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# Effectiveness of Structure Teaching Programme for Diabetic Client on Diabetes Mellitus at Diabetic Clinics

Itishree Biswal [1]*, Asokan.R[2]*
[1]*Assistant Professor, Lord Jagannath Mission's College of Nursing, Bhubaneswar, Odisha.*
[2]*Associate Professor, Department of Medical surgical Nursing, Kalinga Institute of Nursing Sciences, Kalinga Institute of Industrial Technology Deemed to be University, Bhubaneswar, Odisha, India.*
*Corresponding Author:Asokan.R*

***Abstract:*** *A study was conducted to assess the effectiveness of structure teaching programme for diabetic client on diabetes mellitus at the diabetic clinics of SCB Medical College &Hospital, Cuttack, Odisha.* ***Objective:*** *To evaluate the effectiveness of structured teaching programme on diabetes mellitus among diabetic clients.* ***Methodology:****One group pre-test post-test design was used and 60 diabetic client who attend the diabetic outpatient department was selected as a sample by using the Simple random sampling method (lottery method). The study setting was diabetic clinics of SCB Medical College & Hospital, Cuttack.* ***Results:*** *Majority 24(40%) samples belong to the age group of year 36-40, maximum 35(58.33%) were male gender, Highest number of 60(100%) samples were Hindus, 54 (90%) were married, Half of the 30(50%) mothers were illiterate, 31(51.66%)most clients were monthly income more than Rs.8,000/-, 31(51.66%) clients in belong to Daily wage, highest 29(48.33%) of diabetic client belongs to the nuclear family, majority of diabetic client 53(88.33%) were both vegetarian and non-vegetarian, maximum of diabetes client were mild physical activity 26(43.33%), majority 52(86.66%) samples had no history of diabetes, majority 47(78.33%) samples had information of diabetes mellitus from relatives. 35 (58%) of diabetes client had inadequate knowledge on diabetes mellitus, After implementation of STP overall knowledge reveals that 51 (85%) of diabetic client had adequate knowledge on diabetes mellitus, Overall pre-test mean knowledge score was 11.42 with mean percentage 29.45% (SD 5.05) and the overall post-test mean knowledge score is* ***25.27*** *with mean percentage 80.77% (SD 5.74). The mean enhancement between pre-test and post-test mean percentage score was 51.32% and the obtained paired't' value is 25.36 which was significant at p<0.001 level. There was no statistically significant association found between level of knowledge and selected demographic variables.* ***Conclusion:****The study was concluding that the present study emphasizes on enhancement regarding knowledge and developing positive attitude towards diabetes mellitus. In order to achieve this, the nurses as an educator should focus on diabetes mellitus and strengthens subjects in the nursing curriculum.*

***Key Words:****Structure Teaching Programme, Diabetic client, Diabetes Mellitus*

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## I. Introduction

Diabetes mellitus is a group of metabolic disorder arising either due to relative or absolute deficiency of a digestive hormone called insulin or inability or resistance of body cells to use the available insulin. Diabetes mellitus is a silent disease and is now recognized as one of the fastest growing threats to public health in almost all countries of the world.[1]

Diabetes is a chronic public health problem, and it is now growing as an epidemic in both developed and developing countries. India leads the world today with the largest number of diabetes in any given country followed by China and USA.[2]

Diabetes is becoming more common in the world. Every day, every 21st seconds someone is diagnosed with diabetes. Around 40-70% of population is affected by foot ulcer. Many serious complications such as kidney failure or blindness, can affect individuals with diabetes.[3]

Diabetes mellitus is a global public health issue. Millions of people all over the world suffer from this lifelong condition. As per the global projections by international diabetes federation (IDF) the number of diabetes patients has risen sharply in recent years.[4]

Indian has the highest number of diabetes in the world. By next year, the country will be home to 50.8 million diabetes, making if the worlds unchallenged diabetes capital and the number is expected to go up to 87 million-8.4% of the countries adult population by 2030.[5]

The alarming increasing in the number of diabetes patients in developing state like Odisha is a matter of deep concern. More than 1500 new diabetes patients have been detected at a camps organized in the rural

areas of Nayagarh, Keonjhar and Muyurbhanj districts by Kanungo Institute of diabetes specialties (K.I.D.S) during last one month.[6]

Recently, 250 persons amongst 600 have been identified as diabetic in the diabetes screening camp at Rairnagpur the tribal-mineral rich area of the State. Most of the newly detected diabetes patients belong to lower middle class families and their economic status compels them to avoid intensive treatment. Ignorance and lack of information makes a diabetic Vulnerable to complications and the treatment becomes costlier.[6]

Diabetes mellitus is becoming an increasing important issue in insurance medicine. The number of people with diabetes is increasing due to population growth, aging, urbanization and increasing prevalence of obesity and physical activity. Quantifying the prevalence of diabetes and the number of people affected by diabetes, now and in the future, is important to allow rational planning and allocation of resources.[7]

Diabetes is an 'ice berg disease .Although it increases in both the prevalence and incidence of non-insulin dependent diabetes occurred globally, they have been especially dramatic in societies .,in newly industrialized countries and in developing countries .Currently the number of cases a diabetes worldwide is estimated to around 150 million. This number is predicted to be doubled by the year 2025 .A prevalence rate of about 5.4% with the greatest number of cases being expected in China and India. By 2030 as much as 9% of the population would be diabetic.[8]

Diabetes can affect nearly every organ in the body. Diabetes related complications are coronary artery disease, peripheral vascular disease, stroke, neuropathy, dental ailments,gangrene, retinopathy, nephropathy and skin disease.[9]

People with diabetic are 2 times more likely to develop blindness, 17 times more likely to develop kidney disease, 30 -40 times more likely to undergo amputation ,2-4 times more likely to suffer a stroke than non-diabetics ,Women with diabetic are at 7 times more likely to have heart disease. Heart disease is more diffused in diabetics who are also more prone to silent attacks, as they experience no pain associated with an attack because of diabetic neuropathy.[10]

Theevidencedfrom the literatureshows that themanagement of diabeticamongdiabetesmellituspatientsare poor due to lack ofknowledge. At the same timeon further assessmentit was found that due to carelessness and lack of knowledge the diabetes mellitus patientsneglect to takecareof themselves; as a resultsuccumbto various complications. Fromvarious literaturereviews, itisclearthat a PlannedTeachingProgrammewouldhelptoimpart knowledgeto patientsregardingfoot care, exercises, diet, and preventionof complications.

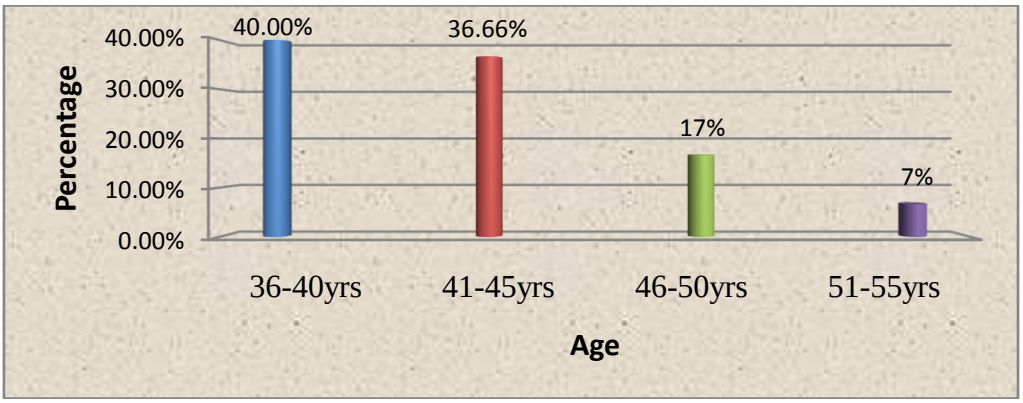
## II. Methodology

One group pre-test post-test design was used and 60 diabetic client who attend the diabetic outpatient department was selected as a sample by using the Simple random sampling method (lottery method). The study setting was diabetic clinic of SCB Medical College & Hospital, Cuttack. In this study, a structured questionnaire was prepared to assess the knowledge on diabetes mellitus among diabetes client. The reliability of tool was established by testing the internal consistency. The internal consistency was assessed by using test retest technique. The reliability of the structured questionnaire was r =0.86.

## III. Results

**Description of the demographic variable.**

Majority 24(40%) samples belongs to the age group of year 36-40, maximum 35(58.33%) were male gender, Highest number of 60(100%) samples were Hindus, 54 (90%) were married, Half of the 30(50%) mothers were illiterate, 31(51.66%)most clients were monthly income more than Rs.8,000/-, 31(51.66%) clients in belong to Daily wage, highest 29(48.33%) of diabetic client belongs to the nuclear family, majority of diabetic client 53(88.33%) were both vegetarian and non-vegetarian, maximum of diabetes client were mild physical activity 26(43.33%), majority 52(86.66%) samples had no history of diabetes, majority 47(78.33%) samples had information of diabetes mellitus from relatives.




**Graph- 1:- Frequency and percentage distribution of study population according to Age.**

**(n=60)**

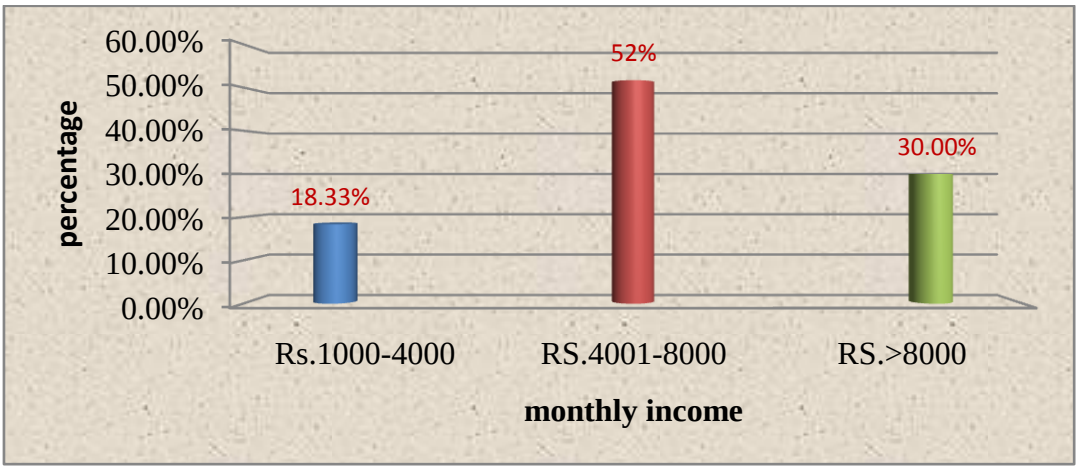
| Marital status | Frequency | Percentage |
|---|---|---|
| Married | 54 | 90% |
| Unmarried | 5 | 8.33% |
| Widow | 1 | 1.66% |

**Table1:- Frequency and percentage distribution of study population according to marital status.**

**(n=60)**

| Educational status | Frequency | Percentage |
|---|---|---|
| Illiterate | 30 | 50% |
| Primary | 19 | 31.66% |
| Secondary | 6 | 10% |
| Degree /diploma | 2 | 3.33% |
| Postgraduate/above | 3 | 5% |

**Table 2:- Frequency and percentage distribution of study population according to their Education.**




**Graph-2:- Frequency and percentage distribution of study population according to their monthly income.**

**(n=60)**

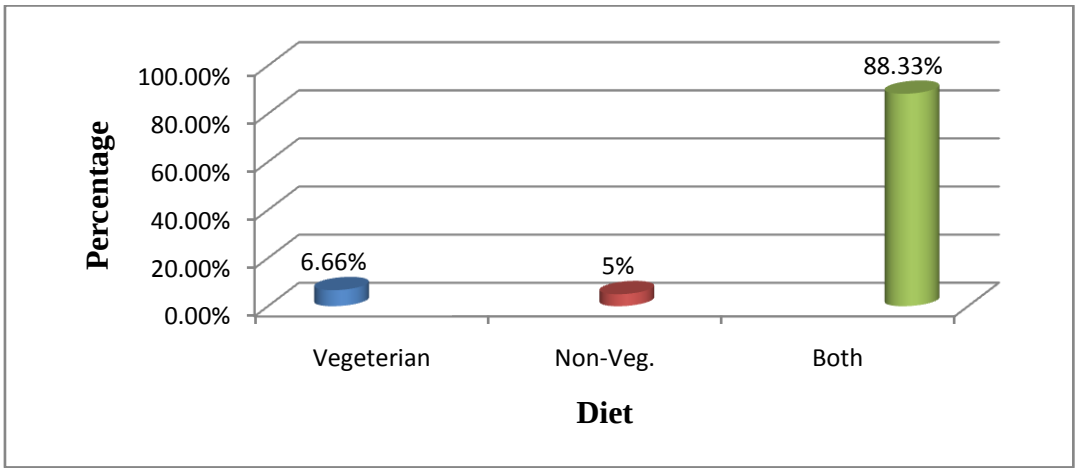
| Occupation | Frequency | Percentage |
|---|---|---|
| Daily wage | 31 | 51.66% |
| Business | 9 | 15% |
| Private employee | 7 | 11.66% |
| Govt.employee | 13 | 21.66% |

**Table 3:- Frequency and percentage distribution of study population according to occupation.**

**(n=60)**

| Type of family | Frequency | Percentage |
|---|---|---|
| Nuclear family | 29 | 48.33% |
| Joint family | 23 | 38.33% |
| Extended family | 8 | 13.33% |

**Table 4:- Frequency and percentage distribution of study population according to Type of family.**




**Graph-3:- Frequency and percentage distribution of study population accords to Diet.**

**(n=60)**

| Physical activity | Frequency | Percentage |
|---|---|---|
| Sedentary | 10 | 16.66% |
| Mild | 26 | 43.33% |
| Moderate | 6 | 10% |
| Heavy | 18 | 30% |

**Table 5:-Frequency and percentage distribution of study population according to physical activity.**

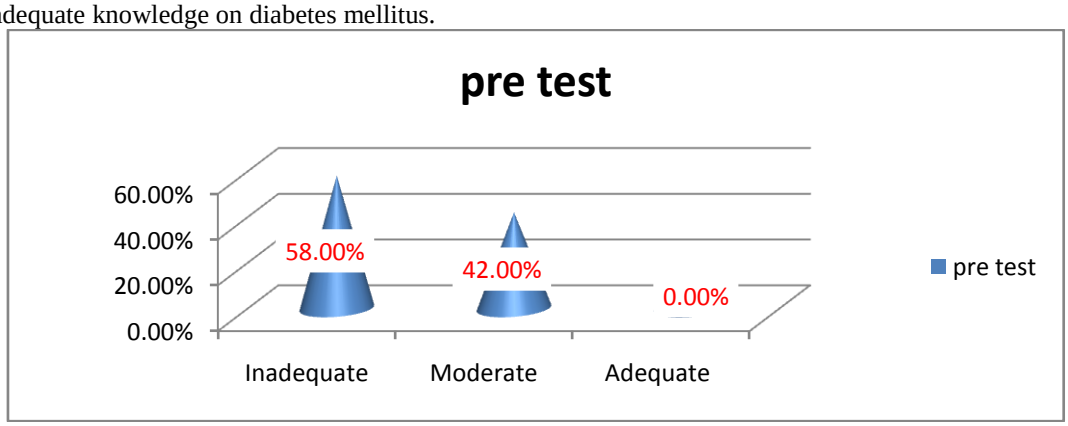
**(n=60)**

| Family history | Frequency | Percentage |
|---|---|---|
| Yes | 8 | 13.33% |
| No | 52 | 86.66% |

**Table 6:- Frequency and percentage distribution of study population according to their family history.**

**Post-test overall knowledge score of the diabetic client regarding diabetes mellitus.**

Pretest knowledge of study population shows that 35 (58%) of diabetes client had inadequate knowledge on diabetes mellitus, 25 (42%) of had moderately adequate knowledge and none of diabetic client have adequate knowledge on diabetes mellitus.




**Graph-4:- pretest overall knowledge score of the diabetic client regarding diabetes mellitus.**

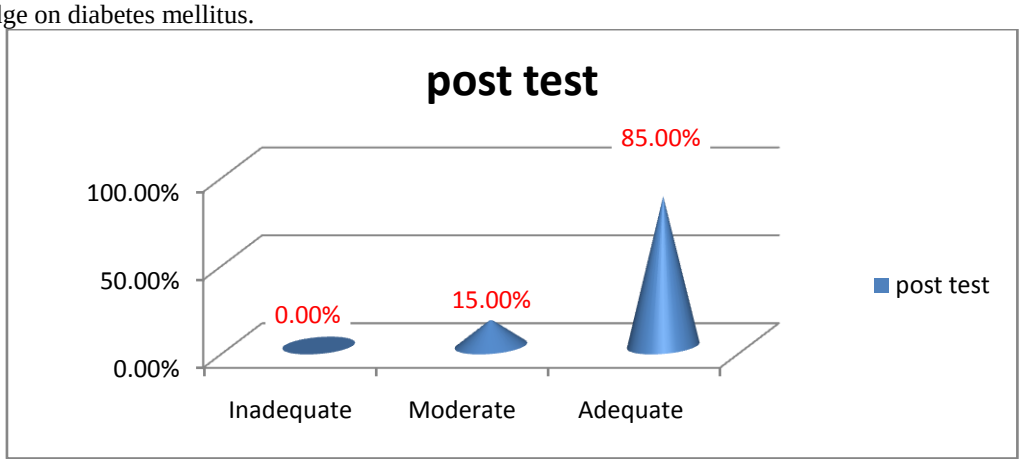
**Mean, Standard deviation and Mean percentage of knowledge on diabetic client.**

| Knowledge level | MaxScore | Mean | SD | Mean score % |
|---|---|---|---|---|
| Introduction | 6 | 1.61 | 0.86 | 10.16 |
| Types | 3 | 1.28 | 0.38 | 5.33 |
| Causes | 5 | 1.46 | 1.07 | 29.2 |
| Clinical feature | 3 | 1.45 | 1.02 | 48.33 |
| Diagnostic evaluation | 5 | 2.31 | 1.37 | 46.2 |
| Management | 8 | 3.03 | 1.09 | 37.87 |
| complication | 5 | 1.28 | 0.93 | 25.6 |
| Total knowledge | 35 | 11.42 | 5.05 | 29.45 |

**Table 7:- Mean, Standard deviation and Mean percentage of pre-test knowledge level of diabetic client regarding diabetes mellitus.**

**Post-test overall knowledge score of the diabetic client regarding diabetes mellitus.**

Post-test overall knowledge score reveals that 51 (85%) of diabetic client had adequate knowledge on diabetes mellitus, 9(15%) of moderately adequate knowledge and none of diabetic client have inadequate knowledge on diabetes mellitus.




**Graph-5:- post-test overall knowledge score of the diabetic client regarding diabetes mellitus.**

**Distribution diabetic client according to their knowledge on diabetes mellitus after implementation of STP.**

| Knowledge level | MaxScore | Mean | SD | Mean score % |
|---|---|---|---|---|
| Introduction of diabetes mellitus. | 6 | 4.97 | 0.74 | 82.83 |
| Types | 3 | 2.61 | 0.70 | 87 |
| Causes | 5 | 4.08 | 1.10 | 81.6 |
| Clinical feature | 3 | 2.65 | 0.38 | 88.33 |
| Diagnostic evaluation | 5 | 3.3 | 1.03 | 66 |
| Management | 8 | 6.85 | 1.36 | 85.62 |
| complication | 5 | 3.81 | 0.83 | 76.2 |
| Total knowledge | 35 | 25.27 | 5.74 | 80.77 |

**Table 8:- Distribution diabetic client according to their knowledge on diabetes mellitus after implementation of STP.**

**Effectiveness of structure teaching programme.**

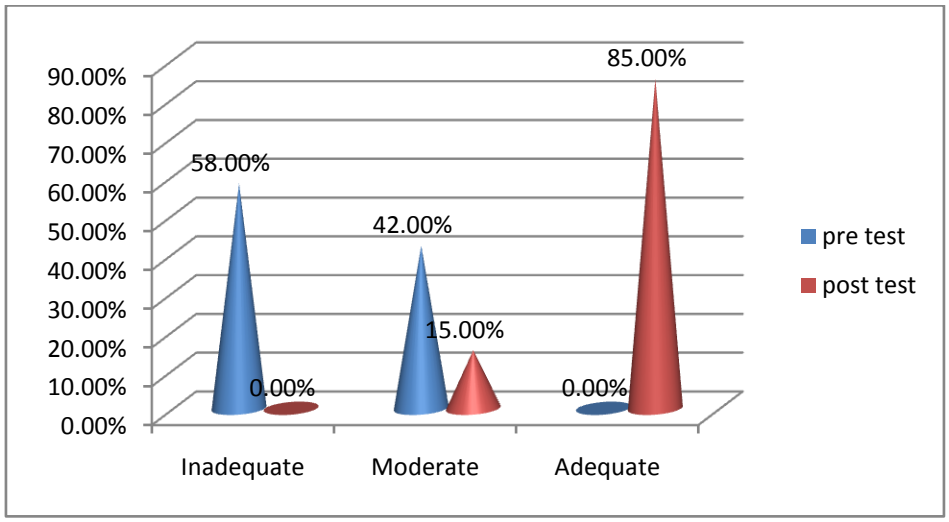
**(n=60)**

| Domain | Respondents knowledge | | | | |
|---|---|---|---|---|---|
| | Pre test | | Post test | | Paired 't' test |
| Levels of knowledge | Frequency | Percentage (%) | Frequency | Percentage (%) | |
| Inadequate (below 50.0%) | 35 | 58% | _ | _ | |
| Moderately adequate (50-75%) | 25 | 42% | 9 | 15% | 25.36** |
| Adequate (above 75%) | - | - | 51 | 85% | |
| Total | 60 | 100.0 | 60 | 100.0 | |

t=(58)=3.39,p<0.001 **p<0.001-highly significant

**Table 9:- Effectiveness of structure teaching programme.**

The above table depicts that 35 (58%) of diabetes client had inadequate knowledge on diabetes mellitus, 25 (42%) of had moderately adequate knowledge and none of diabetic client have adequate knowledge on diabetes mellitus. The above table post overall knowledge reveals that 51 (85%) of diabetic client had adequate knowledge on diabetes mellitus, 9(15%) of moderately adequate knowledge and none of diabetic client have inadequate knowledge on diabetes mellitus.




**Graph 6:- Effectiveness of structure teaching programme.**

**Effectiveness of pre and post-test knowledge scores of the diabetic client regarding diabetes mellitus.**

| Area wise distribution | Max score | Pretest | | | Post test | | | Difference mean score% | Paired 't' test |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean score % | Mean | SD | Mean score% | | |
| **Introduction** | **6** | **0.61** | **0.46** | **10.16** | **4.97** | **0.74** | **82.83** | **72.67** | **11.60**** |
| **Type** | **3** | **1.28** | **0.38** | **42.66** | **2.61** | **0.70** | **87** | **44.34** | **6.86**** |
| **Causes** | **5** | **1.46** | **0.70** | **29.2** | **4.08** | **1.10** | **81.6** | **52.4** | **11.82**** |
| **Clinical feature** | **3** | **1.45** | **0.90** | **48.33** | **2.65** | **0.38** | **88.33** | **40** | **14.03**** |
| **Diagnostic evaluation** | **5** | **2.31** | **0.88** | **46.2** | **3.3** | **1.03** | **66** | **19.8** | **13.84**** |
| **Management** | **8** | **3.03** | **0.93** | **37.87** | **6.85** | **1.36** | **85.62** | **47.75** | **14.04**** |
| **complication** | **5** | **1.28** | **0.38** | **25.6** | **3.81** | **0.83** | **76.2** | **50.6** | **17.15**** |
| **Total knowledge** | **35** | **11.42** | **5.05** | **29.45** | **25.27** | **5.74** | **80.77** | **51.32** | **10.82**** |

t=(59)=3.39, p<0.001 ******p<0.001-highly significant

**Table- 10-:-Area wise comparison of mean, SD, and mean percentage of pre and post-test knowledge scores of diabetic client regarding diabetes mellitus.**

Above table clearly shows that there was significant gain in knowledge score in all the content area. Above table reveals that in post-test the highest mean score 6.85 ± 1.36, 85.62 % of maximum score was obtained for the area of management of diabetes mellitus. Highest difference in mean percentage 81.67% .The lowest mean score 2.61 ± 0.70 which is 87 % was obtained from the area types having the difference in mean percentage 44.34%. However, the lowest difference in mean percentage 19% was for the area of diagnostic evaluation.

**Association between knowledge score with selected demographic variables of diabetes client.**

There was no significant association found between knowledge scores with selected demographic variables of diabetes client. It evidenced that the knowledge on diabetes mellitus among diabetes client is not associated with demographic variables.

## IV. Conclusion

The present study emphasizes on enhancement regarding knowledge and developing positive attitude towards diabetes mellitus. In order to achieve this, the nurse as an educator should focus on diabetes mellitus and strengthens subjects in the nursing curriculum. The students, nurses and all health personnel need to given proper knowledge on diabetes mellitus; the training should be repeated until they gain adequate knowledge. Nursing curriculum need to be updated regarding diabetes mellitus related topics should be integrated at different levels to impart adequate knowledge to the diabetic client. Nursing instructors need to lay emphasis on prevention of diabetes mellitus, especially health education on correct practice.

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