

The Effectiveness of a Brief Psychological Intervention for Patients with Diabetes-Related Distress

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ABSTRACT

Background: Diabetes-related distress (DRD) is the negative emotional and psychological reaction to living with diabetes mellitus (DM). DRD has been reported to affect glycemic control and self-management practices adversely. Limited research is available on the effectiveness of psychological interventions for DRD. We aimed to study the effectiveness of a brief psychological intervention for patients with DRD. **Methods:** The findings of a targeted brief psychological intervention conducted for patients with DRD, as a part of psycho-endocrinology liaison services in a general hospital, are reported. Details regarding the assessment and intervention given were collected from the patients' records. Forty-one patients with DRD diagnosed using Diabetes Distress Scale (DDS) were given the single session intervention consisting of brief diabetes education focusing on physical activity and medication adherence, relaxation techniques, and illness-specific problem-solving strategies. Effectiveness was assessed using change in Clinical Global Impression-Severity (CGI-S), patient-rated visual analog scale, brief physical activity questionnaire, and medication adherence at baseline and 2-month follow-up. **Results:** Analysis using Wilcoxon signed rank test found a significant change in the follow-up scores on all the assessment scales. **Conclusions:** The study highlights the benefits of brief intervention for reducing DRD, thus reducing the emotional burden of living with DM.

Key words: Depression, diabetes mellitus, diabetes-related distress

Key messages: Single session intervention incorporating education regarding lifestyle changes, medication adherence, relaxation techniques and problem solving therapy was found to reduce diabetes-related distress and improve diabetes self-management practices.


As per the International Diabetes Federation, diabetes mellitus (DM) affects more than 425 million people globally.^[1] India currently has the second highest

number of people with DM, which has affected more than 72 million people, making this a major

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public health challenge.^[1] DM treatment includes diabetes self-management practices along with pharmacological management. It would result in the patient making major lifestyle modifications such as regular blood glucose monitoring, physical activity, dietary modifications, and medication adherence. This would have a major impact on daily functioning in general and can potentially pose an immense emotional burden on the patient, thereby increasing the risk of developing mental health issues like depression and diabetes-related distress (DRD). DRD is the negative emotional and psychological reaction specific to living with DM, including feeling overwhelmed by DM self-management practices and long-term medication, concerns of DM-related physical complications, and perceived lack of support from family members.^[2] Depressive symptoms and DRD have been the most commonly reported psychiatric co-morbidities in DM and have been associated with poor glycemic control and impaired self-care practices.^[3,4] The Diabetes Attitudes Wishes and Needs (DAWN2) study, which surveyed 8,596 DM patients across 17 countries, reported that psychological issues are a major source of distress for patients with DM, and DRD, reported by 44.6% of the patients, was found to be the most common concern.^[5] There are also reports, both cross-sectional and follow-up, that DRD, rather than depression, affects outcomes in DM by affecting adherence and self-management practices.^[6-8] However, the studies ascertaining the effect of mental health issues in DM have produced conflicting results with regards to their prevalence and actual effect on glycemic control, due to wide variations in study methodology.

Therapeutic strategies such as cognitive-behavior interventions, mindfulness-based therapies, and problem-solving strategies have been shown to improve diabetes self-management and mental health issues associated with DM. Most of the research has focused on depression in DM.^[9,10] Research on intervention strategies for DRD has been limited. Problem-solving strategies have been reported to independently improve both diabetes self-management and DRD.^[11,12] Research on the use and impact of these strategies to improve DRD in clinical settings is sparse. We aimed to study the effectiveness of a brief psychological intervention for patients with DRD as part of an interdisciplinary liaison-service between endocrinology and psychiatry departments. We hypothesized that the brief psychological intervention would improve illness severity and improve diabetes self-management practices on follow-up.

METHODS

The findings from a chart review of patients who received targeted brief psychological intervention conducted

as a part of the psycho-endocrinology services in a tertiary care teaching hospital are reported here. As part of this service, DM patients receiving outpatient treatment in the department of endocrinology were referred to the psychiatry outpatient services by the treating endocrinologist when mental health concerns were suspected. A detailed assessment with a specific focus on mental health aspects of DM was done by the psychiatry team, including a psychiatry nurse, for such referred patients, and appropriate management plans were formulated. A brief psychological intervention was provided only to patients with DRD (N = 41) (without axis I psychiatric disorders). The details regarding the assessment and intervention were systematically recorded in the patient's clinical records. The collection of data from the patients' clinical records was done after the approval by the institutional ethics review board. This reporting of data of human subjects is in accordance with the latest amendment of the Declaration of Helsinki. Patients had consented verbally for the ratings to be done. Since the information is derived from the clinical records of the service, written informed consent is not available.

The patients were assessed with the following instruments as a part of the clinical service. MINI version 5.0 was used to rule out major axis I psychiatric disorders.^[13] Diabetes Distress Scale (DDS), a 17-item, self-reported scale which measures DRD experienced over last month, was employed to detect DRD.^[2] It is a Likert scale with the score of each item ranging from 1 to 6. It has four subdomains assessing emotional burden, regimen-related distress, physician-related distress, and interpersonal distress. Patients with a mean item score of ≥ 3 , indicating moderate distress, were considered for the intervention.

Brief physical activity questionnaire is a two-item scale assessing moderate and vigorous physical activity.^[14] A total score of ≥ 4 indicates that the patient is sufficiently active. Adherence to medication for the previous month was assessed using a Likert scale of 1-5, and a cutoff point of 3 was used to indicate good medication adherence.

The effectiveness of the intervention was assessed using the clinician-rated Clinical Global Impression-Severity (CGI-S). In addition, patient-rated visual analog scale (VAS) from 1 to 10 was used for subjective reporting of symptom severity by patients. CGI-S, VAS, brief physical activity questionnaire and adherence to medication was assessed at baseline and 2-month follow-up, by psychiatry nurse.

The DM patients receive diabetes education and dietary advice in the endocrinology department by diabetes

educators as part of routine clinical care. Patients who were diagnosed with DRD received a brief psychological intervention by a trained psychiatry nurse, consisting of brief diabetes education focusing on physical activity and medication adherence, relaxation techniques, and illness-specific problem-solving strategies. Feedback related to the specific DRD domain involved was given to the respective patients. Problem-solving strategies involved identifying the challenges faced in DM self-management and impact of DRD. It also included helping the patients to set realistic goals and to weigh the pros and cons of each and enabling them to develop a plan to improve DM self-management and distress. Brief psychological intervention was a single session of 45-60 minutes on the day of the referral. All the components of the intervention were used in all the patients.

RESULTS

Out of 41 patients in the sample, 25 were females (60.9%), 33 (80.5%) were married, and 19 (46.3%) had >10 years of formal education. The mean (\pm SD) age was 44.63 ± 14.76 years and the mean duration of illness 77.12 ± 60.72 months (median = 94 months; range = 0.16-192). The mean body mass index (BMI) was 25.34 ± 3.96 kg/m². The mean DDS total score was 2.40 ± 0.56 (median = 2.35; range = 1-4.30). Among the various sub-domains of the DDS, emotional burden was present in 29 patients (mean score = 3.49 ± 1.14), regimen-related distress was present in 16 patients (mean score = 2.67 ± 1.04), interpersonal distress was present in 10 patients (mean score = 1.90 ± 1.27), and physician-related distress was present in 2 patients (mean score = 1.29 ± 0.59). Fifteen of the patients were on oral hypoglycemic medications, 19 were on insulin injections, and seven were on a combination of the two.

Table 1 shows the baseline and 2-month follow-up score of CGI-S and VAS. The baseline and follow-up scores of brief physical activity questionnaire and medication adherence Likert score were available for 35 patients.

DISCUSSION

The results suggest that brief psychological intervention in a clinic-based population was effective in improving

psychological distress of patients with DRD. The intervention also succeeded in improving DM self-management practices like physical activity and medication adherence which were examined in a subset of the sample.

The key components of the brief psychological intervention chosen for this study were illness-specific problem-solving strategies and relaxation techniques. There is emerging evidence that problem-solving therapy can benefit patients having DRD and impaired DM self-management practices.^[11,12] Patients with good problem-solving skills have been found to have better DM self-management practices.^[15] Problem-solving-based self-management training for DM has been found to be feasible and beneficial even when adapted for socially disadvantaged patient populations having lower literacy rates.^[16] It thus gives this therapy technique a greater clinical utility in a clinic-based population as shown by the results of this study.

Relaxation techniques like breathing practices have been known to be effective in reducing stress and mood and anxiety symptoms.^[17,18] It has also been found to be beneficial in reducing stress in medical disorders such as hypertension, cardiovascular conditions, and cancer.^[19] Deep breathing techniques have been shown to improve cardiac autonomic modulation, which is usually impaired in DM patients.^[20,21]

The most common DDS sub-domain in our study population was related to the emotional burden of living with DM. Hence, the effectiveness of an intervention involving deep breathing and illness-based problem solving further adds to the existing literature on the benefits of these strategies in reducing the distress in the population having a high frequency of emotional burden. In addition, the intervention was also shown to significantly improve DM self-management practices such as physical activity and medication adherence. There is sparse literature regarding interventions for DRD done in clinical settings. This study from a clinic setting demonstrates the effectiveness of brief psychological intervention for DRD as part of routine patient care. Single session therapies will have greater utility in resource-constrained settings such as those in India where the population of patients attending the clinical

Table 1: The baseline and two months follow up scores of distress severity and other measures

Scale	Baseline score	Follow-up score	Wilcoxon signed rank test
CGI-S (<i>n</i> =41)	4.76 \pm 0.99	2.49 \pm 1.23	Z=-5.43 (<i>P</i> <0.001)
VAS (<i>n</i> =41)	7.76 \pm 1.16	3.54 \pm 2.16	Z=-5.47 (<i>P</i> <0.001)
Brief physical activity questionnaire (<i>n</i> =35)	2.60 \pm 2.72	4.71 \pm 2.92	Z=-3.21 (<i>P</i> =0.001)
Medication adherence (<i>n</i> =35)	4.28 \pm 1.15	4.89 \pm 0.53	Z=-2.47 (<i>P</i> =0.014)

CGI-S-Clinical Global Impression-Severity; VAS-Visual analogue scale

services is large. The study highlights the need for management of mental health issues in DM patients, an oft-neglected area in routine DM management.

The major limitation of our study is that it is based on the clinical records of a liaison service. The follow-up data for medication adherence and brief physical activity questionnaire was available only for 35 patients. The absence of a control arm without the intervention is a limitation. However, this report provides real-world data examining the “effectiveness” of such an intervention. A systematic prospective study including a control group would have been superior. Since the study was conducted in a tertiary hospital-based setting, its utility in general community settings is difficult to comment at present. Even though DDS was employed to detect DRD at the baseline, we have not used it during the follow-up assessment. This would have helped in understanding the improvement in specific symptom domains. CGI-S and VAS were easy to administer in a busy clinic-based setting. Since both these scales were used, it was possible to ascertain the clinician’s judgment of severity and the patients’ subjective report of severity at the baseline and follow-up.

The brief nature of this intervention makes it an effective tool for clinical practice in busy settings involving a large number of patients. Since the intervention was done by a trained psychiatry nurse, this can be generalized to resource-constrained settings. In conclusion, there is a definite need to address DRD in routine clinical settings. Systematically conducted controlled studies are required to test the efficacy of a brief intervention for DRD. The mental health needs of DM patients are often not addressed. A systematic inter-disciplinary liaison service will further enable in early detection and treatment of mental health comorbidities which can ultimately improve DM treatment outcomes. Furthermore, this will enable in providing more comprehensive treatment for DM patients.

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Conflicts of interest

There are no conflicts of interest.

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