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A Cross Sectional Study to Assess the Diabetes Related Distress and its Predictors among Patients with Diabetes Mellitus Attending Diabetic Clinic of HSK Hospital and Research Centre Bagalkot

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Abstract **Original Research Article**

***Background*:** Diabetes distress is the emotional response to living with diabetes, the burden of relentless daily self-management and its long-term complications. It can also arise from the social impact of diabetes and the financial implications of the condition. Diabetes distress occurs on a continuum defined by its content and severity. This emotional distress, to a greater or lesser degree, is part of having to live with and manage diabetes. ***Methods*:** A Cross-Sectional research design, was used for present study. The samples of 100 diabetic patients were selected by purposive sampling technique method data was collected by self-structured questionnaires, Data was collected using Diabetes Distress Scale – 17, The data analysis done by using descriptive and inferential statistics. **Results:** Level of diabetic distress among patients with diabetic mellitus shows that majority 88 (88%) of subjects were having moderate level of diabetic distress and 12 (12%) of subjects were having severe level of diabetic distress, Mean ± SD based on diabetic distress scale (DDS) was 52.87± 7.56. The study result shown that there was significant association found for clinical predictors like Duration of Illness ($\chi 2 = 5.02$, $P<0.05$) and Type of Treatment ($\chi 2 = 4.69$, $P<0.05$) and did not found association between diabetic distress scale (DDS) and socio-demographic variables. ***Conclusion*:** The study concludes that Diabetes Distress scores and predictors among diabetic patients was effective, scientific, logical and cost-effective strategy in managing the Diabetes Distress and its predictors scores of diabetic patients.

Keywords: Diabetic Patients, Diabetes Distress, Predictors, Assessment, clinical variables and Socio-demographic variables.

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by increased levels of glucose in the blood resulting from defects in insulin secretion, or both. The most common endocrine disorder is diabetes mellitus caused by an inability to produce or use insulin. Diabetes mellitus is the fourth leading cause of death by disease in the United States, primarily its damage to the cardiovascular system. Because insulin is unavailable to aid transport of glucose into body cells, blood glucose level is high and glucose "spills" into the urine (glucosuria). Hallmarks of diabetes mellitus are the three "polys": polyuria, excessive urine production due to an inability of the kidneys to reabsorb water; polydipsia, excessive thirst; and polyphagia, excessive eating [1].

Diabetes-related distress (DRD) refers to the negative emotional state arising from the burden of living with the disease. The likelihood of DRD is higher among those with poor glycemic control compared to those who are well-controlled. Its relationship with glycemic control is time-concordant. Its presence at baseline, in one study by Aikens (2012), has been linked to future glycemic control. DRD has been associated with poorer medication adherence and lower frequencies of self-care behaviours. Both medication adherence and self-care behaviours are well-established determinants of glycemic control, which are in turn associated with future complications and lower quality of life. The prevalence of DRD was reported as 36%, in a meta-analysis of 55 studies, with gender and comorbid depressive symptoms as significant factors affecting prevalence [2].

Diabetes related distress is a unique emotional problem that is directly related to the diagnosis, the threat of complications, self-management, burdens, worries of living with T2DM and concerns about support and access to care. The emotional subscale of DRD can be divided into four types: (1) emotional burden (the patients feel anger, fear and depression when thinking about their diabetes), (2) physician-related distress (the patients feel that health workers do not understand their current condition and set unrealistic targets for therapy related to their diabetes), (3) regiment-related distress (the patients feel unable and unconfident in doing therapy or self-care related to their diabetes) and (4) interpersonal distress (the patients assume that their family or caretaker cannot support their therapy and understand the difficulties of living with diabetes) [3].

DRD is closely related to the worries of a patient being diagnosed with DM. If not screened and detected at the earlier stage, DRD will eventually lead to severe emotional distress. DRD is closely related to an individual's moral support, emotional well-being, accessibility to proper diabetes care and ability to manage diabetes. Although the prevalence of DRD has been studied in the United States and United Kingdom, there are still insufficient studies in Asian countries [4].

Diabetes distress associated with diabetes is an important under-appreciated domain of diabetes management and is of interest to primary care physicians. The main focus of diabetes management is on lifestyle changes and pharmacotherapy, whereas self-management and self-care behaviours are equally important [5].

Globally, the prevalence of diabetes is on the rise with an estimated 387 million diabetics; and it is estimated that by 2035, 592 million people will have diabetes. Unfortunately, the actual global prevalence of pre-diabetes is unknown. Thus, despite the potential for a rise in the prevalence [6].

MATERIALS AND METHODS

Research approach quantitative research approach. The present study is Cross-Sectional research design. A purposive sampling technique were used to select of 100 Diabetic patients from BVVS HSK Hospital and Research Centre, Bagalkot, Written consent was taken from participants for the study. Self-structured questionnaires for Socio demographic variables, Standardized the Diabetes Distress Scale (DDS) - 17 were used as tool for data collection. The data was analyzed by using descriptive and inferential statistical.

Study design: The study design adopted for this study was Cross Sectional research design.

Setting of the study: The present study was conducted at BVVS HSK Hospital and Research Centre, Bagalkot.

Participants: In the present study participant were type 1 and type 2 diabetes mellitus aged between 20-70 years and attending diabetic clinic at HSK hospital and Research Centre, Bagalkot.

Instruments: The study was conducted using a Structured Questionnaires with items related socio demographic data of Diabetic Patients and Diabetes Distress Scale (DDS) - 17) to assess the Diabetic distress.

Description of data collection instruments

Part I: Questionnaires to assess socio-demographic data of NICU staff nurses

PART II: Diabetes Distress Scale (DDS) - 17) to assess the Diabetic distress.

Data Collection Procedures: The data collection was carried out from 07-05-2024 to 24-05-2024 at HSK hospital and research centre, Bagalkot. A formal Permission was obtained from the Principal of Sajjalashree Institute of Nursing Sciences Navanagar Bagalkot. Then permission was obtained from the Medical Superintendent of HSK hospital and research centre, Bagalkot. The purpose of the study was explained to the Medical Superintendent of this hospital. The investigator given self-introduction explained the purpose of data collection to the subjects and subject's willingness to participate in the study was ascertained. The subject was assured the anonymity and confidentiality of the information provided by them.

Variable under study: Study variables for the present study were the Diabetes Related Distress od Diabetic patients.

Sociodemographic Variables: Age, Gender, educational status, family monthly income, occupation, marital status, type of family, duration of diabetes, type of diabetes, type of treatment, any other chronic illness.

Statistical analysis: The obtained data were statistically examined in terms of the objectives of the study using descriptive and inferential statistics. A master sheet was prepared with responses given by the study participants. Frequencies and Percentage was used for the analysis of demographic data, and The Chi square(x^2) test to find out the association between socio demographic variables and Diabetic distress.

Ethical Clearance: A certificate of ethical permission was obtained from ethical committee of the institution and written consent was taken from each participant.

RESULTS

Part I: Description of Socio- demographic variables

In this study 10% of subjects were in the age group of 20–35years, 44% were in the age group of 36-50 years, and 46% were in the age group of 51-70years. It shows that highest percentage was in the age group of

51-70 years, 72% of subjects were male and 28% were female. 17% subjects had no formal education, 33% of patients had completed primary education, 27% of subjects had completed secondary school, and 23% of samples had completed degree and above, 19% of the patients were working in government, 35% were in private, 17% were in self-employee, 12% were in farmer, and 17% were in Labour. 34% belongs to nuclear family, 49% belongs to joint family, 17% belongs to extended family, 66%, unmarried patients were only 4%, and widowed patients were 30%, 27% family income were below 10,000, 39% family income were coming under 10001-20000, 16% family income were between the 20001-30000 and 18% family income were more than 30001, 36% of patients had family history of DM, 64% patients don't had family history of DM. according to their duration of illness shows that among 12% of patients belongs to ≤ 2 years, 50% of patients belong to 3-5 years, 35% of patients belong to 6-8 years, and 3% of patients belong to ≥ 9 years. 87% patients were taking tablet form, and 13% patients were taking insulin injection form, according to their frequency of DM checkups shows that the 10% patients belong to weekly once, 39% patients are belongs to 15 days once, and 51% patients are belongs to monthly once.

Part II: Assessment of Diabetic distress among patients with diabetic mellitus.

Table 1: Frequency and Percentile distribution related level of diabetic distress among patients with diabetic mellitus, N=100

Level of DDS	Scores	Frequency	Percentile
Moderate	31-60	88	88%
Severe	> 60	12	12%

Table 1 shows that majority 88 (88%) of subjects were having moderate level of diabetic distress and 12 (12%) of subjects were having severe level of diabetic distress.

Table 2: Mean and SD of diabetes related distress among patients with diabetes mellitus, N=100

Observations	Mean	Std. Dev
Diabetic Distress Scale	52.87	7.5634087

Table 2 depicts that mean ± SD score of perceived stress among NICU staff nurses was 27.24±5.96, median was 28 and range was about 29.

PART III: Assessment of Clinical Predictors of diabetic distress among diabetic patients.

Table 3: Assessment of Clinical Predictors of diabetic distress among diabetic patients, N=100

Sl. No	Clinical Predictors	Df	χ^2 value	P value	Association
1	Family History of DM	1	0.29	0.59	No significant
2	Duration of Illness	1	5.02	0.025*	Significant
3	Type of Treatment	1	4.69	0.030*	Significant
4	Daily Exercise	1	0	1	No significant
5	Frequency Of DM Check Ups	1	0	1	No significant

Table 3 calculated Chi-square values for the clinical predictors like patients Family History of DM, Duration of Illness, Type of Treatment, Daily Exercise, Frequency of DM Checkups through. Which despites that duration of illnesses and type of treatment were the predictors for the DDS, where the predictors were obtained by chi square test. Whereas chi square table value for Df 1 is 3.84 and calculated chi square value was 5.02 for duration of illness and 4.69 for type of treatment it clearly shows that there is significant association with the Diabetic distress, hence the duration of illness and type of treatment were found as predictors of diabetic distress among diabetic patients.

PART IV: Finding out the Association between diabetes related distress of patients with diabetes mellitus with their socio-demographic variables.

Table 4: Association between diabetes related distress of patients with diabetes mellitus with their socio-demographic variables, N=100

Sl. No	Socio demographic variables	Df	x^2 value	P value	Association
1.	Age	1	0.06	0.806	No significant
2.	Gender	1	2.37	0.123	No significant
3.	Educational Qualification	1	0	1	No significant
4.	Occupation	1	0.2	0.654	No significant
5.	Type Of Family	1	0.11	0.74	No significant
6.	Marital Status	1	0.11	0.74	No significant
7.	Family Monthly Income	1	0.11	0.74	No significant

Table 4 shows that the calculated Chi-square values for the Socio-demographic variables like patients Age, Gender, Educational Qualification, Occupation, Type of Family, Marital Status, Family Monthly Income. The Chi square table value for all the socio demographic variables with 2×2 Contingency table and with degree of freedom 1- is 3.846. Hence, calculated chi square value for demographic variables like Age, Gender, Educational Qualification, Occupation, Type of Family, Marital Status, Family Monthly Income were less than table value hence there was no significant association found between above said socio-demographic variables.

DISCUSSION

The findings of the present study are discussed in light of previous scientific studies in this chapter and discussion regarding findings of the study is presented in accordance with the objectives of the study and hypothesis. The current study aims find out the level of diabetic distress and its predictors patients with diabetes mellitus attending diabetic clinic of HSK hospital and research Centre, Bagalkot. The study found that the duration of illnesses and type of treatment were the predictors for the Diabetic distress.

Findings of the study shown related level of diabetic distress among patients with diabetic mellitus shows that majority 88 (88%) of subjects were having moderate level of diabetic distress and 12 (12%) of subjects were having severe level of diabetic distress.

Supported with study was conducted by Surabhi Gupta (2022) One hundred and thirty-three consecutive patients with T2DM who were eligible and consented were recruited. 68/133 (51.2%) of patients had clinically significant diabetes distress. In the group with DDS < 3 (no distress) there were 65 patients with a mean age of 47.5 years, of whom 75% were male, and in the group of DDS > 3 (significant distress) the number of patients was 68 with a mean age of 48.2 years.82% were male (p = NS).

Current study found that there was significant association found for clinical predictors like Duration of Illness ($\chi 2$= 5.02, P<0.05) and Type of Treatment ($\chi 2$= 4.69, P<0.05).

Supported with study conducted by Prasanth Sankar (2018) Total Diabetes Related Distress had significant association with BMI (p=0.04), duration of T2DM (p=0.04), HbA1c (p=0.01), neuropathy (p=0.002) and nephropathy (p=0.008). EB, considered most important domain, was associated with duration of T2DM (p=0.02), insulin use (p=0.002), neuropathy (p<0.001), nephropathy (p=0.008), high HbA1c levels (p=0.001), ASCVD in females (p<0.001). Regimen related distress was more in those with high HbA1c (p=0.001) and smokers (p=0.04).

LIMITATIONS

The study limited to the sample of 100 Diabetic patients both male and female individuals with type 1 and type 2 diabetes mellitus aged between 20-70 years and attending diabetic clinic at HSK hospital and Research Centre, Bagalkot.

CONCLUSION

The study concludes that assessment on Diabetes Distress scores and predictors among diabetic patients was effective, scientific, logical and cost-effective strategy in managing the Diabetes Distress and its predictors scores of diabetic patients.

Declaration by authors

Ethical Approval: Institutional ethical clearance approved.

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Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Gerard, J. T., & Bryan, D. Principles Anatomy and Physiology in Health and Illness 15th edition 663p.
2. Guo, X., Wong, P. N. F., Koh, Y. L. E., & Tan, N. C. (2023). Factors associated with diabetes-related distress among Asian patients with poorly controlled type-2 diabetes mellitus: a cross-sectional study in primary care. *BMC Primary Care*, *24*(1), 54.
3. Adugnew, M., Fetene, D., Assefa, T., Asmamaw, K., Feleke, Z., Gomora, D., & Mamo, H. (2024). Diabetes-related distress and its associated factors among people with type 2 diabetes in Southeast Ethiopia: a cross-sectional study. *BMJ open*, *14*(1), e077693. Available from: https://bmjopen.bmj.com/content/14/1/e077693#
4. Liew, J. Y., & Vanoh, D. (2022). Predictors affecting diabetes related distress among diabetes patients. *The Malaysian Journal of Medical Sciences: MJMS*, *29*(2), 94-100. https://doi.org/10.21315/mjms2022.29.2.9
5. Ranjan, R., Rajput, M., Sachdeva, A., Saha, A., & Yadav, K. (2023). Prevalence of diabetes distress and cross-cultural reliability of DDS-17 scale in rural Haryana. *Journal of Family Medicine and Primary Care*, *12*(9), 2064-2069. Available from: https://journals.lww.com/jfmpc/fulltext/2023/12090/prevalence_of_diabetes_distress_and_cross_cultural.51.aspx
6. Okwechime, I. O., Roberson, S., & Odoi, A. (2015). Prevalence and predictors of pre-diabetes and diabetes among adults 18 years or older in Florida: a multinomial logistic modeling approach. *PloS one*, *10*(12), e0145781.