), attitude and practice (r = 0.411, p = 0.000) and practice and knowledge (r = 0.324, p = 0.003).*
*Background: Diabetic foot ulcer if not treated ends up with amputation of lower limb. The risk of lower extremity amputation is 15 to 46 times higher in diabetics than in persons who do not have diabetes mellitus.[1,2]*
*Materials and Methods: In this descriptive study 100 samples were taken purposively from Diabetic clinic and knowledge, attitude and practice regarding diabetic foot care was assessed by using self structured knowledge questionnaire, attitude scale and practice checklist.*
***Results****: Findings revealed that 78% of diabetic patients have average knowledge, 18% have poor knowledge and 4% have good knowledge regarding diabetic foot care. 86% of diabetic patients have adequate practice and 17% have inadequate practice regarding diabetic foot care, 89% of diabetic patients have positive attitude and 11% have negative attitude regarding diabetic foot care. The association of age, educational status, occupation, residence, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity was calculated with knowledge , attitude and practice where compliance to treatment had association with knowledge and occupation and personal habit had association with attitude scores. There was weak positive correlation calculated between knowledge and attitude (r = 0.318, p = 0.003), attitude and practice (r = 0.411, p = 0.000) and practice and knowledge (r = 0.324, p = 0.003).*
*Conclusion: Majority of patients 78% had average knowledge, 86% had adequate practice and 89% had positive attitude. The association of age, educational status, occupation, residence, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity was calculated with knowledge , attitude and practice where compliance to treatment had association with knowledge and occupation and personal habit had association with attitude scores. The association of age, educational status, residence, occupation, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity and compliance to treatment has no association with practice score. No statistical correlation was found between knowledge, attitude and practice.*
***Key Word****: Knowledge; Practice; Attitude; Diabetic foot care; Diabetic clinic.*

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## I. Introduction

The diabetic foot syndrome or disease includes several pathologies, mainly diabetic peripheral neuropathy and peripheral arterial disease which result in foot ulceration. Diabetic foot ulceration may ultimately lead to amputation, especially when wound infection or osteomyelitis is involved. It defined as a full-thickness wound which is present at a level distal to the ankle in patients with diabetes.[3,4] Losing a limb is a

great loss for anyone and also create mental imbalance. Diabetic foot ulcer if not treated ends up with amputation of lower limb. The risk of lower extremity amputation is 15 to 46 times higher in diabetics than in persons who do not have diabetes mellitus.[1,2] Physically, an amputation may change ability to carry out the tasks for a person that he was previously capable of doing. It changes the ability to walk and mobilize may also mean that it is more difficult for someone to get out to socialize with others in community or ability to work and maintain a career. This can cause considerable frustration and sadness as there will be a loss in independence. It also creates distortion of body image further bringing self confidence down. In all it is traumatic event that could happen in one's life. Many researches in the field of amputation reported that traumatic loss of a limb is typically equated with loss of spouse[5], loss of one's perception of wholeness[6], symbolic castration, and even death.[7,8] It also put burden on patient as well as on country in monetary terms. Prevention is always better than cure. So it is important to stress upon prevention which can be done by assessing the knowledge about diabetic feet among patients, educating them about foot care.

## II. Material And Methods

This descriptive study was carried out on patients visiting Diabetic clinic in Government Medical College & Hospital, Sector 32, Chandigarh from April 2020 to November 2020. A total of 100 samples (both males and females) of age > 18yrs were taken consecutively from Diabetic clinic and knowledge, attitude and practice regarding diabetic foot care was assessed by using self structured knowledge questionnaire, attitude scale and practice checklist.

**Study Design:** Descriptive study

**Study Location**: This was a tertiary care teaching hospital based study done in Department of Endocrinology, at Government Medical College & Hospital, Sector 32, Chandigarh

**Study Duration:** April 2020 to November 2020.

**Sample size:** 100 patients.

**Sample size calculation:** The sample size was estimated on the basis of point prevalance. The target population from which 100 patients were selected consecutively. The confidence level of 95% was assumed.

**Subjects & selection method**: The study population was drawn from 100 consecutive diabetic patients who presented to Diabetic clinic in Government Medical College & Hospital, Sector 32, Chandigarh from April 2020.

**Inclusion criteria:**
1. Diabetic patients visiting Diabetic clinic
2. Either sex
3. Aged ≥ 18 years,
4. Can understand Hindi, English and Punjabi language.

**Exclusion criteria:**
Patients with known mental impairment.

**Procedure methodology**

After written informed consent was obtained, self structured questionnaire, attitude scale and practice checklist was used to collect the data of the recruited patients. The tool consisted of two sections:

Section 1: Socio demographic data includes age of respondent, type of family, occupation of respondent, place of study conduction, type of living, personal habit of respondent, family history of respondent , diet of respondent , duration of illness of respondent, duration of treatment of respondent.

Section 2: Self structured knowledge scale consisting of 23 questions with the maximum Score of 23 and minimum score of 0.

Section 3: Self-structured attitude scale consisting 12 questions with the maximum score 12 and minimum score 0. Section 4: Self-structure practice checklist consisting of 15 questions with the maximum score of 15 and minimum score of 0. Interview technique was conducted by the researchers to collect data and time taken for each **interview was** 30 minutes.

The reliability of the tools were calculated by using Chronbach's alpha method which had values 0.8, 0.79 and 0.75 for knowledge, practice and attitude respectively. The content validity of the tools was ensured by submitting the tools to the experts in the field of Endocrinology, General Medicine, Community Health Nursing and Medical Surgical Nursing.

Permission for conducting research was taken from ethical committee of Government Medical College & Hospital, Chandigarh and head of department of Endocrinology and diabetic clinic. Written informed consent was taken from the patient ensuring confidentiality and anonymity of the samples.

**Statistical analysis**

Data was analyzed using SPSS version 16 (IBM). Frequency and percentages were calculated for assessment of the knowledge, practice and attitude scores and graphs were used to depict the same. Chi square was used to find association between socio-demographic variables and knowledge, practice and Attitude. Correlation was calculated between knowledge, practice and attitude using Pearsons Correlation Coefficient.

## III. Result

The participants frequency and percentage distribution of socio-demographic variables under. Out of total participants, 31% have no formal education, 37% have primary education, 26% have secondary education and 6% were graduate or above graduate. Majority ie.31% were home maker 26% of samples were self-employed, , 17% had govt. job, 26% had private job and no participant belongs to medical profession.

According to residence, 57% belong to urban area and 43% belong to rural area. Among all the participants, 32% had income less than 10,000 per month, 34% had income between 11,000-2,000 per month, 23% had income between 21,000–30,000 per month and 11% had income above 30,000 per month. As per life style 60% belong to sedentary lifestyle and 40% belong to laborer lifestyle.

Based on personal habit 43% are smoker, alcoholic were 37% and 5% were tobacco chewer and15% had no personal habit of alcohol, tobacco chewing or smoking. Majority of participants i.e. 67% had no family history while 33% had positive family history. Out of 100 participants, 53% were non-vegetarian, 43% were vegetarian and only 4% were Eggetarian. According to chronicity of diabetes, 37% had chronicity of 1-5years, 49% had chronicity of 6-10year, 17% had chronicity of 11-15year, 2% had chronicity above 15 year. Overall 95% participants were having compliance to treatment whereas 5% were not.

**Table No 1 : Shows frequency and percentage distribution of socio-demographic variables**

|  |  | N=100 |
| --- | --- | --- |
| **Variables** | **Frequency** | **Percentage** |
| **Age in years** |  |  |
| 18-25 | 02 | 02 |
| 26-33 | 14 | 14 |
| 34-41 | 17 | 17 |
| Above 41 | 67 | 67 |
| **Education** |  |  |
| No formal education | 31 | 31 |
| Primary | 37 | 37 |
| Secondary | 26 | 26 |
| Graduate and above | 06 | 06 |
| **Occupation** |  |  |
| Self employed | 26 | 26 |
| Home makers | 31 | 31 |
| Government job | 17 | 17 |
| Private job | 26 | 26 |
| Medical professionals | 00 | 00 |
| **Residence** |  |  |
| Urban | 57 | 57 |
| Rural | 43 | 43 |
| **Income/month in rupees** |  |  |
| <10,000 | 32 | 32 |
| 11,000-20,000 | 34 | 34 |
| 21,000-30,000 | 23 | 23 |
| Above 30,000 | 11 | 11 |
| **Personal habits** |  |  |
| Smoke | 43 | 43 |
| Alcoholic | 37 | 37 |
| Tobacco chewer | 05 | 05 |
| None | 15 | 15 |
| **Lifestyle** |  |  |
| Sedentary | 60 | 60 |
| Labourer | 40 | 40 |
| **Diabetic foot history in family** |  |  |
| Yes | 33 | 33 |
| No | 67 | 67 |
| **Dietary habits** |  |  |
| Non-vegetarian | 53 | 53 |
| Vegetarian | 43 | 43 |
| Eggetarian | 04 | 04 |
| **Chronicity in years** |  |  |
| 1-5 | 32 | 32 |
| 6-10 | 49 | 49 |
| 11-15 | 17 | 17 |
| Above 15 | 02 | 02 |

| Compliance to treatment | | |
|---|---|---|
| Yes | 95 | 95 |
| No | 05 | 05 |

## IV.  Findings related to knowledge score:

Out of 100 people, 18% had poor knowledge, 78% have average knowledge and 4% had good knowledge regarding diabetic foot care.

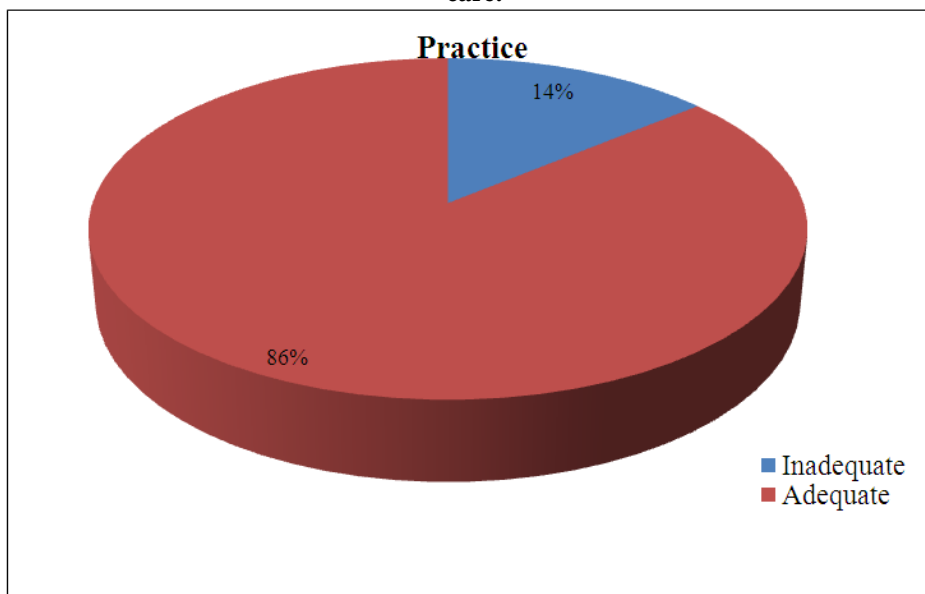**FIGURE 1.1: Pie chart showing distribution of knowledge among diabetic patients regarding diabetic foot care.**
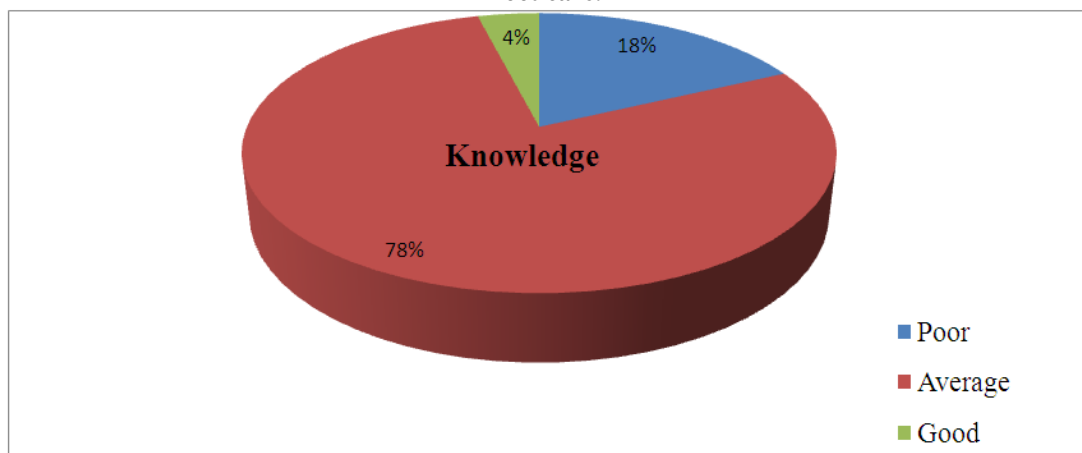


## V.  Findings related to practice scores

Out of 100 people, 14% have inadequate practice whereas 86% have adequate practice regarding diabetic foot care knowledge.

**FIGURE 1.2: Pie chart showing distribution of practice among diabetic patients regarding diabetic foot care.**

## VI.      Findings related to attitude score

Among the participants, 11% have negative attitude while 89% have positive attitude regarding diabetic foot care.

**FIGURE 1.3: Pie chart showing distribution of attitude among diabetic patients regarding diabetic foot care.**
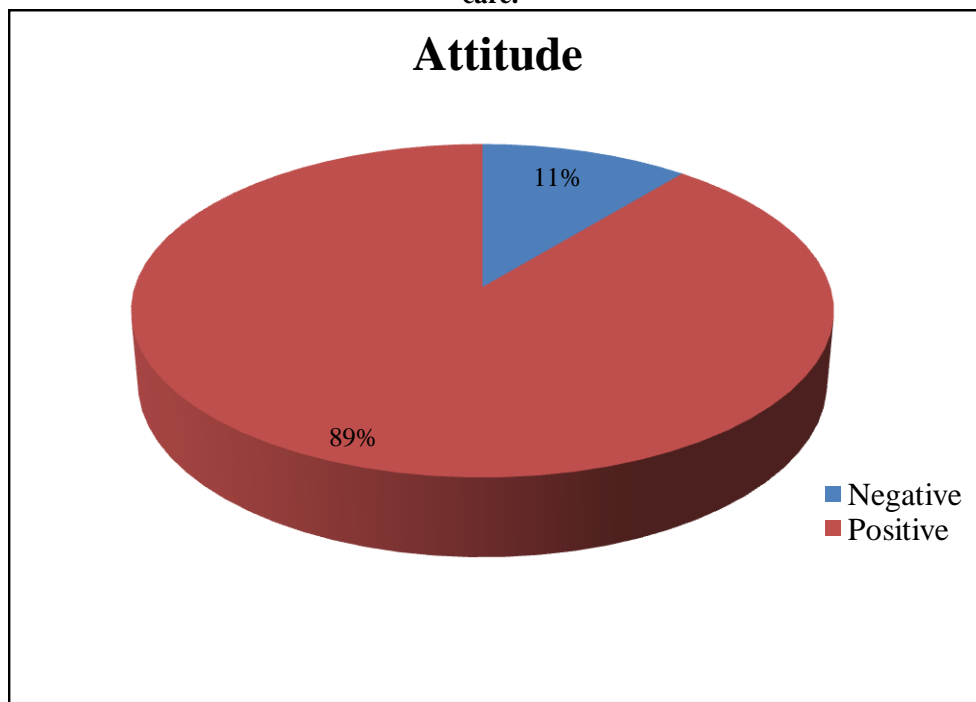


## VII.      Association between selected socio demographic variables with Knowledge, Attitude and Practice score

        The association of age, educational status, occupation, residence, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity was calculated with knowledge, attitude and practice where compliance to treatment had association with knowledge and occupation and personal habit had association with attitude scores.

**Table No 2.1 Shows association between level of Knowledge with socio-demographic variables**

N=100

| Variables | Poor knowledge | Average knowledge | Good knowledge | Total | X²(df)P value |
|---|---|---|---|---|---|
| **Age in years** | | | | | |
| 18-25 | 0 | 2 | 0 | 2 | |
| 26-33 | 5 | 9 | 0 | 14 | |
| 34-41 | 5 | 12 | 0 | 17 | 8.093(6)0.231 |
| Above 41 | 8 | 55 | 4 | 67 | |
| **Education** | | | | | |
| No formal education | 7 | 22 | 1 | 31 | |
| Primary | 5 | 31 | 1 | 37 | 2.450(6)0.874 |
| Secondary | 5 | 19 | 2 | 26 | |
| Graduate and above | 1 | 5 | 0 | 6 | |
| **Occupation** | | | | | |
| Self employed | 5 | 21 | 0 | 26 | |
| Home makers | 9 | 21 | 1 | 31 | |
| Govt. Job Private job | 3 | 14 | 0 | 17 | 11.104(6)0.085 |
| Medical professionals | 1 | 22 | 3 | 26 | |
| | 0 | 0 | 0 | 0 | |
| **Residence** | | | | | |
| Urban | 11 | 44 | 2 | 57 | 0.215(2)0.898 |
| Rural | 7 | 34 | 2 | 4 | |

| Variables | | | | Total | X²(df) P value |
|---|---|---|---|---|---|
| **Income in rupees** | | | | | |
| <10,000 | | | | | |
| 11,000-20,000 | 8 | 24 | 0 | 32 | |
| 21,000-30,000 | 3 | 28 | 3 | 32 | 8.051(6)0.234 |
| Above 30,000 | 6 | 16 | 1 | 23 | |
| | 1 | 10 | 0 | 11 | |
| **Lifestyle** | | | | | |
| Sedentary | 10 | 47 | 3 | 60 | 0.525(2)0.769 |
| Laborer | 8 | 31 | 1 | 40 | |
| **Personal habits** | | | | | |
| Smoker | 8 | 32 | 3 | 43 | |
| Alcoholic | 7 | 30 | 0 | 37 | 5.808(6)0.445 |
| Tobacco chewer | 2 | 3 | 0 | 5 | |
| None | 2 | 13 | 1 | 15 | |
| **Diabetic foot history in family** | | | | | 2.991(2)0.224 |
| Yes | 3 | 28 | 2 | 33 | |
| No | 15 | 50 | 2 | 67 | |
| **Dietary habits** | | | | | |
| Non-vegetarian | 11 | 41 | 1 | 63 | |
| Vegetarian | 7 | 33 | 3 | 43 | 2.978(4)0.561 |
| Eggetarian | 0 | 4 | 0 | 4 | |
| **Chronicity in years** | | | | | |
| 1-5 | | | | | |
| 6-10 | 7 | 25 | 0 | 32 | |
| 11-15 | 9 | 28 | 2 | 49 | 5.052(6)0.537 |
| Above 15 | 2 | 13 | 2 | 17 | |
| | 0 | 2 | 0 | 2 | |
| **Compliance** | | | | | |
| Yes | 17 | 76 | 2 | 95 | **18.039(2)0.000** |
| No | 1 | 2 | 2 | 5 | |

**P= <0.05**

### Table 2.2 Shows association between levels of practice with socio-demographic variables

| Variables | Inadequate practice | Adequate practice | Total | X²(df) P value |
|---|---|---|---|---|
| **Age in years** | | | | |
| 18-25 | 0 | 2 | 2 | |
| 26-33 | 4 | 10 | 14 | 3.684(3)0.298 |
| 34-41 | 3 | 14 | 17 | |
| Above 41 | 7 | 60 | 67 | |
| **Education** | | | | |
| No formal education | 4 | 27 | 31 | |
| Primary | 5 | 32 | 37 | 2.032(3)0.566 |
| Secondary | 3 | 23 | 26 | |
| Graduate and above | 2 | 4 | 6 | |
| **Occupation** | | | | |
| Self employed | 3 | 23 | 26 | |
| Home makers | 5 | 26 | 31 | |
| Government job | 4 | 13 | 17 | 2.389(3)0.496 |
| Private job | 2 | 24 | 26 | |
| Medical professionals | 0 | 0 | 0 | |
| **Residence** | | | | |
| Urban | 10 | 47 | 57 | 1.383(1)0.240 |
| Rural | 4 | 39 | 43 | |
| **Income in rupees** | | | | |
| <10,000 | 4 | 28 | 32 | |
| 11,000-20,000 | 4 | 30 | 34 | 0.580(3)0.901 |
| 21,000-30,000 | 4 | 19 | 23 | |
| Above 30,000 | 2 | 9 | 11 | |
| **Lifestyle** | | | | |
| Sedentary | 10 | 50 | 60 | 0.886(1)0.347 |
| Laborer | 4 | 36 | 40 | |
| **Personal habits** | | | | |
| Smoker | 4 | 39 | 43 | |
| Alcoholic | 7 | 30 | 37 | 5.009(3)0.171 |
| Tobacco chewer | 2 | 3 | 5 | |
| None | 1 | 14 | 15 | |
| **Diabetic foot history in family** | | | | |
| Yes | 4 | 29 | 33 | 0.144(1)0.704 |
| No | 10 | 57 | 67 | |

| Variables | Inadequate practice | Adequate practice | Total | $X^2$(df) p value |
|---|---|---|---|---|
| **Dietary habits** | | | | |
| Non-vegetarian | 7 | 46 | 53 | |
| Vegetarian | 6 | 37 | 43 | 0.430(2)0.807 |
| Eggetarian | 1 | 3 | 4 | |
| **Chronicity in years** | | | | |
| 1-5 | 5 | 27 | 32 | |
| 6-10 | 7 | 42 | 49 | 0.470(3)0.926 |
| 11-15 | 2 | 15 | 17 | |
| Above 15 | 0 | 2 | 2 | |
| **Compliance** | | | | |
| Yes | 13 | 82 | 95 | 0.157(1)0.692 |
| No | 1 | 4 | 5 | |

**p= <0.05**

**Table No 2.3 Shows association between Attitude and Socio-demograhic variables**

**N=100**

| Variables | Negative attitude | Positive attitude | Total | $X^2$(df)P value |
|---|---|---|---|---|
| **Age in years** | | | | |
| 18-25 | 0 | 2 | 2 | |
| 26-33 | 4 | 10 | 14 | 7.161(3)0.067 |
| 34-41 | 3 | 14 | 17 | |
| Above 41 | 4 | 63 | 67 | |
| **Education** | | | | |
| No formal education | 2 | 29 | 31 | |
| Primary | 3 | 34 | 37 | 5.586(3)0.134 |
| Secondary | 6 | 20 | 26 | |
| Graduate and above | 0 | 6 | 6 | |
| **Occupation** | | | | |
| Self employed | 1 | 25 | 26 | |
| Home makers | 3 | 28 | 31 | |
| Government job | 5 | 12 | 17 | **7.592(3)0.055** |
| Private job | 2 | 24 | 26 | |
| Medical professionals | 0 | 0 | 0 | |
| **Residence** | | | | |
| Urban | 7 | 50 | 57 | 0.222(1)0.637 |
| Rural | 4 | 39 | 43 | |
| **Income in rupees** | | | | |
| <10,000 | 3 | 29 | 32 | |
| 11,000-20,000 | 5 | 29 | 34 | 2.021(3)0.568 |
| 21,000-30,000 | 3 | 20 | 23 | |
| Above 30,000 | 0 | 11 | 11 | |

| Variables | Negative attitude | Positive attitude | Total | $X^2$(df)P value |
|---|---|---|---|---|
| **Lifestyle** | | | | |
| Sedentary | 4 | 56 | 60 | 2.877(1)0.090 |
| Laborer | 7 | 33 | 40 | |
| **Personal habits** | | | | |
| Smoker | 1 | 42 | 43 | |
| Alcoholic | 8 | 29 | 37 | **13.718(3)0.03** |
| Tobacco chewer | 2 | 3 | 5 | |
| None | 0 | 15 | 15 | |
| **Diabetic foot history in family** | | | | |
| Yes | 4 | 29 | 37 | |
| No | 7 | 69 | 67 | 0.63(1)0.801 |
| **Dietary habits** | | | | |
| Non-vegetarian | 7 | 46 | 53 | |
| Vegetarian | 4 | 39 | 43 | 0.885(2)0.642 |
| Eggetarian | 0 | 4 | 4 | |
| **Chronicity in years** | | | | |
| 1-5 | 6 | 26 | 32 | |
| 6-10 | 4 | 45 | 49 | 3.068(3)0.381 |
| 11-15 | 1 | 16 | 17 | |
| Above 15 | 0 | 2 | 2 | |
| **Compliance** | | | | |
| Yes | 10 | 85 | 95 | 0.435(1)0.509 |

| No | 1 | 4 | 5 | |
|---|---|---|---|---|

**p=0.05**

## VIII. Correlation between knowledge and attitude .attitude and practice, practice and knowledge
Since weak positive correlation was calculated so statistically, there was no correlation found between knowledge and attitude, attitude and practice, practice and knowledge

**Table No 3.1 Shows Correlation between Knowledge and attitude**

| | | | N=100 |
|---|---|---|---|
| Variable | Mean +/- Standard deviation | r- value | P- value |
| Knowledge | 1.89 +/- 0.450 | 0.318 | 0.003 |
| Attitude | 1.89 +/- 0.314 | | |
| | | | NS= Non significant (p<0.05) |

**Table No 3.2 Shows the Correlation between attitude and practice score.**

| | | | N= 100 |
|---|---|---|---|
| Variable | Mean +/- Standard deviation | r- value | p-value |
| Attitude | 1.89 +/- 0.314 | 0.411 | 0.000 |
| Practice | 1.89 +/- 0.349 | | |
| | | | NS= Non significant (p<0.05) |

**Table No 3.3 Shows the correlation between practice and knowledge score.**

| | | | N=100 |
|---|---|---|---|
| Variable | Mean +/- Standard deviation | r- value | p- value |
| Knowledge | 1.86 +/- 0.450 | 0.324 | 0.003 |
| Practice | 1.86+/- 0.349 | | |
| | | | NS=Non significant (p<0.05) |

## IX. Discussion
In the study majority 78% of diabetic patients have average knowledge, 18% have poor knowledge and 4% have good knowledge regarding diabetic foot care where as 86% of diabetic patients have adequate practice and 17% have inadequate practice regarding diabetic foot care. 89% of diabetic patients have positive attitude and 11% have negative attitude regarding diabetic foot care.

Present study supported by a study conducted by Hasnain S, Sheikh NH. [2009][9] in Jinnah hospital, Lahore to assess Knowledge, attitude and practice regarding diabetic foot care where 29.3% of respondents had good knowledge, 40% had satisfactory knowledge and 30.7% had poor knowledge about foot care.

Another study by knowledge Darshan BB, Unnikrishnan B , Kulkarni V et al. [2015][10] practice conducted a study to assess knowledge and practice of foot care among type two diabetes mellitus patient at tertiary care hospital in coastal South India found that 75.2% had adequate knowledge and 55.5% were practicing it adequately.

Sutariya PK, Kharadi A. [2016][11] conducted a cross sectional study to assess knowledge and practice of foot care among diabetic foot patient at tertiary care centre of Ahmedabad city found that only 23% had good knowledge , 50% had satisfactory knowledge and 27% had poor knowledge about diabetic foot care

Dinesh PV, Kulkarni AG, Gangdhar NK. [2016][12] conducted a practice sectional study regarding self-care practices among diabetic patient in Rural Sullia, Karnataka found that only 24.25% of the patient had good knowledge.

Dixit S, Maiya A, Khetrapal H et al. [2011][13] conducted a cross sectional multi-centric questionnaire based survey in India, found that 30.5 % of population in urban areas had good knowledge as compared to only 9.7% in rural area.

## X. Conclusion

Majority of patients 78% had average knowledge, 86% had adequate practice and 89% had positive attitude. The association of age, educational status, occupation, residence, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity was calculated with knowledge, attitude and practice where compliance to treatment had association with knowledge and occupation and personal habit had association with attitude scores. The association of age, educational status, residence, occupation, income, lifestyle, personal habit, diabetic foot history in family, dietary habits, chronicity and compliance to treatment has no association with practice score. No statistical correlation was found between knowledge, attitude and practice.

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