

## ASSESSMENT OF SELF-EFFICACY AND INFLUENCE OF SOCIO-DEMOGRAPHIC VARIABLES ON SELF-EFFICACY OF INDIVIDUALS WITH TYPE 2 DIABETES MELLITUS IN SOUTH-EAST, NIGERIA

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### Abstract

*Diabetes Mellitus (DM) is a chronic non-communicable disease often associated with chronic complications which affects the quality of life of sufferers. As such, individuals with diabetes are expected to exhibit a level of confidence in the management of their condition to help delay development of complications. A cross sectional study was carried out on 382 individuals with type 2 diabetes mellitus that accessed care from Out Patient Diabetic Clinic of Tertiary Health Institutions in South East, Nigeria. A standardized instrument; the Stanford Chronic Disease Self-Efficacy Scale was adapted and used for data collection. Data collected was analysed with SPSS (20) and presented in tables. Data on self-efficacy was ranked and rated as low, moderate or high self-efficacy. Hypotheses were tested using Chi square and spearman rank correlation test statistics. P-value less 0.05 alpha level was considered significant. Findings revealed low self-efficacy in exercise domain 133(34.8%), the doing chores domain 119(31.2%), social recreation 109(28.5%) control/manage depression domain 106(27.7%). On the other hand, 115(30.1%) study participants had high self-efficacy in their ability to obtain help from friends/family 124(32.4%) had high self-efficacy in ability to communicate with physician. Age has an inverse correlation with some domains of self-efficacy ( $p < 0.05$ ); as age increases, participants' self-efficacy decreases in those domains. Likewise, level of education and occupation significantly influenced self-efficacy ( $p < 0.05$ ). However, no significant association was found between gender, marital status and the self-efficacy domains ( $p > 0.05$ ). Diabetic population in this study had poor self-efficacy which invariably may influence their self-care behaviour. As a result, health care professionals (Nurses and doctors) should develop strategies such as educational programme to improve self-efficacy in individuals with type 2 diabetes mellitus.*

**Keywords:** Type 2 Diabetes Mellitus, Self-efficacy, Non-communicable Disease, Sociodemographic

### Introduction

Diabetes Mellitus (DM) commonly referred to as diabetes, is a group of metabolic disorders characterized by a state of high blood glucose level (hyperglycaemia) over a long period (World Health Organization [WHO], 2014). It is classified into four general categories namely: Type 1 diabetes (T1DM), previously known as Juvenile DM or Insulin Dependent DM (IDDM), type 2 Diabetes (T2DM), previously known as non-insulin dependent diabetes mellitus (NIDDM), gestational diabetes mellitus (GDM) and other specific types of diabetes due to various causes (American Diabetes Association [ADA], 2014). All forms of diabetes increase the risk of long-term complications. Diabetes is one of the non-communicable diseases that affect people of all ages and races. It is considered one of the most common chronic diseases in almost all countries (Shaw, Sicree & Zimmet, 2010). The prevalence of diabetes continues to increase mainly due to changes in lifestyle, physical inactivity and obesity (International Diabetes Federation [IDF], 2014). Nearly half a billion people were estimated to be living with diabetes globally (IDF, 2017). In the African region, 19.4 million adults were affected with diabetes (WHO, 2014). Available record on the prevalence of DM in Nigeria in 2014 was reported to be within the region of 8-10% with over 5million cases (IDF, 2014)

As a chronic disease with chronic complications, diabetes sufferers are expected to exhibit a level of confidence in the management of their condition to help delay development of complications as well as reduce their clinic attendance and money spent during each visit (Gregg, Klinger, Casey, Prased and Moscovice (2012). As a result, self-efficacy is very important in the life of diabetic sufferers. Self-efficacy is the peoples' beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1997). It could be referred to as an individual's perception of how confident he or she feels he could perform certain tasks even in the presence of any challenge. It could also be referred to as the ability to persist and succeed in a task such as self-management of diabetes (Mishiala, Omera and Heyman (2010). The authors further posited that an individual's perception of his or her ability to overcome the difficulties in a specific task will predict future attempts to engage in various behavioural challenges related to the task.

A strong sense of efficacy enhances human accomplishment and personal well-being in many ways. People with high assurance in their capabilities approach difficult tasks as challenges to be mastered

rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities (Bandura, 1994). In contrast, people who doubt their capabilities shy away from difficult tasks which they view as personal threats. They have low aspirations and weak commitment to the goals they choose to pursue (Bandura, 1994).

Self-efficacy affects every area of human endeavour according to Luszczynska and Schwarzer (2005). By determining the belief, a diabetic person holds regarding his or her power to affect situations, it strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. These effects are particularly apparent and compelling with regard to behaviours affecting health. Self-efficacy can be a predictor, mediator or moderator of health behaviour change. As a predictor, self-efficacy is supposed to facilitate the forming of behavioural intentions, the development of actions, plans and initiation of actions (Schwarzer, 2008). For instance, actions like regular exercise to reduce weight in type 2 DM. As a mediator, self-efficacy can help prevent relapse to unhealthy behaviours which can be detrimental in diabetic conditions. Such unhealthy behaviours include: high alcohol intake, smoking, lack of exercise in obese persons etc (Schwarzer, 2008). As a moderator, self-efficacy can support the translation of intentions into actions as stated by Gutierrez, Lippke, Renner, Kwon and Schwarzer (2009).

Self-efficacy is a predictor of self-management in chronic disease conditions such as diabetes. A study by D'Souza and Alsalmi (2018) on how self-efficacy impacts adherence in diabetes mellitus revealed that self-efficacy increases the confidence in adults in their self-care behaviour. Hence, boosting adult's self-efficacy (confidence) in regard to their ability to implement care successfully is a critical step in promoting active self-management (Wu, Huang, Lee, Wang and Tang (2013). Literatures reviewed showed no baseline study on self-efficacy, hence this study was an attempt to ascertain Self-efficacy in individuals with type 2 Diabetes Mellitus.

### Objectives of the Study

1. To examine the effect of self-efficacy on the wellbeing of people living with Type 2 DM
2. To determine how self-efficacy of individuals with type 2 DM affect life expectancy in South East, Nigeria
3. To determine the influence of socio-demographic variables on the self-efficacy of individuals with type 2 DM in South East, Nigeria.

### Research Questions

1. What effect has the level of self-efficacy on the wellbeing of individuals with type 2 DM in South East, Nigeria?
2. How does self-efficacy affect the life expectancy of people living with Type 2 DM in South East, Nigeria?
3. To what extent does socio-demographic variables influence the self-efficacy of individuals with type 2 DM in South East, Nigeria.

### Methodology

A cross sectional research design was used to assess self-efficacy among type 2 persons with diabetes mellitus in South-East, Nigeria. The study was carried out in the diabetic clinic of tertiary health institutions in South East, Nigeria. The target population for the study comprised of 12,710 individuals with type 2 DM attending diabetic clinic at tertiary health institutions in South-East, Nigeria. The sample size for the study was 410, calculated using power analysis formula. Multistage sampling technique was adopted for the study. This involves: - Stage 1: listing the South Eastern states with their tertiary health institutions. Stage 2: using simple random technique with replacement to select four states with their health institutions. Stage 3: Proportionate sampling technique was used to determine the number of participants selected from each study site based on the proportion of diabetic population in each study site.

The instrument used to collect data in this study was questionnaire; the Stanford Chronic Disease Self-Efficacy Scale developed by Stanford Patient Education Research Center (2013) for the assessment of self-efficacy in patients with chronic diseases. The instrument was adapted to the study and used in assessing self-efficacy in persons with diabetes mellitus. The instrument consists of 9 scales (dimensions) with a total of 32 questions. Each scale has a number of question items to measure activities in that scale. The score was rated 1 -10 points. The score for each question is the score circled by the participant and the score for each scale is the mean of the items. Higher number indicates high self-efficacy. However, for the purpose of this study, self-efficacy was graded (ranked) as low, moderate and high self-efficacy for each domain. Hence scoring was as follows: 0 – 3 represents low self-efficacy; 4 – 6 represents moderate self-efficacy; 7 – 10 represents high self-efficacy. Decision was based on either low or high self-efficacy.

Ethical approval was collected from the Ethics Committee of the tertiary health institutions used for the study. Participants' informed consent was also obtained. Other ethical principles such as

confidentiality, participants’ autonomy, and study hazards were explained to the participants. Four (4) research assistants trained by the researcher assisted in data collection. Data was collected from the diabetic clinics of the tertiary health institutions used for the study. The instrument was administered to the participants. The respondents were allowed to fill the questionnaire and return. The questionnaire was collected immediately after respondents have filled it. Out of 410 copies of questionnaire distributed, 382 copies were returned in usable form for analysis. Data analysis was done using the Statistical Package for Social Sciences (SPSS) software (version 20). Data were summarized using frequency percentages; data on the influence of socio-demographic variables on self-efficacy were analysed using Chi square and Spearman rank order tests statistics.

**Results**

Table 1 revealed the proportion of female participants to be 219 (52.3%), while male participants were 163(42.7%). A good proportion of participants were within the age groups of 40 -59 179(46.9%) and 60 and above (179[46.9%]); majority, 285(74.6%) were married. For their educational status, a good proportion 159(41.6%) had secondary school education, 139(36.4%) had tertiary education, 73(19.1%) had primary education whereas 11(2.9%) had no formal education. Majority, 228(59.7%), of study participants were traders, 81(21.2%) were civil servants, 70(18.3%) have retired from service. Only 3(0.8%) were farmers.

**Table 1:** Socio-Demographic Characteristics of Study Participants

| Variable              | Category            | N          | %          |
|-----------------------|---------------------|------------|------------|
| Gender                | Male                | 163        | 42.7       |
|                       | Female              | 219        | 57.3       |
|                       | <b>Total</b>        | <b>382</b> | <b>100</b> |
| Age groups (in years) | 20-39               | 26         | 8.6        |
|                       | 40-59               | 179        | 46.9       |
|                       | 60 & above          | 179        | 46.9       |
|                       | <b>Total</b>        | <b>382</b> | <b>100</b> |
| Marital status        | Single              | 33         | 8.6        |
|                       | Married             | 285        | 74.6       |
|                       | Widowed             | 59         | 15.4       |
|                       | Divorced/Separated  | 5          | 1.3        |
|                       | <b>Total</b>        | <b>382</b> | <b>100</b> |
| Educational status    | Primary             | 73         | 19.1       |
|                       | Secondary           | 159        | 41.6       |
|                       | Tertiary            | 139        | 36.4       |
|                       | No formal education | 11         | 2.9        |
|                       | <b>Total</b>        | <b>382</b> | <b>100</b> |
| Occupation            | Civil servant       | 81         | 21.2       |
|                       | Trading             | 228        | 59.7       |
|                       | Farming             | 3          | 0.8        |
|                       | Retired             | 70         | 18.3       |

**Research Questions 1**

What effect has the level of self-efficacy on the wellbeing of individuals with type 2 DM in South East, Nigeria?

The domains with the highest proportion of participants with low self-efficacy were the exercise domain 133(34.8%), the doing chores domain

199(31.2%), social recreation 109(28.5%) and control/manage depression domain 106(27.7%) as more than 25% of all study participants had low self-efficacy in these domains. On the other, high self-efficacy was observed in diet adherence 103 (27%), ability to obtain help 115 (30.1%) and ability to communicate with physician 124 (32.5%) as shown in Table 2.

**Table 2:** Self-efficacy of Individuals with Type 2 Diabetes Mellitus

| Self-efficacy scale             | RANK       |            |            | Total |
|---------------------------------|------------|------------|------------|-------|
|                                 | Low (%)    | Mod (%)    | High (%)   |       |
| Exercise regularly              | 133 (34.8) | 186 (48.7) | 63 (16.5)  | 382   |
| Adherence to Diet               | 68 (17.8)  | 211 (55.2) | 103 (27)   | 382   |
| Obtain help from family/friends | 43 (11.3)  | 224 (58.6) | 115 (30.1) | 382   |
| Communication with Physician    | 49 (12.8)  | 209 (54.7) | 124 (32.5) | 382   |

|                           |            |            |           |     |
|---------------------------|------------|------------|-----------|-----|
| Manage disease in general | 71 (18.6)  | 256 (67.0) | 55 (14.4) | 382 |
| Do Chores                 | 119 (31.2) | 200 (52.4) | 63 (16.5) | 382 |
| Social Recreation         | 109 (28.5) | 201 (52.6) | 72 (18.2) | 382 |
| Manage Symptoms           | 91 (23.8)  | 250 (65.5) | 41 (10.7) | 382 |
| Control/Manage depression | 106 (27.7) | 235 (61.5) | 41 (10.7) | 382 |

**Research Question Two**

To what extent does socio-demographic variables influence the self-efficacy of individuals with type 2 DM in South East, Nigeria?

Table 3 revealed a significant correlation between age of participants and self-efficacy using spearman rank

order test. The most significant domains of self-efficacy that are correlated include regular exercise ( $\rho = -0.19, p = 0.001$ ), ability to do chores ( $\rho = -0.179, p = 0.001$ ), Social recreation ( $\rho = -0.215, p = 0.001$ ) and ability to manage symptoms of diabetes ( $\rho = -0.123, p = 0.016$ ).

**Table 3:** Spearman Rank Order Test Showing Correlation between Age and the Individual Domains of Self-Efficacy

| Self-Efficacy Scale             | $\rho$ | C.D   | p- val |
|---------------------------------|--------|-------|--------|
| Exercise regularly              | -0.19  | 0.035 | 0.001* |
| Adherence to Diet               | .032   | 0.001 | .532   |
| Obtain help from family/friends | .055   | 0.003 | .280   |
| Communicate with physician      | -.007  | 0.000 | .896   |
| Manage disease in general       | .016   | 0.000 | .757   |
| Do chores scale                 | -.179  | 0.032 | 0.001* |
| Social recreation               | -.215  | 0.046 | 0.001* |
| Manage symptoms                 | -.123  | 0.015 | 0.016* |

Table 4 revealed no significant difference between gender and the domains of self-efficacy

**Table 4:** Chi square test of influence of gender on the domains of self-efficacy

| Self-efficacy Domains           | Demographic Characteristics | RANK   |             |                  |              | $\chi^2$  | p-val |       |           |
|---------------------------------|-----------------------------|--------|-------------|------------------|--------------|-----------|-------|-------|-----------|
|                                 |                             | Gender | Low Freq(%) | Moderate Freq(%) | High Freq(%) |           |       | Total |           |
| Exercise regularly              | Male                        |        | 53(32.5)    | 83(50.9)         | 27(16.6)     | 163(42.7) | .724  | .696  |           |
|                                 | Female                      |        | 80(36.5)    | 103(47.0)        | 36(16.4)     |           |       |       | 219(57.3) |
|                                 | Total                       |        | 133(34.8)   | 186(48.7)        | 63(16.5)     |           |       |       |           |
| Diet adherence                  | Male                        |        | 33(20.2)    | 89(54.6)         | 41(25.2)     | 163(42.7) | 1.320 | .517  |           |
|                                 | Female                      |        | 35(16.0)    | 122(55.7)        | 65(28.3)     |           |       |       | 219(57.3) |
|                                 | Total                       |        | 68(17.8)    | 211(55.2)        | 103(27.0)    |           |       |       |           |
| Obtain help from family/friends | Male                        |        | 17(10.4)    | 96(58.9)         | 50(30.7)     | 163(42.7) | 207   | .902  |           |
|                                 | Female                      |        | 26(11.9)    | 128(58.4)        | 65(29.7)     |           |       |       | 219(57.3) |
|                                 | Total                       |        | 43(11.3)    | 224(58.6)        | 115(30.1)    |           |       |       |           |
| Communicate with physician      | Male                        |        | 26(16.0)    | 90(55.2)         | 47(28.8)     | 163(42.7) | 3.328 | .189  |           |
|                                 | Female                      |        | 23(10.5)    | 119(54.3)        | 77(35.2)     |           |       |       | 219(67.3) |
|                                 | Total                       |        | 49(12.8)    | 209(54.7)        | 124(32.5)    |           |       |       |           |
| Manage disease in general       | Male                        |        | 34(20.9)    | 107(65.6)        | 22(13.5)     | 163(42.7) | 1.151 | .765  |           |
|                                 | Female                      |        | 37(16.9)    | 148(67.6)        | 34(15.5)     |           |       |       | 219(57.3) |
|                                 | Total                       |        | 71(18.6)    | 255(66.8)        | 55(14.4)     |           |       |       |           |
| Do chores scale                 | Male                        |        | 53(32.5)    | 83(50.9)         | 27(16.6)     | 163(42.7) | .283  | .868  |           |
|                                 | Female                      |        | 66(30.1)    | 117(53.4)        | 36(16.4)     |           |       |       | 219(57.3) |
|                                 | Total                       |        | 119(31.2)   | 200(52.4)        | 63(16.5)     |           |       |       |           |
| Social recreation               | Male                        |        | 44(27.0)    | 90(55.2)         | 29(17.8)     | 163(42.7) | .769  | .681  |           |
|                                 | Female                      |        | 66(29.7)    | 111(50.7)        | 43(19.6)     |           |       |       | 219(57.3) |

|                           |        |           |           |          |           |       |      |
|---------------------------|--------|-----------|-----------|----------|-----------|-------|------|
|                           | Total  | 109(28.5) | 201(52.6) | 72(18.8) | 382(100%) |       |      |
| Manage symptom            | Male   | 42(25.8)  | 104(63.8) | 17(10.4) | 163(42.7) | .593  | .743 |
|                           | Female | 49(22.4)  | 146(66.7) | 24(11.0) | 219(57.3) |       |      |
|                           | Total  | 91(23.8)  | 250(65.4) | 41(10.7) | 382(100%) |       |      |
| Control/manage Depression | Male   | 50(30.7)  | 99(60.7)  | 14(8.6)  | 163(42.7) | 3.940 | .268 |
|                           | Female | 56(25.6)  | 136(62.1) | 27(12.3) | 219(57.3) |       |      |
|                           | Total  | 106(27.7) | 235(61.5) | 41(10.5) | 382(100%) |       |      |

P > 0.05 in all the domains of self-efficacy.

Table 5 revealed no significant difference between marital status and the individual domains of self-efficacy; p > 0.05 in all the domains of self-efficacy.

**Table 5:** Chi Square Test of Influence of Marital Status on the Domains of Self-Efficacy

| Self-efficacy              | Marital status     | RANK        |                  |              |           | χ <sup>2</sup> | p-val |
|----------------------------|--------------------|-------------|------------------|--------------|-----------|----------------|-------|
|                            |                    | Low Freq(%) | Moderate Freq(%) | High Freq(%) | Total     |                |       |
| Exercise regularly         | Single             | 8(24.2)     | 18(54.5)         | 7(21.2)      | 33(8.6)   | 10.346         | 0.111 |
|                            | Married            | 96(33.7)    | 136(47.7)        | 63(18.6)     | 285(74.6) |                |       |
|                            | Widowed            | 27(45.8)    | 29(49.2)         | 3(5.1)       | 59(15.4)  |                |       |
|                            | Divorced/separated | 2(40.0)     | 3(60.0)          | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 133(34.8)   | 186(44.7)        | 63(16.5)     | 382(100%) |                |       |
| Adherence to diet          | Single             | 4(12.1)     | 18(54.5)         | 11(33.3)     | 33(8.5)   | 6.122          | 0.410 |
|                            | Married            | 52(18.2)    | 154(54.0)        | 79(27.7)     | 285(74.6) |                |       |
|                            | Widowed            | 12(20.3)    | 34(57.6)         | 13(22.0)     | 59(15.4)  |                |       |
|                            | Divorced/separated | 0(0.0)      | 5(100)           | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 68(17.8)    | 211(55.2)        | 103(27.0)    | 382(100)  |                |       |
| Obtain help                | Single             | 4(12.1)     | 18(54.5)         | 11(33.3)     | 33(8.6)   | 839            | 0.991 |
|                            | Married            | 31(10.1)    | 169(59.3)        | 85(29.8)     | 285(74.6) |                |       |
|                            | Widowed            | 7(11.9)     | 34(57.6)         | 18(30.5)     | 59(15.4)  |                |       |
|                            | Divorced/separated | 1(20.0)     | 3(60.0)          | 1(20.0)      | 5(1.3)    |                |       |
|                            | Total              | 43(11.3)    | 224(58.6)        | 115(30.1)    | 382(100%) |                |       |
| Communicate with physician | Single             | 5(15.2)     | 17(51.5)         | 11(33.3)     | 33(8.6)   | 4.918          | 0.554 |
|                            | Married            | 38(13.3)    | 155(54.4)        | 92(32.3)     | 285(74.6) |                |       |
|                            | Widowed            | 6(10.2)     | 32(54.2)         | 21(35.6)     | 59(15.4)  |                |       |
|                            | Divorced/separated | 0(0.0)      | 5(100)           | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 49(12.8)    | 209(54.7)        | 124(32.5)    | 382(100%) |                |       |
| Manage disease in general  | Single             | 6(18.2)     | 17(51.5)         | 10(30.3)     | 33(8.6)   | 14.443         | 0.107 |
|                            | Married            | 49(17.2)    | 201(70.5)        | 35(12.3)     | 285(74.6) |                |       |
|                            | Widowed            | 14(23.7)    | 34(57.6)         | 11(18.6)     | 59(15.4)  |                |       |
|                            | Divorced/separated | 2(40.0)     | 3(60.0)          | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 71(18.6)    | 255(66.8)        | 53(13.9)     | 382(100%) |                |       |
| Do chores                  | Single             | 11(33.3)    | 16(48.5)         | 6(18.2)      | 33(8.6)   | 5.175          | 0.522 |
|                            | Married            | 84(29.5)    | 150(52.6)        | 51(17.9)     | 285(74.6) |                |       |
|                            | Widowed            | 23(39.0)    | 30(50.8)         | 6(10.2)      | 59(15.4)  |                |       |
|                            | Divorced/separated | 1(20.0)     | 4(80.0)          | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 119(31.2)   | 200(52.4)        | 63(16.5)     | 382(100%) |                |       |
| Social recreation          | Single             | 7(21.2)     | 17(51.5)         | 9(27.3)      | 33(8.6)   | 7.694          | 0.261 |
|                            | Married            | 78(27.4)    | 158(55.4)        | 49(17.2)     | 285(74.6) |                |       |
|                            | Widowed            | 23(39.0)    | 23(39.0)         | 13(22.0)     | 59(15.4)  |                |       |
|                            | Divorced/separated | 1(20.0)     | 3(60.0)          | 1(20.0)      | 5(1.3)    |                |       |
|                            | Total              | 109(28.5)   | 201(52.6)        | 72(18.9)     | 382(100%) |                |       |
| Manage symptom             | Single             | 4(12.1)     | 26(78.4)         | 3(9.1)       | 33(8.6)   | 4.105          | 0.663 |
|                            | Married            | 72(25.3)    | 181(63.5)        | 32(11.2)     | 285(74.6) |                |       |
|                            | Widowed            | 14(23.7)    | 39(66.1)         | 6(10.2)      | 59(15.4)  |                |       |
|                            | Divorced/separated | 1(20.0)     | 4(80.0)          | 0(0.0)       | 5(1.3)    |                |       |
|                            | Total              | 91(23.8)    | 250(65.4)        | 41(10.7)     | 382(100%) |                |       |
| Control/manage depression  | Single             | 8(24.2)     | 22(66.7)         | 3(9.1)       | 33(8.6)   | 11.067         | 0.271 |
|                            | Married            | 77(27.0)    | 182(63.9)        | 26(9.1)      | 285(74.6) |                |       |
|                            | Widowed            | 20(33.9)    | 29(49.2)         | 10(16.9)     | 59(15.4)  |                |       |

|                    |           |           |          |           |
|--------------------|-----------|-----------|----------|-----------|
| Divorced/separated | 1(20.0)   | 2(40.0)   | 2(40.0)  | 5(1.3)    |
| Total              | 106(27.7) | 235(61.5) | 41(10.7) | 382(100%) |

Table 6 revealed that there is significant difference between educational level of participants and the following domains of the self-efficacy: ability to manage disease ( $\chi^2 = 19.056, p = 0.025$ ), ability to do chores ( $\chi^2 = 20.555, p = 0.002$ ) and social recreation ( $\chi^2 = 13.821, p = 0.032$ ) as revealed in

table 6. A good proportion (57.6%) with tertiary education had moderate ability to do house chores, 57.6% were moderately involved in social recreation and majority (71.9%) with tertiary education had moderate ability to manage their disease.

**Table 6:** Influence of Level of Education on The Self-Efficacy Domains Using Chi Square Test

| Self-efficacy              | Educational Level   | RANK        |                  |              | Total     | $\chi^2$ | p-val  |
|----------------------------|---------------------|-------------|------------------|--------------|-----------|----------|--------|
|                            |                     | Low Freq(%) | Moderate Freq(%) | High Freq(%) |           |          |        |
| Exercise regularly         | Primary             | 29(39.7)    | 35(47.9)         | 9(12.3)      | 73(19.1)  | 4.168    | 0.654  |
|                            | Secondary           | 52(32.7)    | 77(48.9)         | 30(18.9)     | 159(41.6) |          |        |
|                            | Tertiary            | 46(33.1)    | 70(50.4)         | 23(16.5)     | 139(36.4) |          |        |
|                            | No formal education | 6(54.5)     | 4(36.4)          | 1(9.1)       | 11(2.9)   |          |        |
|                            | Total               | 133(34.8)   | 186(48.7)        | 63(16.5)     | 382(100%) |          |        |
| Adherence to diet          | Primary             | 14(19.2)    | 38(52.1)         | 21(28.8)     | 73(19.1)  | 10.081   | 0.121  |
|                            | Secondary           | 25(15.7)    | 80(50.3)         | 54(34.0)     | 159(41.6) |          |        |
|                            | Tertiary            | 26(18.7)    | 87(62.6)         | 26(18.7)     | 139(36.4) |          |        |
|                            | No formal education | 3(27.3)     | 6(54.5)          | 2(18.2)      | 11(2.9)   |          |        |
|                            | Total               | 68(17.8)    | 211(55.2)        | 103(27.0)    | 382(100%) |          |        |
| Obtain help                | Primary             | 10(13.7)    | 39(53.4)         | 24(32.9)     | 73(19.1)  | 12.148   | 0.059  |
|                            | Secondary           | 17(10.7)    | 89(56.0)         | 53(33.3)     | 159(41.6) |          |        |
|                            | Tertiary            | 16(11.5)    | 92(66.2)         | 31(22.3)     | 139(36.8) |          |        |
|                            | No formal education | -           | 4(36.8)          | 7(63.6)      | 11(2.9)   |          |        |
|                            | Total               | 43(11.3)    | 224(58.6)        | 115(30.1)    | 382(100%) |          |        |
| Communicate with physician | Primary             | 11(15.1)    | 41(56.2)         | 21(28.8)     | 73(19.1)  | 1.794    | 0.938  |
|                            | Secondary           | 17(10.7)    | 88(55.3)         | 54(34.0)     | 159(41.6) |          |        |
|                            | Tertiary            | 19(13.7)    | 74(53.2)         | 46(33.1)     | 139(36.4) |          |        |
|                            | No formal education | 2(18.2)     | 6(54.5)          | 3(27.3)      | 11(2.9)   |          |        |
|                            | Total               | 49(12.8)    | 209(54.7)        | 124(32.5)    | 382(100%) |          |        |
| Manage disease in general  | Primary             | 16(20.5)    | 48(65.8)         | 10(13.7)     | 76(19.9)  | 19.056   | 0.025* |
|                            | Secondary           | 30(18.9)    | 99(62.3)         | 30(18.9)     | 159(41.6) |          |        |
|                            | Tertiary            | 24(17.3)    | 100(71.9)        | 15(10.8)     | 139(36.4) |          |        |
|                            | No formal education | 2(18.2)     | 8(72.7)          | 1(9.1)       | 11(2.9)   |          |        |
|                            | Total               | 71(18.6)    | 255(66.8)        | 56(13.9)     | 382(100%) |          |        |
| Do chores                  | Primary             | 30(41.1)    | 32(43.8)         | 11(15.1)     | 73(19.1)  | 20.555   | 0.002* |
|                            | Secondary           | 47(29.6)    | 86(54.1)         | 26(16.4)     | 159(41.6) |          |        |
|                            | Tertiary            | 33(23.7)    | 80(57.6)         | 26(18.7)     | 139(36.4) |          |        |
|                            | No formal education | 9(81.8)     | 2(18.2)          | 0(0.0)       | 11(2.9)   |          |        |
|                            | Total               | 119(31.2)   | 200(52.4)        | 63(16.5)     | 382(100%) |          |        |
| Social recreation          | Primary             | 31(42.5)    | 31(42.5)         | 11(15.1)     | 73(19.1)  | 13.821   | 0.032* |
|                            | Secondary           | 40(25.2)    | 86(54.1)         | 33(20.8)     | 159(41.6) |          |        |
|                            | Tertiary            | 32(23.0)    | 80(57.6)         | 27(19.4)     | 139(36.4) |          |        |
|                            | No formal education | 6(54.5)     | 4(36.4)          | 1(9.1)       | 11(2.9)   |          |        |
|                            | Total               | 109(28.5)   | 201(52.6)        | 72(18.8)     | 382(100%) |          |        |
| Manage symptoms            | Primary             | 23(31.5)    | 42(57.5)         | 8(11.0)      | 73(19.1)  | 6.978    | 0.323  |
|                            | Secondary           | 38(23.9)    | 102(64.2)        | 19(11.9)     | 159(41.6) |          |        |
|                            | Tertiary            | 26(18.7)    | 99(71.2)         | 14(10.1)     | 139(36.4) |          |        |
|                            | No formal education | 4(36.4)     | 7(63.6)          | 0(0.0)       | 11(2.9)   |          |        |
|                            | Total               | 91(23.8)    | 250(65.4)        | 41(10.7)     | 382(100%) |          |        |
| Control/ manage depression | Primary             | 25(34.2)    | 40(54.8)         | 8(11.0)      | 73(19.1)  | 5.853    | 0.754  |
|                            | Secondary           | 39(24.5)    | 101(63.5)        | 19(12.0)     | 159(41.6) |          |        |
|                            | Tertiary            | 38(27.3)    | 89(64.0)         | 12(8.6)      | 139(36.4) |          |        |
|                            | No formal education | 4(36.4)     | 5(45.5)          | 2(18.2)      | 11(2.9)   |          |        |
|                            | Total               | 106(27.7)   | 235(61.5)        | 41(10.7)     | 382(100%) |          |        |

Table 7 shows that participants occupation had significant influence on diet adherence ( $\chi^2 = 20.007, p= 0.003$ ). 77(33.8%) participants who were traders adhered to recommended diet.

**Table 7:** Chi square test of influence of occupation on the domains of self-efficacy

| Self-efficacy              |                      | RANK           |                     |                 |           | $\chi^2$ | p-val  |
|----------------------------|----------------------|----------------|---------------------|-----------------|-----------|----------|--------|
| Occupation                 |                      | Low<br>Freq(%) | Moderate<br>Freq(%) | High<br>Freq(%) | Total     |          |        |
| Exercise regularly         | Public servant       | 20(24.7)       | 45(55.6)            | 16(19.8)        | 81(21.2)  | 11.731   | 0.068  |
|                            | Trading              | 83(36.4)       | 104(45.6)           | 41(18.0)        | 228(59.7) |          |        |
|                            | Farming              | -              | 3(1.6)              | -               | 3(0.8)    |          |        |
|                            | Retired from service | 30(42.9)       | 34(48.6)            | 6(8.6)          | 70(18.3)  |          |        |
|                            | Total                | 133(34.8)      | 186(48.7)           | 63(16.5)        | 382(100%) |          |        |
| Adherence to diet          | Public servant       | 18(22.2)       | 46(56.8)            | 17(21.0)        | 81(21.2)  | 20.007   | 0.003* |
|                            | Trading              | 35(15.4)       | 116(50.9)           | 77(33.8)        | 228(59.7) |          |        |
|                            | Farming              | 2(66.7)        | 1(33.3)             | -               | 3(0.8)    |          |        |
|                            | Retired from service | 13(18.6)       | 48(68.6)            | 9(12.9)         | 70(18.3)  |          |        |
|                            | Total                | 68(17.8)       | 211(55.2)           | 103(27.0)       | 382(100%) |          |        |
| Obtain help                | Public servant       | 8(9.9)         | 55(67.9)            | 18(22.2)        | 81(21.2)  | 10.630   | 0.101  |
|                            | Trading              | 27(11.8)       | 120(52.6)           | 81(35.5)        | 228(59.7) |          |        |
|                            | Farming              | -              | 3(1.3)              | -               | 3(0.8)    |          |        |
|                            | Retired from service | 8(11.4)        | 46(65.7)            | 16(22.9)        | 70(18.3)  |          |        |
|                            | Total                | 43(11.3)       | 224(58.6)           | 115(30.1)       | 382(100%) |          |        |
| Communicate with physician | Public servant       | 11(13.6)       | 40(49.4)            | 30(37.0)        | 81(21.2)  | 10.439   | 0.107  |
|                            | Trading              | 30(13.2)       | 126(55.3)           | 72(31.6)        | 228(59.7) |          |        |
|                            | Farming              | 2(66.7)        | 1(33.3)             | -               | 3(0.8)    |          |        |
|                            | Retired from service | 6(8.6)         | 42(60.0)            | 22(31.4)        | 70(18.3)  |          |        |
|                            | Total                | 49(12.8)       | 209(54.7)           | 124(32.5)       | 382(100%) |          |        |
| Manage disease in general  | Public servant       | 11(13.6)       | 59(72.8)            | 11(13.6)        | 81(21.2)  | 6.429    | 0.696  |
|                            | Trading              | 43(18.9)       | 150(65.8)           | 35(15.4)        | 228(59.7) |          |        |
|                            | Farming              | -              | 2(66.7)             | 1(33.3)         | 3(0.8)    |          |        |
|                            | Retired from service | 17(24.3)       | 44(62.9)            | 9(12.9)         | 70(18.3)  |          |        |
|                            | Total                | 71(18.6)       | 255(66.8)           | 53(13.9)        | 382(100%) |          |        |
| Do chores                  | Public servant       | 17(21.0)       | 50(61.7)            | 14(17.3)        | 81(21.2)  | 8.939    | 0.177  |
|                            | Trading              | 72(31.6)       | 116(50.9)           | 40(17.5)        | 228(59.7) |          |        |
|                            | Farming              | 2(66.7)        | 1(33.3)             | -               | 3(0.8)    |          |        |
|                            | Retired from service | 28(40.0)       | 33(47.1)            | 9(12.9)         | 70(18.3)  |          |        |
|                            | Total                | 119(31.2)      | 200(52.4)           | 63(16.5)        | 382(100%) |          |        |
| Social recreation          | Public servant       | 13(16.0)       | 53(65.4)            | 15(18.5)        | 81(21.2)  | 11.717   | 0.069  |
|                            | Trading              | 70(30.7)       | 113(49.6)           | 45(19.7)        | 228(59.7) |          |        |
|                            | Farming              | -              | 2(66.7)             | 1(33.3)         | 3(0.8)    |          |        |
|                            | Retired from service | 26(37.1)       | 33(47.1)            | 11(15.7)        | 70(18.3)  |          |        |
|                            | Total                | 109(28.5)      | 201(52.6)           | 72(18.8)        | 382(100%) |          |        |
| Manage symptoms            | Public servant       | 16(19.8)       | 57(70.4)            | 8(9.9)          | 81(21.2)  | 4.411    | 0.621  |
|                            | Trading              | 56(24.6)       | 144(63.2)           | 28(12.3)        | 228(59.7) |          |        |
|                            | Farming              | 0(0.0)         | 3(100)              | 0(0.0)          | 3(0.8)    |          |        |
|                            | Retired from service | 19(27.1)       | 46(65.7)            | 5(7.1)          | 70(18.3)  |          |        |
|                            | Total                | 91(23.8)       | 250(65.4)           | 41(10.7)        | 382(100%) |          |        |
| Control/ manage depression | Public servant       | 24(29.6)       | 51(63.0)            | 6(7.4)          | 81(21.2)  | 4.051    | 0.908  |
|                            | Trading              | 61(26.8)       | 142(62.3)           | 25(11.0)        | 228(59.7) |          |        |
|                            | Farming              | 1(33.3)        | 1(33.3)             | 1(33.3)         | 3(0.8)    |          |        |
|                            | Retired from service | 20(28.6)       | 41(58.6)            | 9(12.9)         | 70(18.3)  |          |        |
|                            | Total                | 106(27.7)      | 235(61.6)           | 41(10.7)        | 382(100%) |          |        |

**Discussion of Findings**

The findings on socio-demographic variables showed that more of female participants than males were involved in the study, majority, were married, more participants with higher level of education participated in the study, while majority were traders. A good proportion of study participants were aged 40 years and above. These findings may imply that

gender, age, educational status, marital status and occupation may have significant influence/association with the self-efficacy construct

Findings on the self-efficacy of participants in this study revealed more than 25% of all study participants had low self-efficacy in most domains of the self-efficacy; the domains with the highest

proportion of participants with low self-efficacy were the exercise domain (34.8%), the doing chores domain (31.2%), social recreation (28.5%) and control/manage depression domain (27.7%). This implies that participants in this study are not confident in their ability to carry out recommended exercise for diabetic persons. They are also not involved in house chores; social recreation and they do not manage the depression associated with their disease condition.

Findings on the influence of socio-demographic variables on self-efficacy revealed a significant association between age and some domains of the self-efficacy. Age has a significant association with exercise ( $r = -0.19$ ,  $p = 0.001$ ), do chores ( $r = -0.179$ ,  $p = 0.001$ ), social recreation ( $r = -0.215$ ,  $p = 0.001$ ) and ability to manage symptoms of diabetes ( $r = -0.123$ ,  $p = 0.016$ ). The inverse correlation between age and the self-efficacy domains implies that as participants age increase, self-efficacy decreases in the domains mentioned above. This finding is expected because people generally tend to drop or reduce the rate at which they get involved in certain activities as they grow older. Shakya (2018) reported similar findings among patients with chronic diseases in

Kathmandu in which self-efficacy decreases with increasing age of study participants.

Shakya further observed a better self-efficacy among educated participants in his study ( $p = 0.01$ ). Shakya's findings agrees with the finding from the present study which revealed significant association between educational level of participants with self-efficacy in the domains of ability to manage disease ( $p = 0.025$ ), ability to do chores ( $p = 0.002$ ) and social recreation ( $p = 0.032$ ). A good proportion of participants with tertiary education had moderate ability to do chores, moderately managed their disease and moderately involved in social recreation. This shows the influence educational exposure can have on a person's lifestyle. This may also imply that educated people are more confident in their ability to follow treatment protocols to effectively manage their disease.

On the other hand, the findings from this study on the association between gender and marital status with self-efficacy disagrees with that of Shakya (2018) in which male and married participants in their study were reported to have a better self-efficacy. In the present study, being male or female, married, single, widowed or divorced had no significant association with the self-efficacy construct ( $p > 0.05$ ). Maboobeh, Iran and Mohammad (2018) observed no significant association between marital statuses, occupation of their participants with self-efficacy. These findings

agree with the findings in this study except in adherence to diet in which significant difference was observed between occupation and adherence to diet domain ( $p = 0.003$ ). About half of the study participants who are traders were moderately confident in adhering to diet regimen.

### Conclusion and Recommendations

The results of the study revealed that most individuals with type 2 diabetes had low self-efficacy in most domains of the self-efficacy measurement. Level of education, occupation and age all had significant association with some domains of the self-efficacy. As age increases, participants' self-efficacy decreases in the above domains. No significant association was observed between gender and the individual domains of the self-efficacy measurement.

It is therefore recommended that health professionals, particularly nurses and doctors should develop strategies or ways (either through educational programme) of improving self-efficacy among diabetic population. The strategy should centre more on encouraging them to improving their physical exercises regularly, they should be encouraged to be involved in social recreation as well as taught how to detect or identify, manage/control symptoms of depression associated with diabetes.

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