Study of depression among parents and patients of type 1 diabetes mellitus and it's correlation with glycemic control

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Abstract
Background: The study was conducted in endocrine and diabetes division with following objectives 1. To analyze presence of depressive symptoms among parents of type1 DM patients. 2. To analyze presence of depressive symptoms among type1 DM patients. 3. Examine correlation between depression in parents and glycemic control of patients. **Methods:** Thirty-Two parents and children (M=14, F=18) completed self-report questionnaires. Beck Depression inventory (BDI-II) was used to assess depression among parents. Centre for epidemiological studies depression scale for children (CES-DC) was used for assessment of depression in children with type 1 DM. HbA1C value done within last 3 months was also recorded in the predecided proforma along with other details. Correlation statistics used for analysis of relationship between depression grade and HbA1c. **Results:** 72 % of parents had depressive symptoms. Parents with severe depression were 34% among depressed parents. Only 23% of children reported symptoms which were falling in depression category. There was strong correlation between grade of depression in parent and HbA1c of child (p <0.001). **Conclusions:** According to our study there is significant prevalence of depression among parents of type 1 DM children. Depressive symptoms among parents negatively influence glycemic control in patient of type 1 DM.
Key Words: Type 1 DM, Depression, HbA1c, Glycemic control.

INTRODUCTION
Depression in primary caregiver especially mother is associated with lower quality of life and poor metabolic control in type 1 diabetes patients. It is important to provide support to parents after diagnosis of diabetes to promote better diabetes management.

MATERIAL AND METHODS
Study design: cross sectional study Thirty-Two parents and children (M=14, F=18) completed self-report questionnaires. Beck Depression inventory (BDI-II) was used to assess depression among parents. Depending on score they were graded into minimal depression (0-14), mild (15-20), moderate (21-29), severe depression (30-63). Centre for epidemiological studies depression scale for children (CES-DC) was used for assessment of depression in children with type 1 DM and classified as either no depression (0-15) or suggestive of depression((16-60). HbA1C value done within last 3 months was also recorded in the predecided proforma along with other details relevant to psychological aspects of diabetes care. Spearman's linear correlation statistics used for analysis of relationship between various characteristics (in Sofastats vesion1.4.3)

RESULTS

Table 1: Depression scores in study

Parameter	Mean	SD
Age of patient	10.5	4.3
Age of father	39.5	5.9
Age of mother	33	4.7
BDI depression score of mother	25.9	15.1
BDI depression score of father	23.6	12.2
CES DC depression Score of patient	10.9	7.4
Episodes of DKA	1.4	1.3
Duration of diabetes in years	2.7	2.4
Family income in month USD	500	228
HBA1c	10.4	2

Table 2: Correlation of Depression with glycemic control

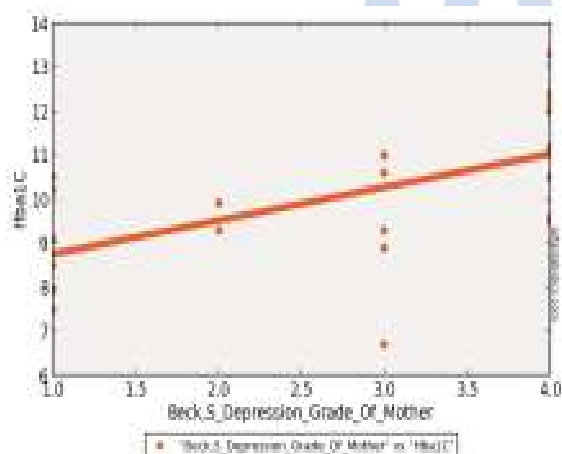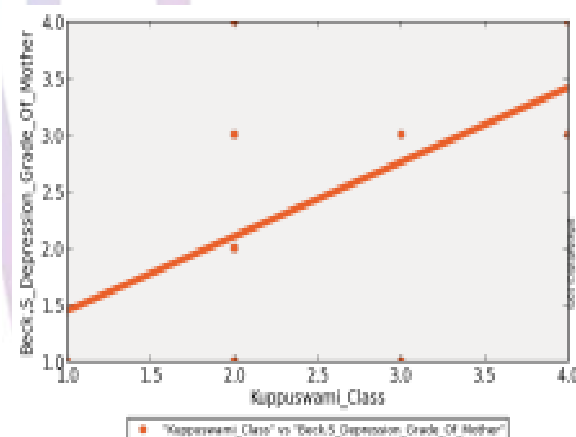| Correlation	P value	Spearman's R statistic
Grade_Of_Depression_In_mother " vs "Hba1C	< 0.001	: 0.569
Grade_Of_Depression_In_ father " vs "Hba1C	0.031	0.512
Socieconomic status Vs HbA1C	0.043	0.24
Socieconomic status Vs grade of depression in mother	0.004	0.527
Self_Monitoring_Of_Blood_Glucose frequency_ " vs Beck,S_Depression_Grade_Of_Mother	0.284	-0.406

Figure 1

Figure 2

Legend
Figure 1: Correlation of BDI score of mother with HbA1c of patient
Figure 2: Correlation of BDI score of mother with socioeconomic class

DISCUSSION

Prevalence of depression in mothers was significant (72%) in our study in contrast to reported in literature (33%) probably because instrumental role of mother in almost every aspect of diabetes management in India. Coping strategy training and psychological assessment and management facility is not part of routine care in managing these patients in our unit. We found no correlation between depression in parent and depression among patients in contrast to other studies. In our study we observed strong association between maternal depression and poor metabolic control (P value<0.001) but there was no association between maternal depression with frequency of glucose monitoring. There was significant association between lower socioeconomic status and depression in mother but lower socioeconomic class was not associated with poor HbA1c.75% of parents were seeking some alternative medicine therapy like

Herbal, homeopathy and unspecified practices along with insulin therapy. Only 9 % parents were aware of insulin pump therapy in diabetes. Poor school staff support as perceived by mother was associated with some depressive symptoms but was not statistically significant (p value 0.03).

CONCLUSIONS

Lower socioeconomic status is associated with depression among parents. Greater presence of depressive symptoms in mothers of type 1 DM patients is one of the important determinant of poor glycemic control in these patients. In comparison to parents depressive symptoms are less common among children (20%) with type 1 DM. Duration of diabetes was not correlated to depression among parents. Prospective study involving large number of patients in different age groups is needed for further understanding of psychological aspects among parents and patients and their implication in diabetes management and quality of life.

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