Original Research Article

Effectiveness of Interventional Package on Diabetes Distress and Quality of Life among Diabetic Patients

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ABSTRACT

Background of the Study: Diabetes Distress and poor quality of life are commonly seen problems among Diabetic Patients, which usually impede in proper management of diabetes and also can create serious mental issues if not treated properly.

Aims: the aim of the study was to assess effectiveness of interventional package on diabetes distress and quality of life among diabetic patients

Methodology: This was pre experimental study with one group protest post-test design. The population involved in this study was diabetes patients visiting diabetic club of HSK Hospital and research centre, Bagalkot and 50 subjects were selected using simple random sampling technique for the study. Data was collected using Diabetes Distress Scale and WHO Bref's Quality of Life scale. Intervention package [Psycho Education & JPMR] was administered for 1 hour for 14 days (4 sessions biweekly). Data were analyzed by using descriptive and inferential statistics in terms of frequency distribution, percentage, mean, mean percentage, Standard Deviation, paired 't' test and Chi-square test.

Results: Findings related to Comparison of pre-test and post-test Diabetes Distress and Quality of Life scores of Diabetic Patients shows that, Mean post-test Diabetes Distress score is significantly lesser than mean protest Diabetes Distress score [t=12.373, p< 0.001] and Mean post-test Quality of Life score is significantly greater than mean pre-test Quality of Life score.[t=9.802, p< 0.001]Significant association found between clinical variable, "Status of diabetes" with both Diabetes Distress scores and Quality of Life scores of Diabetic Patients and there was no association found for other socio demographic and clinical variables.

Conclusion: The study proved that Interventional package [Psycho education & JPMR] on Diabetes Distress scores and Quality of Life among Diabetic Patients was effective, scientific, logical and cost-effective strategy in managing the Diabetes Distress and in enhancing Quality of Life scores of Diabetic Patients.

Key Words: Diabetic Patients, Diabetes Distress, Quality of Life, JPMR Effectiveness, Interventional Package, clinical variables and Socio-demographic variables.

INTRODUCTION

Diabetes present in large scale around world which causing social, financial and health system burden across the world. According to IDF, it was estimated that in 2017 there are 451 million (age 18-99 years) people with diabetes worldwide. These figures were expected to increase to 693 million) by 2045. It was estimated that almost half of all people (49.7%) living with diabetes are undiagnosed. [1]

Diabetes mellitus a medical condition that occurs when the body cannot use glucose (a type of sugar) appropriately.

Glucose is the main source of energy for the body's cells. Insulin is secreted in the blood and acts as a vehicle to allow for glucose to enter from the blood stream into the cells. Diabetes occurs either when the pancreas does not make enough insulin (Type I Diabetes) or, when the body can't respond normally to the insulin that is available (Type II Diabetes). [2]

Diabetes distress is the feeling of discouraged, worried, frustrated, or tired of dealing with daily diabetes care. it usually happens when patient is trying hard but not seeing results or the patient developed a health problem related to diabetes in spite of his best efforts. This may cause the patient to slip into unhealthy habits, examples like stopping the checking blood sugar, even skip doctor's appointments. Within 18-month of disease period, 33% to 50% of people with diabetes have diabetes distress. [3]

The quality of life of a diabetic individual is deeply affected by Distress. The prescribed life of the diabetic individuals is full of mental as well as physical stressors, the decreased energy in diabetes makes individuals lazy and agitated which often results in irritation and anger issues, the prescribed diet and avoidance of eatables with high glucose levels also cause stress. [4]

A study was conducted aiming to focus on the relationship between stress and quality of life among diabetic patients. a sample of 50 male and 50 female diabetic patients was taken from the age group ranging from 20 to 80. Findings indicated that stress and quality of life of the diabetic patients were found to be negatively correlated at the significance level of 0.01. [4]

However, diabetes can compromise not only physical function (e.g. decreased energy, limitations and physical suffering) but also psychological status (e.g. depression and Diabetes Distress) and social relationships. All these components affect the QOL and the illness perception of diabetics. [5]

Diabetes usually requires substantial life-long self-management by the patient. Psychological factors and the patient's health beliefs are important determinants of self-care behavior. Education has a modest influence on generating better self-care, but psychologically based interventions are clearly more effective. Some labels such as cognitive behavioral therapy and family therapy etc include a wide range of approaches. [6]

Hence researcher has planned to undertake "A study to assess the effectiveness of an interventional package on Diabetes Distress and Quality of life among Diabetic patients visiting Diabetic Club of HSK Hospital and Research Centre, Bagalkot."

MATERIALS AND METHODS
Study Design and Participants

Present study was a pre-experimental one group pretest posttest design without control group. Conducted between 24-2-2020 to 8-3-2020, A Simple random sampling technique was used to select the 50 subjects for the present study. Diabetic patients with mild to High Diabetes Distress and who were able to understand read and write Kannada or English and available at the time of data collection are selected for the study.

Instruments
Diabetes Distress Scale:

Diabetes Distress was assessed using Diabetes Distress Scale. This is a 17 item self report measure. Response options range from 1 to 6 for each item (1 = not a problem 2 = A slight problem, 3 = A moderate problem, 4 = somewhat serious problem, 5=A serious problem, 6= A very serious problem). Scores ranges from 17 to 102, with high scores indicating greater diabetes distress. Hence individual who scores 17-34 indicates mild diabetes distress, 35-68 indicates moderate diabetes distress and 69-102 indicates high diabetes distress. Scale was translated to Kannada and then back translated to English. The reliability of the test was found out by using Karl Pearson's co-efficient of correlation formula. The

reliability co-efficient for Diabetes Distress scale obtained was 0.83.

WHO Bref's Quality of Life scale:

Quality of life was assessed using the WHO Bref's Quality of Life scale. This is a 26 item self report measure that asks patient to rate how they feel about their quality of life, health, or other areas of their life. The scale consists of 23 positive items and 3 negative items. For positive items response options range from 1 to 5 for each item (1 = Very poor or Not at all or Very dissatisfied or Never, 2- poor or A little or dissatisfied or Seldom, 3-Neither poor nor good or A moderate amount or moderately or Neither satisfied nor dissatisfied or Quite often, 4-Good or Very much or Mostly or Satisfied or very often, 5- Very good or An extreme amount or Completely or Very satisfied or always. For negative items options given options were reversed. Scores ranges from 26 to 130. high scores indicating greater quality of life. Score below 65 indicates poor quality of life and score above 65 indicates good quality of life. High scores indicating greater quality of life. Scale was translated to Kannada and then back translated to English. For the present study reliability was calculated by administering WHO Bref's Quality of Life scale by using Karl Pearson's co-efficient of correlation formula coefficient obtained was 0.91.

Data Collection Procedures

Prior permission was taken from relevant institutions before the beginning of data collection procedure. The study participants were indentified during the study period at Diabetic Club of HSK Hospital and Research Centre, Bagalkot. Every diabetic patient was fulfilled the inclusion criteria was approached for data collection. Consent was obtained by the interviewers before participants underwent the structured interview which lasted approximately 20 to 30 minutes. All the information collected was based on patient's self report. Pre-test conducted to assess the Diabetes Distress and Quality of Life of Diabetic Patients followed by administration of Interventional package such as; Psycho education (for half an hour) Jacobson's progressive muscle relaxation technique (for half an hour) in four sessions (weekly twice). On 14th day immediate post intervention assessment of Diabetes distress and Quality of life was done among Diabetic Patients.

Data Analysis

Data analyses were performed using SPSS v25. Description of sample characteristics was done using frequency and percentages. Significance of difference between mean pre-test and post-test Diabetes Distress and Quality of Life scores was assessed by using paired 't' test Chi Square test was used for assess the association between Diabetes Distress and Quality of Life with socio demographic and clinical variables.

RESULTS
Description of socio-demographic and clinical characteristics of Diabetic patients.

Percentagewise distribution of Diabetic patients according to their age group reveals that majority of the Diabetic patients (62%) were in the age group of 51-60yrs, majority of the Diabetic patients (72%) were male, most of the Diabetic patients (82%) were Hindu, most of the Diabetic patients (38%) had primary education, most of the Diabetic patients (38%) were doing agricultural work, most of the Diabetic patients (44%) had their family monthly income between Rs. 10000-20000,most of the Diabetic patients (92%) were married, most of the Diabetic patients (72%) were from nuclear family, most of the Diabetic patients (52%) were residing in rural areas, majority of the Diabetic patients (38%) were having diabetes from 4 years and above, most of the Diabetic patients (78%) were having type 2 diabetes (non-insulin dependent), most of the Diabetic patients (66%) of them were taking only

oral hypoglycemic and most of the Diabetic patient's (82%) diabetes were in control, and remaining 18% percent of them had uncontrolled diabetes.

Description of Assessment of pretest scores of Diabetes Distress and Quality of Life among Diabetic Patients.

Table: 1- Assessment of level of Diabetes Distress of Diabetic patients. n= 50

Level of Diabetes Distress	Range of Score	Frequency	Percentage
Mild distress	0-34	13	26.0%
Moderate distress	35-68	30	60.0%
High distress	68-102	7	14.0%

Table-1 shows that highest percent (60.0%) Diabetic Patients were having moderate distress, 26.0 percent of them were mildly distressed and remaining 14% were highly distressed.

Table: 2- Assessment of level of Quality of Life among Diabetic Patients. n= 50

Level of Quality of Life	Range of Score	Frequency	Percentage
Poor Quality of Life	<65	19	38.0%
Good Quality of Life	>65	31	62.0%

Table-2 shows that most (62.0%) of Diabetic Patients were having Good Quality of Life and remaining 38% of them were having poor Quality of Life.

Effectiveness of the Interventional Package on Diabetic Distress and Health Related Quality of Life Scores of Diabetic Patients.

Table: 3 Effectiveness of Interventional Package on Diabetes Distress and Quality of Life of Diabetic Patients.

Table 3 Comparison of pre-test and post-test Diabetes Distress and Quality of Life scores of Diabetic Patients. n=50

Variables	Mean difference	Differential SD	't' value (paired)	'p' value(2-tailed)
Diabetes Distress	22.26	12.721	12.373	0.000***
Quality of Life	21.44	15.467	9.802	0.000***

***p<0.001

Hence, as per the above stated findings it is clear that, Mean posttest Diabetes Distress score is significantly lesser than mean pretest Diabetes Distress score at 0.001 level of significance.

Similarly, mean posttest Quality of Life score is significantly greater than mean pretest Quality of Life score at 0.001 level of significance. Hence the interventional package was highly effective in decreasing the diabetes distress and increasing the quality of life of diabetic patients.

Association between the pre-test Diabetes Distress and Quality of Life scores and socio-demographic and clinical variables of Diabetic Patients.

Table: 4- Association between the pre-test Diabetes Distress scores of Diabetic Patients and their socio-demographic and clinical variables. n=50

SL. No	Socio-demographic and clinical variables	Df	Chi-square value	P value	Significance
1	Age	6	2.68	0.88	P>0.05 NS
2	Sex	2	1.45	0.44	P>0.05 NS
3	Religion	2	0.27	0.90	P>0.05 NS
4	Educational status	8	14.61	0.06	P>0.05 NS
5	Occupation	6	4.52	0.63	P>0.05 NS
6	Family monthly income	6	9.91	0.12	P>0.05 NS
7	Marital status	2	1.64	0.59	P>0.05 NS
8	Type of family	2	3.10	0.26	P>0.05 NS
9	Area of residence	2	1.28	0.60	P>0.05 NS
10	Duration of time with diabetes	6	10.96	0.08	P>0.05 NS
11	Type of diabetes	2	5.86	0.06	P>0.05 NS
12	Type of treatment	4	4.71	0.33	P>0.05 NS
13	Status of diabetes	2	37.35	0.00***	P<0.001 S

Df- Degree of Freedom   NS- Not significance   ***p<0.001

Table-4 reveals that significant association found between Diabetes Distress scores of Diabetic Patients with clinical variable, Status of diabetes ($\chi^2 = 37.35$, p<0.001) and there was no association found for other socio demographic and clinical variables.

Table: 5- Association between the pre-test Quality of Life scores of Diabetic Patients and their socio-demographic and clinical variables.   n=50

SL. No	Socio-demographic and clinical variables	Df	Chi-square value	P, value	Significance
1	Age	3	1.498	0.78	P>0.05, NS
2	Sex	1	1.18	0.33	P>0.05, NS
3	Religion	1	0.10	0.52	P>0.05, NS
4	Educational status	4	4.57	0.35	P>0.05,NS
5	Occupation	3	3.56	0.34	P>0.05,NS
6	Family monthly income	3	4.60	0.22	P>0.05,NS
7	Marital status	1	0.31	0.65	P>0.05,NS
8	Type of family	1	0.19	0.75	P>0.05,NS
9	Area of residence	1	0.005	1.00	P>0.05,NS
10	Duration of time with diabetes	3	4.34	0.23	P>0.05,NS
11	Type of diabetes	1	3.93	0.07	P>0.05,NS
12	Type of treatment	2	5.54	0.057	P>0.05,NS
13	Status of diabetes	2	17.90	0.00***	P<0.001,S

*Df- Degree of Freedom   NS- Not significance   ***p<0.001*

Findings related to the association between pre-test Quality of Life scores of Diabetic Patients with their selected socio-demographic and clinical variables reveals that significant association found between Quality of Life scores of Diabetic Patients with clinical variable, Status of diabetes ($\chi^2 = 17.90$, p<0.001) and there was no association found for other socio demographic and clinical variables.

DISCUSSION

This pre experimental study included a sample of 50 diabetic patients attending the diabetic club of HSK Hospital and Research Centre, Bagalkot. Findings revealed that, highest percent (60.0%) of Diabetic Patients were having moderate distress The results of the present study are contradictory with A cross-sectional study conducted by **Islam, Mohammad & Karim, Md. Rezaul& Habib, Samira Humaira (2017)** at Bangladesh on Diabetes distress among type 2 diabetic patients. The results shown that about 51.5% of diabetic patients had mild diabetes distress 26.1% had moderate distress and 22.4% had high distress.[7]

In the present study, highest percent (62.0%) of Diabetic Patients had good Quality of Life. The results of the present study are consistent with study conducted by **Martins KAKF, Mascarenhas LPG, Morandini M (2018)** among 59 patients residing in Brazil on Health-related Quality of Life in a Cohort of Youths with Type 1 Diabetes. The results show that, most of diabetic patients (71%) had good health related quality of life[8]

Findings of present study related to Comparison of pre-test and post-test Diabetes Distress and Quality of Life scores of Diabetic Patients shows that Mean posttest Diabetes Distress score [29± 11.170] is significantly lesser than mean pretest Diabetes Distress score [51.26± 19.087] at 0.05 level of significance [t=12.373, p< 0.05]. Similarly, Mean posttest Quality of life score [95.1± 17.78]is significantly greater than mean pretest Quality of life score [73.72± 29.336] at 0.05 level of significance [t=9.802, p< 0.05].

The results are supported by a Randomized Controlled Trial conducted by **Pyatak EA, Carandang K, Vigen CLP, et al. (2018)** To assess the efficacy of a manualized occupational therapy (OT) intervention on Glycemic Control and Quality of Life Among Young Adults With Diabetes The results show that significant improvement in diabetes-related QOL,($P = 0.04$).[9]

Recommendation

Based on the findings of the study the following recommendations are stated;

♦ A similar study can be undertaken with a large stratified sample including diabetic patients from different sections of society to generalize the findings.

♦ A study can be conducted to find out the prevalence of Diabetes distress and health related quality of life of diabetic patients.

♦ A study can be carried out to evaluate the efficiency of various interventional methods like yoga, deep breathing exercises, guided imagery etc. on Diabetes distress and health related quality of life of diabetic patients.

CONCLUSION

After thorough analysis of the data, it is understood that Diabetes Distress and impaired Quality of Life are co related and interventions like JPMR and psycho education are helpful in diabetic patients to enhance their quality of life and reduce their diabetes distress. Hence more study can be conducted by using different interventional methods to achieve optimal reduction in diabetes distress and improvement in quality of life.

Ethical Consideration

The study was approved by the Institutional Ethical Clearance Committee, BVVS Sajjalashree Institute of Nursing Sciences, Bagalkot.

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