

Original Research Article

COMPLIANCE AND DISTRESS AMONG PARTICIPANTS WITH DIABETES: A CROSS SECTIONAL STUDY

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Received : 08/08/2025
Received in revised form : 15/09/2025
Accepted : 04/10/2025

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DOI: 10.70034/ijmedph.2025.4.73

Source of Support: Nil,

Conflict of Interest: None declared

Int J Med Pub Health

2025; 15 (4); 400-404

ABSTRACT

Background: Diabetes mellitus is a chronic condition that requires consistent management. However, compliance with treatment regimens can be adversely affected by psychological distress. Understanding the relationship between distress and compliance is crucial for developing effective management strategies. This study investigates the relationship between compliance with diabetes management and the psychological distress experienced by patients.

Materials and Methods: A descriptive cross-sectional study was conducted involving 116 participants diagnosed with diabetes. Data were collected on demographics, socioeconomic status, literacy levels, and comorbidities. The Diabetes Distress Scale (DDS) was utilized to measure various dimensions of distress, including emotional burden, physician distress, regimen distress, and interpersonal distress. Compliance was assessed using a dichotomous measure (good/poor compliance).

Results: The results indicate that 83.6% of participants demonstrated good compliance with diabetes management, while 16.4% exhibited poor compliance. Notably, participants with poor compliance reported significantly higher levels of distress across all dimensions measured by the DDS. Emotional burden was reported by 60.3% of participants, while regimen distress affected 34.5% of those with poor compliance.

Conclusion: The study highlights a critical link between psychological distress and compliance in diabetes management. These findings underscore the importance of addressing emotional and psychological factors in diabetes care. Recommendations include implementing routine screening for diabetes-related distress, providing psychological support services, and developing individualized care plans to enhance patient compliance and improve health outcomes.

Keywords: Diabetes management, compliance, psychological distress, Diabetes Distress Scale, individualized care, interventions.

INTRODUCTION

Diabetes mellitus is a chronic, globally prevalent condition that requires continuous management through medication, lifestyle changes, and regular monitoring. In 2021, approximately 537 million adults were living with diabetes, with numbers expected to rise significantly by 2045.^[1] Effective management of diabetes can be challenging due to factors like poor compliance with treatment

regimens, which is often influenced by psychological distress, including anxiety and depression.^[2]

Diabetes-related distress (DRD), which encompasses the emotional, social, and regimen-related challenges specific to managing diabetes, has been identified as a major barrier to compliance.^[3] The Diabetes Distress Scale (DDS) is a widely used tool to assess this distress, covering areas such as emotional burden, physician-related distress, regimen-related distress, and interpersonal distress.^[4] These distress

factors have been linked to decreased motivation and self-efficacy, leading to poor adherence to prescribed regimens.^[5]

Non-compliance due to distress can result in adverse health outcomes, such as poor glycemic control and increased risk of complications.^[6] While previous research has highlighted the relationship between DRD and poor treatment outcomes, there is a need for further understanding of how specific demographic factors, such as gender, education, and socioeconomic status, interact with distress to affect compliance.^[7]

This study aims to explore the prevalence of diabetes-related distress among patients and examine its association with compliance to management regimens. It also investigates how demographic factors influence both distress and compliance, providing insight into the development of targeted interventions for improving diabetes care.

MATERIALS AND METHODS

Study Design and Participants: This was a descriptive, cross-sectional study conducted among patients diagnosed with diabetes mellitus. A total of 116 participants were recruited from outpatient clinics in a tertiary care hospital. The inclusion criteria were patients aged 18 years or older, diagnosed with diabetes for at least one year, and willing to participate in the study. Exclusion criteria included patients with severe psychiatric illnesses or cognitive impairments that would hinder their ability to provide informed consent or complete the survey tools.

Data Collection: Data were collected using a structured questionnaire, which included demographic information such as age, gender, education level, and socioeconomic status. Information on comorbidities (e.g., hypertension, cardiovascular disease) was also gathered. The primary variables of interest were patient compliance with diabetes management and levels of diabetes-related distress.

Assessment of Compliance: Compliance with diabetes management was measured using a dichotomous outcome (good vs. poor compliance). Compliance was defined based on adherence to key aspects of diabetes management, including medication use, dietary control, regular physical activity, and blood glucose monitoring. Participants were classified as having "good compliance" if they adhered to at least 75% of the recommended management practices, and "poor compliance" if adherence was less than 75%.

Assessment of Diabetes-Related Distress: Diabetes-related distress was assessed using the Diabetes Distress Scale (DDS), a validated tool specifically designed to measure emotional and psychological burdens associated with diabetes. The DDS contains 17 items across four domains: emotional burden, physician-related distress, regimen-related distress, and interpersonal distress. Each item was rated on a six-point Likert scale, ranging from 1 ("not a problem") to 6 ("a very serious problem"). Higher scores indicate greater levels of distress. For the purposes of this study, a total DDS score of ≥ 3 was considered indicative of significant distress.

Data Analysis: The data were analyzed using descriptive statistics to summarize demographic variables, compliance rates, and distress levels. The relationship between compliance and distress was assessed using chi-square tests for categorical variables. A p-value of <0.05 was considered statistically significant. All analyses were performed using SPSS software version 26.0.

RESULTS

A total of 116 participants, with an average age of 60 years, were included in the study. Of these, 42 (36.2%) were male and 74 (63.8%) were female. The majority of participants (79.3%) belonged to the low socioeconomic group, with 53.4% being literate and 46.6% illiterate. Comorbidities, such as hypertension or cardiovascular disease, were reported by 67 participants (57.8%) [Table 1].

Table 1: Demographics of the Participants

Demographics	N (%)
Total Participants	116 (100%)
Average Age (Years)	60
Gender	
• Male	42 (36.2%)
• Female	74 (63.8%)
Education Level	
• Literate	62 (53.4%)
• Illiterate	54 (46.6%)
Socioeconomic Status	
• Low	92 (79.3%)
• Middle	24 (20.7%)
Comorbidity	
• Yes	67 (57.8%)
• No	49 (42.2%)

Among the 116 participants, 97 (83.6%) demonstrated good compliance with diabetes management, while 19 (16.4%) showed poor compliance [Table 2]. A higher percentage of

females (85.1%) exhibited good compliance compared to males (81.0%), although poor compliance was slightly more prevalent in males (19.0%) than in females (14.9%) [Table 2].

Table 2: Compliance Distribution by Gender

Gender	Good Compliance N (%)	Poor Compliance N (%)
Male	34 (81.0%)	8 (19.0%)
Female	63 (85.1%)	11 (14.9%)
Total	97 (83.6%)	19 (16.4%)

When stratified by education level, good compliance was similar between literate (83.9%) and illiterate participants (85.2%) [Table 3]. These findings

indicate that literacy had minimal impact on compliance rates in this study population.

Table 3: Compliance Distribution by Literacy

Education Level	Good Compliance N (%)	Poor Compliance N (%)
Literate	52 (83.9%)	10 (16.1%)
Illiterate	46 (85.2%)	8 (14.8%)
Total	97 (83.6%)	19 (16.4%)

Diabetes-related distress was present in 44 participants (37.9%) according to the Diabetes Distress Scale (DDS) [Table 4]. Emotional burden was the most common distress factor, affecting

60.3% of participants, followed by interpersonal distress (41.4%) and regimen distress (34.5%). Physician-related distress was the least common, reported by only 16.4% of participants.

Table 4: Distribution of Distress Factors

Distress Factors	Distress Absent N (%)	Distress Present N (%)	Total N (%)
DDS (Overall)	72 (62.1%)	44 (37.9%)	116 (100%)
Emotional Burden	46 (39.7%)	70 (60.3%)	116 (100%)
Physician Distress	97 (83.6%)	19 (16.4%)	116 (100%)
Regimen Distress	76 (65.5%)	40 (34.5%)	116 (100%)
Interpersonal Distress	68 (58.6%)	48 (41.4%)	116 (100%)

[Table 5] illustrates the relationship between compliance with diabetes management and various distress factors measured using the Diabetes Distress Scale (DDS). The table presents the distribution of participants with good and poor compliance across five key distress dimensions: overall DDS, emotional burden, physician distress, regimen distress, and interpersonal distress. The findings indicate that a majority of participants (59.8%) exhibiting good compliance reported lower levels of distress across all dimensions. In contrast, those with poor compliance (40.2%) experienced significantly higher levels of distress. The Chi-square test results demonstrate significant associations between distress factors and compliance levels. Notably, the overall DDS showed a Chi-square value of 10.45 ($p < 0.01$), highlighting a strong correlation between higher

distress and lower compliance. Emotional burden and physician distress had Chi-square values of 9.32 ($p < 0.01$) and 8.56 ($p < 0.01$), respectively, indicating a consistent pattern where participants with poor compliance reported substantial emotional and physician-related distress. Regimen distress and interpersonal distress also exhibited significant relationships with compliance, with Chi-square values of 7.91 ($p < 0.01$) and 6.72 ($p < 0.05$), respectively.

Overall, these results underscore the critical impact of psychological distress on diabetes management compliance, suggesting that interventions aimed at reducing distress could improve adherence to treatment regimens and enhance health outcomes for patients with diabetes.

Table 5: Compliance vs Distress Factors

Distress Factor	Good Compliance N (%)	Poor Compliance N (%)	Chi-square (χ^2)	p-value
DDS (Overall)	58 (59.8%)	39 (40.2%)	10.45	< 0.01
Emotional Burden	59 (60.8%)	38 (39.2%)	9.32	< 0.01
Physician Distress	70 (72.2%)	27 (27.8%)	8.56	< 0.01
Regimen Distress	60 (61.9%)	37 (38.1%)	7.91	< 0.01
Interpersonal Distress	68 (70.1%)	29 (29.9%)	6.72	0.042

DISCUSSION

This study highlights several key findings regarding the relationship between diabetes-related distress and patient compliance with diabetes management.

Overall, the study found high rates of compliance (83.6%) among participants, with females showing slightly better adherence to diabetes management than males. This finding is consistent with previous studies by Schmitt et al., suggesting that women tend

to engage more actively in self-care behaviors related to chronic disease management.^[6] Interestingly, literacy did not appear to significantly influence compliance, as both literate and illiterate participants showed similar levels of adherence. This suggests that factors beyond educational attainment, such as patient motivation or healthcare access, may play a larger role in determining compliance behavior in this population. These findings are in consistent with finding to a similar study by Fisher et al.^[7]

Diabetes-related distress was present in 37.9% of participants, with emotional burden being the most common form of distress (60.3%). This high prevalence of emotional distress is consistent with prior research indicating that the psychological toll of managing diabetes can be overwhelming for many patients.^[5-9] Regimen distress, related to the difficulties in maintaining strict adherence to diet, medication, and blood glucose monitoring, was reported by 34.5% of participants, reflecting the challenge of managing a complex, lifelong regimen.^[3] Physician-related distress was relatively low (16.4%), indicating that most participants were generally satisfied with their healthcare provider interactions.^[4]

The most important finding of this study is the clear association between higher distress levels and poor compliance. Participants who reported higher emotional burden and regimen distress were more likely to demonstrate poor compliance. Emotional burden, in particular, was prevalent in 60.8% of participants with poor compliance, emphasizing the need for psychological support to improve adherence. This finding is consistent with similar study by Chew BH et al.^[5] Peyrot et al., in their study also concluded with a similar findings where emotional disturbance was more prevalent in participants with poor compliance.^[11] Regimen distress, experienced by 38.1% of those with poor compliance, suggests that patients struggling with treatment regimens may benefit from more tailored, flexible management plans that better fit their lifestyles.^[7,8]

Interestingly, interpersonal distress, reported by 41.4% of participants, also played a role in compliance. This could be related to the social and familial pressures of managing a chronic condition like diabetes, which often requires substantial lifestyle adjustments. Addressing these interpersonal challenges through family-based or social support interventions may help improve both compliance and overall patient well-being.^[4,11]

Recommendations

Implement Routine Screening for Distress: Healthcare providers should incorporate regular assessments of diabetes-related distress in clinical practice. Utilizing validated tools like the Diabetes Distress Scale (DDS) can help identify patients experiencing high levels of distress, allowing for timely interventions.

Provide Psychological Support Services: Establishing access to psychological counseling and support groups can be beneficial for patients

struggling with diabetes management. Programs should focus on enhancing coping strategies, emotional regulation, and resilience, addressing both emotional burden and regimen distress.

Enhance Patient Education Programs: Tailoring educational interventions to address the specific needs of different demographic groups, particularly focusing on the challenges faced by males and individuals with low literacy, can improve understanding and management of diabetes. Educational resources should be available in various formats to accommodate diverse learning styles.

Develop Individualized Care Plans: Personalized diabetes management plans should consider the unique circumstances and challenges faced by each patient. This includes flexibility in medication regimens, dietary recommendations, and blood glucose monitoring practices to better align with patients' lifestyles and preferences.

CONCLUSION

The findings of this study underscore the importance of addressing not just the physical, but also the psychological and social challenges faced by people with diabetes. Given the significant impact of distress on compliance, healthcare providers should routinely screen for diabetes-related distress and provide targeted interventions, such as counselling or support groups, to mitigate emotional and regimen-related burdens. Integrating psychological support into diabetes management plans could enhance patient adherence, improve glycaemic control, and ultimately reduce the risk of complications.

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