



“A Correlation Study to Assess the Relationship between Diabetic Distress and Blood Glucose Level among Diabetic Patients Attending to Medical OPD of HSK Hospital and Research Centre Bagalkot”.

Miss. Anuradha Gurappa Melligeri^{1*}, Dr. Deelip S Natekar^{2**}, Miss. Priyanka R³, Mr. Sangamesh H⁴, Mr. Shreekanth K⁵, Miss. Sudha K⁶, Mr. Sangamesh A⁷, Miss. Sujata⁸ & Ms. Rama. N⁹

- 1) * Lecturer and Department of Medical Surgical Nursing, Shri B.V.V.Sajjalashree Institute of Nursing Sciences Navanagar Bagalkot, Karnataka, India.
- 2) ** Principal, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka.
- 3) *** B. Sc Nursing 4th Year, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka.

(Received: 11 June 2024

Revised: 16 July 2024

Accepted: 10 August 2024)

KEYWORDS

Diabetic distress, GRBS, Hba1c, Type 1 diabetic mellitus, & type 2 diabetic mellitus.

ABSTRACT:

Introduction: Diabetes mellitus is a group of metabolic disorder in which deficit in insulin production or action of insulin it leads to increased sugar level in blood. Diabetic distress is the emotional reaction of person living with diabetes, the burden of daily self – management of diabetic mellitus, and to prevent the long-term complication of DM.

Method: The descriptive correlation survey design was used for the present study. The data was collected from a sample 60 diabetic patients from attending Medical OPD of HSK Hospital Bagalkot using convenient sampling technique. Diabetes distress scale was used to assess the level of stress among diabetic patient. Data was analyzed using descriptive and inferential statistics.

Result: In this present study the highest percentage is 55% of patient had mild distress, 23.4% of patient had moderate distress, 21.6% of patient had severe distress. & there is a weak positive correlation between glucose random blood sugar and diabetic distress.

Conclusion: The study concludes there is a positive correlation between glucose random blood sugar and diabetic distress (GRBS).

1. INTRODUCTION:

Diabetes mellitus is a group of metabolic disease in which deformity in insulin production or action of insulin it leads to increased sugar level in blood. The World diabetic mellitus day is celebrated on 14th November of every year.^[1]

Diabetes Mellitus is a serious disease that develops when body has difficulty to maintain and regulating the dissolved glucose in blood. Everyone is necessary to know the important of glucose. When any abnormality is occurs in the maintaining the blood sugar level, that leads to high or low level of glucose, that is very dangerous to body.^[2]

Diabetes distress is the emotional response to the person living with diabetic mellitus, the burden of relentless daily self – management and protection of its long-term complication. It can also arise from the social impact of diabetes like stigma, discrimination, dealing with other peoples un helpful reactions or their lack of understanding and the financial implication like insurance and treatment costs of the condition. this emotional distress, to greater or lesser degree, it is part of having to live with and manage diabetic mellitus it can falcate over time and may peak during challenging periods, Ex: Soon after the diagnosis, during major in treatment remain, at diagnosis or worsening of long - term complication. It can also peak at time of



heightened general stress, when the added burden of diabetes self-care becomes too much if untreated, mild diabetes distress may develop into severe diabetes distress and distress.^{[3][4]}

India has been known as a house for people with Non communicable diseases. According to World Health Organization, diabetes cases are increasing rapidly in India with an estimated 8.7% diabetic population in the age group of 20 and 70 years.^[5] Stress and Hyperglycaemia complement each other ultimately hindering the Quality of life of a person.^[6] The aim of the study was to assess and compare the level of stress and quality of life among Type 1 and Type 2 Diabetic mellitus patients.

India is a house for around 17% of Diabetic patients in the world^[3] India is called a capital for patients with DM^[7].

Diabetes mellitus is a chronic disorder that affects the patient both physiologically and psychologically. Diabetes mellitus can have a serious psychological and emotional impact^[8]. Once a person is announced to be diabetic, the lifestyle and mental peace will be blundered. The person starts to assume uncertainties and adapts extreme conservative measures to protect self. This shifting of lifestyle is not easy for everyone, the sacrifice in liberty food consumption and daily tasks. When a diabetic patient fails to reach the targets or if they are having hyperglycaemia, it will lead more angry, frustrated, denial which in turn can prolong to negative feelings and mental state such as anxiety, depression and stress^[9].

The overall effect is on quality of life of person. The impact on mental health will be modest but if the new ailments is managed expertly. Disease provokes stress in the person; it will affect the quality of living in turn and deteriorate the health as well. Stress and diabetes seems to be related to in number of significant ways. Specifically, stress both cause and result of diabetes^[10]. In a descriptive study it was found that the patients with DM had high level of distress (34.8%) compared to the non-diabetic group rate 6.8%.^[11], in a study conducted in sub Himalayan region of India among 300 Diabetic patients it was found that 10% patients had very poor quality of life, 13% had poor, 11% had average, 16% had good, and 50% had very good quality of life^[11].

Diabetes mellitus has many harmful consequences if the blood sugar level is not maintained within normal

limits. The person will be always apprehensive about the blood sugar levels and its impact on retina, kidney and peripheral nerves. These uncertainties provoke stress hindering the normal physiological functions of the body^[12].

Though Diabetes is a disorder evidenced by high blood sugar level but there is a lot of difference in psychological health status Diabetes mellitus patients. The daily calculated dose of insulin among DM patients makes the situation more dependent and bounded. In a study conducted to determine the relationship of Type 1 and type 2 DM with anxiety, it was found that 94.2% of male and 96.8% of female patients were found with severe anxiety group. Among both male and female patients, anxiety scores were higher among Type 2 DM compared to type 1 DM patients.^[13] it is an important aspect to compare the distress and blood glucose level of DM patients to understand the psychological aspects of health of Diabetes patients.

2. OBJECTIVES OF THE STUDY

- To assess the distress level among diabetes distress.
- To assess the blood glucose level among diabetes distress
- To assess the relationship between distress and blood glucose level.
- To find out association between distress level and their selected sociodemographic variable.

3. Methods

Study design and participants- The descriptive correlation survey design was adopted for the present study. Convenient sampling technique was used for this study & Data were collected for 30 days from 15/06/2022 to 14/07/2022 in Medicine OPD of HSK Hospital Bagalkot. The study was conducted among 60 diabetic patients selected from diabetic clinic of HSK Hospital and Research centre, Bagalkot. The researcher approached the Diabetic clinic of HSK hospital, obtained administrative permissions and enrolled all the patients approaching OPD service. The study was explained to prospective participants; their consent for participation was obtained and enrolled in the study. The same procedure of enrolment of subjects was carried out until the required number of subjects was enrolled. Data was collected by using diabetes distress



scale by interview method; Data was analyzed using descriptive and inferential statistics.

Inclusion Criteria:

The study includes the Diabetic mellitus patients attending the OPD bases in HSK Hospital Bagalkot. Available at the period of data collection. Willing to participate in this present study. Able to Speak Read and write English or Kannada language.

Exclusion Criteria: the participants not willing to participate in this present study, Unable to speak read and write English or Kannada language were excluded from the study.

SAMPLE SIZE ESTIMATION:

In the present study the sample size was collected by using the diabetic distress scale and the socio-demographic variables, the diabetic patients attending Medical OPD at HSK Hospital, to assess the correlation between diabetic distress and blood glucose level.

- The diabetic distress scale is valid.
- The sample size 60 (diabetic patients),
- Considering the availability of subjects was 60

ETHICAL CLEARANCE

Ethical Clearance certificate obtained from ethical clearance committee of B.V.V.S Sajjalashree Institute of nursing sciences Navanagar Bagalkot.

4. Results

SECTION 1: Description of socio-demographic characteristics.

Majority 58.33% of diabetic patient in the age group of 50years&above, 51.66% of subject were males. 51.66% of diabetic patient had no formal education. 38.33% of diabetic patient are house wife. 60%of diabetic patient had an income below 10000rs. 76.66% of diabetic patient has married. 78.33% of diabetic patient has nuclear family. 46.66% people are rural. 55% of diabetic Patient doesn't exercise. 76.66% of diabetic Patient are under controlled. 70% of diabetic patient who don't take insulin.

SECTION 2: Assessment of diabetic distress level

TABLE: 01 Assessment of diabetic distress level of patient attending at selected HSK Hospital Bagalkot.

Level of distress	Number(f)	Percentage(%)
Mild (<=34)	33	55 %
Moderate (35-68)	14	23.4%
Severe (69-102)	13	21.6%

In this study out of 60 subject the highest percentage is 55% of patient had mild distress, 23.4% of patient had moderate distress, 21.6% of patient had severe distress. It shows that majority 55% of diabetic patient under this study are had mild distress.

SECTION 3: Assessment of correlation between the diabetic distress level of patient attending at selected HSK Hospital Bagalkot.

There is a weak positive correlation between glucose random blood sugar and diabetic distress (GRBS). Hence calculated value is (0.18119), weak positive correlation found between the diabetic distress and blood glucose level is statistically significant. **H₁:** There will be positive correlation between diabetic distress and blood glucose level is accepted.

SECTION 4: Association between the diabetic distresses of diabetic patient with selected socio-demographic variables.

Table 02: Association between the diabetic distresses of diabetic patient with socio-demographic variables.

N=60

SL NO	Sociodemographic Variables of Type 1	X ² Calculated Value	P value	Association
1	Age	0.3223	0.05	Not significant
2	Gender	0.2762	0.05	Not significant
3	Occupation	1.0014	0.05	Not significant
4	Monthly family income rupees	0.5451	0.05	Not significant



				t
5	Physical exercise	3.2074	0.05	Significant*

DF degree of freedom=1

*P<0.05(significant)

The calculated chi square value for the all-sociodemographic variable age (0.322), gender (0.276), occupation (1.004) family income (0.545) is lesser than the table value (3.846). This indicates there is no significant association found between diabetic distresses with sociodemographic variables ($p < 0.05$). And the sociodemographic variable of physical exercise (4.207) chi square calculated value is more than the table value, This indicates there is significant association found between diabetic distresses with physical exercise at ($p < 0.05$) value.

5. Discussion

The finding of the present study is supported by the study conducted by Majed o et al [14]. To identify the Diabetes distress and related factors in South African adults with type 2 diabetes. The finding reveals that 44% of the sample reported having moderate to high levels of distress. Present study finding related to comparison between distress and blood sugar level among diabetic mellitus patients the study concludes that 55% of the sample having mild levels of distress.

The finding of the present study is supported by the study conducted by Cristina F et al [15]. To assess Diabetes distress and its clinical determinants in patients with type II diabetes. The finding reveals 63.7% of the patients had moderate to severe diabetes-related distress. Present study finding related to distress level among diabetic mellitus patients the study concludes that 55% of patient having mild distress, 23.4% of patient having moderate distress, 21.6% of patient having severe distress.

The finding of the present study is supported by the study conducted by Jeong, M et al [16], to explore the association between diabetes-related distress and fear of hypoglycaemia in patients with type 2 diabetes mellitus. The survey reveals that little or no distress (39.53%), moderate distress (45.35%) and high distress (15.12%). The prevalence of moderate to severe distress in patients was 60.47%. Present study finding related to

distress level among diabetic mellitus patients the study concludes that 55% of patient having mild distress, 23.4% of patient having moderate distress, 21.6% of patient having severe distress.

The results of the present study are supported by the study conducted by Hagger V et al [17]. To find out the Relation between diabetes related distress and glycemic control in adolescents with type 1 diabetes. The finding reveals DRD and low SRAT negatively correlated with HbA1c; increasing the DRD by one point may increase the HbA1c on average by 0.41 (C.I. 0.02–0.80) and will indirectly raise the HbA1c by 0.24 (C.I. 0.04–0.47) through the mediating effect of low SRAT. The present study finding related to correlation between distress and blood glucose level, There is a weak positive correlation between glucose random blood sugar and diabetic distress (GRBS), The r value obtained, $r = 0.18119$, hence the weak positive correlation between the two variable is found statistically significant.

The results of the present study are supported by the study conducted by Li S et al [18]. To explore the association between diabetes-related distress as a dependent variable and fear of hypoglycaemia. The finding reveals that the prevalence of moderate to severe distress in patients was 60.47%. Increased diabetes-related distress was strongly correlated with increased fear of hypoglycemia and closely associated with the scores of the worry and behaviour subscales. These results indicated that 62.3% of diabetes-related distress may be explained by fear of hypoglycaemia. The present study finding related to correlation between distress and blood glucose level, There is a weak positive correlation between glucose random blood sugar and diabetic distress (GRBS), The r value obtained, $r = 0.18119$, hence the weak positive correlation between the two variable is found statistically significant.

CONCLUSION:

The study reveals that out of 60 subject the majority 33 (55%) of diabetic patient are having mild distress. There is a weak positive correlation between glucose random blood sugar (GRBS) and diabetic distress.



References

1. Black J M, textbook of medical surgical nursing, 8(1), 779-796, 808-816, 823-825.
2. @URL:<https://www.uwhealth.org/living-kidney/introduction-to-living-kidney-donation.51740>.
3. National kidney foundation. @URL: <https://www.kidney.org.srings10.kidndey> Donation.
4. Sinha A. World Diabetes Day 2022. World Diabetes Day 2022: Can blood sugar patients take health insurance? Check policy conditions, premium, and other details (2022). Available at: <https://zeenews.india.com/personal-finance/world-diabetes-day-2022-can-blood-sugar-patients-take-health-insurance-check-policy-conditions-premium-other-details-2534957.html>
5. Surwit R S, Schneider M S, Feinglos M N. Stress and diabetes mellitus. *Diabetes Care*. 1992 Oct; 15(10):1413-22. doi: 10.2337/diacare.15.10.1413.
6. Available at ; <https://timesofindia.indiatimes.com/india/why-india-is-diabetes-capital-of-the-world/articleshow/95509990.cms>
7. Malik R. India is the diabetes capital of the world! *Mumbai mirror*. Jan 28, 2016. Available at: <https://timesofindia.indiatimes.com/life-style/health-fitness/health-news>
8. Understanding the symptoms of depression and how to maintain good self-management of diabetes. *Diabetes research and wellness foundation*. Available at: <https://www.drwf.org.uk/news-and-events/news/the-psychological-impact-of-diabetes>
9. Faisal GG1, Radeef AS. Depression, Anxiety and Stress among Diabetic and Non-Diabetic patients with Periodontitis. *Journal of International Dental and Medical Research*. 2017; 2(1):248-52.
10. Gupta J, Kapoor D, Sood V. Quality of Life and its Determinants in Patients with Diabetes Mellitus from Two Health Institutions of Sub-Himalayan Region of India. *Indian J Endocrinol Metab*. 2021 May-Jun; 25(3):211-19.
11. Alamri W, Alhofaian A, Mersal N. Quality of Life (QoL) among Health Care Workers with Diabetes Mellitus: A Literature Review. *Clin Pract*. 2021 Oct 30;11(4):801-26.
12. Ingrosso DMF, Primavera M, Samvelyan S, et al. Stress and Diabetes Mellitus: Pathogenetic Mechanisms and Clinical Outcome. *Horm Res Paediatr*. 2023;96(1):34-43.
13. Bulut A, Bulut A. Evaluation of anxiety condition among type 1 and type 2 diabetic patients. *Neuropsychiatr Dis Treat*. 2016 Oct 11;12:2573-79. doi: 10.2147.
14. Majed O. Aljuaid et al. Diabetic related distress assessment among type2 diabetes patients. 2018. URL @ Article ID 7328128 | <https://doi.org/10.1155/2018/7328128>.
15. Flávia Cristina ZanchettaDanilo et al. findout Clinical and sociodemographic variables associated with diabetes-related distress in patients with type 2 diabetes mellitus. 2016:14 (3).
16. Jeong, M, & Reifsnider,et al. Associations of Diabetes-Related Distress and Depressive Symptoms With Glycemic Control in Korean Americans With Type 2 Diabetes. *Diabetes Educator*.2018; 44(6): 169-174.
17. Hagger V, Hendrieckx C ,et al. Diabetes distress is more strongly associated with HbA1c than depressive symptoms in adolescents with type 1 diabetes: Results.. 2018: 19(4):840-847.
18. Li S, Fang L,et al. The association between diabetes-related distress and fear of hypoglycaemia in patients with type 2 diabetes mellitus: 2021:8(4):1668- 1672.