

PSYCHOSOCIAL PROFILE OF JUVENILE DIABETES

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ABSTRACT

A study of the complex relationships between the patient characteristics, family and environmental influences, physician's behaviour and the demands of the disease with its management in Juvenile Diabetics was taken up at a general hospital.

90 subjects were selected for the study and grouped into three. Group A consisted of 30 Juvenile Diabetics, Group B of 30 Adult Diabetics and Group C of 30 Normal healthy adolescents. The impact of the illness was measured on the Diabetes Impact Measurement Scale (DIMS), the behavioural deviations and the parental attitudes towards child rearing on the Fallstrom's Questionnaire (FQ) and the family environment on the Family Climate Scale (FCS). Psychiatric morbidity was assessed using DSM-IV criteria. Group A & B were compared on the DIMS and Group A & C on FQ & FCS.

Adult diabetics had a greater impact of diabetes. Juvenile diabetics had significantly higher frequency of behavioural deviations as compared to controls. Also there was a higher number of responses on questions indicating an overprotecting attitude amongst parents of juvenile diabetics. There was an increased incidence of psychiatric morbidity in juvenile diabetics as compared to normal adolescents irrespective of the family environment.

The results are discussed in relation to current literature.

Key words : Diabetes mellitus, insulin dependent, child and adolescents, psychological aspects

Adolescence is a time of upheaval and reevaluation. Maturity is a goal towards which he is striving but has not achieved yet. Physical illness adds one more crisis to the already heavy dose of confusion an adolescent has to cope with (Perrin & Gerrity, 1984).

"I am just a normal kid who takes two shots a day"

"I was worried and waited for the other shoe to fall. Once I got diabetes, I knew it would get me like it did my father."

"My daughter seems to deny the illness; she needs two shots daily but won't take them."

These comments touch on some of the varied experiences of patients and families with diabetes; no single description summarizing this diversity (Jacobson et al., 1994).

Juvenile Diabetes has been defined as

'Diabetes with onset below 15 years of age (Tripathy et al., 1981). The majority of children develop Type I IDDM (Ehrlich, 1982).

Various Indian studies have found <1% of total number of diabetics registered in the hospitals to be children; lower than 4-5% in the West (Ahuja, 1981; Sachdeva et al., 1981; Verma, 1989). In an estimate of prevalence of IDDM in Madras carried out by Ramchandra and Ahuja recently the overall prevalence was 0.26/1000. This is comparable to rates from Algeria, more than other Asian countries (Japan/China), and less than Western countries (Ramchandran & Ahuja, 1995).

The desire for greater independence and peer conformity makes diabetes management a battleground between the adolescent and the parents. The frustrations of diabetes itself and

the attitudes of the parents add to the problem (Johnson & Rosenbloom, 1982).

This study concentrates on this group of diabetics and was taken up with the following aims :

- To study the sociodemographic factors associated with juvenile diabetics.
- To compare the impact of diabetes on the juvenile diabetic with the adult diabetic.
- To compare the behavioural deviations, parental attitudes towards child rearing and family environment of the juvenile diabetic with a normal adolescent.
- To study the psychiatric morbidity in the juvenile diabetic and the possible risk factors involved.

MATERIAL AND METHOD

90 subjects were selected for the present study carried out at a general hospital with approval of the ethics committee of the institute. These 90 subjects were grouped into three groups of 30 each.

Group A consisted of 30 adolescents diagnosed to be Juvenile Diabetics- IDDM type- from the outpatients attending the diabetes OPD. The 12-18 years old diabetics had a minimum educational level upto secondary school and had been suffering from the illness for at least one year. Group B consisted of 30 adult diabetics in the age group 45-60 years from the same OPD with a minimum educational level of secondary school and a minimum duration of illness of one year. The last and third group, Group C consisted of 30 healthy adolescents selected from the relatives accompanying the patients to various OPDs; and matched Group A with respect to age, sex and education

Patients with a past history of mental illness, concurrent acute medical illness and adults with juvenile onset diabetes were excluded from the study.

A semi-structured proforma was prepared and administered. Observations included personal data, details about illness (duration, prevalence and type of complications, adherence to treatment regime and glycemic control) and

family history of diabetes.

The subjects were then assessed on the following, instruments:

• **Diabetes Impact Measurement Scale (DIMS)** (Hammond & Aoki, 1992).

This was devised by Aoki and Hammond as a part of the Diabetes Control and Complications Trial to measure the health state in diabetic patients. The Questionnaire consists of five subscales:

- Ia- Diabetes specific symptoms
- Ib- Diabetes non-specific symptoms
- II- Well-being
- III- Diabetes related morale
- IV- Social role fulfillment

The questions in each subscale were scored on a Visual Analogue Scale and the respective subscale score calculated. The total impact score was calculated from the sum of responses to all the items.

• **Fallstrom's Questionnaire (FQ)** (Fallstrom, 1974)

This was used for the assessment of behavioural deviations in the adolescents and parental attitudes towards child rearing.

• **Family Climate Scale (FCS)** (Shah, 1990)

A scale devised by Beena Shah was used to assess the family environment. The Psychiatric morbidity was assessed using DSM-IV criteria.

Group A & B were compared on the DIMS and Group A & C on the FQ and FCS. The data was statistically analysed using the paired 't' test and the chi-square test.

RESULT

Group A consisted of 17 males & 13 females, 29 students & 1 working adolescent and 17 from nuclear families & 13 from joint families. Group B matched Group A on sex, educational level, occupational status & type of family while. Group B matched Group A on minimum educational level & minimum duration diabetes.

On assessing the Impact of Diabetes in Group A and Group B, the subjects in Group B were influenced significantly more on the DIMS

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Ib and II subscales. Also the Total Impact Score was significantly higher in the adults (Table 1). The study of the effect of various sociodemographic factors on DIMS (sex, occupational status, educational level and type of family) revealed only the last parameter to produce a significant difference on the subscales DIMS Ia & Ib (Table 2). On studying the adult diabetics for possible factors contributing to a marked impact, accompanying physical illness and associated complications were revealed to

be significant (Table 3).

Comparisons between the two adolescent groups on the Fallstrom's Questionnaire revealed a significantly higher frequency of behavioural deviations i.e. school problems and peer problems in Group A (76.67% & 83.33% Vs 16.67% & 13.33% respectively in Group B). Analysis of parental attitudes towards rearing the child revealed a significantly higher number of responses on questions indicating an over-protecting attitude in the same group (Table 4).

On the FCS, the family environment of the adolescent groups did not differ significantly (47% in Group A Vs 66% in Group C had a favorable environment).

A significantly higher incidence of psychiatric morbidity was found in the juvenile diabetics (47% Vs 13.33% in normal adolescents) but irrespective of the family environment. Juvenile diabetics with and without psychiatric morbidity were compared next. A

TABLE 1
IMPACT OF DIABETES

	Group A (n=30)	Group B (n=30)	t value
DIMS Ia	7.0700	7.3033	0.96
DIMS Ib	6.8667	7.44433	3.59*
DIMS II	7.2733	7.6433	2.37*
DIMS III	7.3600	7.5333	0.95
DIMS IV	7.2700	7.3467	0.57
DIMS Total	7.1667	7.4877	2.67*

* p<0.05

TABLE 2
IMPACT OF DIABETES IN GROUP A

DIMS	Ia	Ib	II	III	IV	Total
1. Sex						
Male (n=17)	7.4353	6.9765	7.2471	7.2588	7.2471	7.2112
Female (n=13)	6.5923	6.7231	7.3077	7.4923	7.3000	7.1085
t value	2.00	1.19	0.31	1.10	0.44	0.76
2. Type of family						
Nuclear (n=17)	7.4706	7.0765	7.2941	7.3059	7.2529	7.2606
Joint (n=13)	6.5462	6.5923	7.2462	7.4308	7.2923	7.0436
t value	2.27*	2.49*	0.26	0.57	0.34	1.63
3. Occupation						
Students (n=29)	7.2517	7.1	7.2793	7.1176	7.2793	7.1676
Working (n=1)	7.5	7.1	7.1	7.1	7.0	7.14
p value	>0.05	>0.05	<0.05	<0.05	<0.05	>0.05

* p<0.05

TABLE 3
IMPACT OF DIABETES IN GROUP B

DIMS	Ia	Ib	II	III	IV	Total
Complications						
Present	7.6333	7.5867	7.64	7.5467	7.3867	7.7367
Absent	6.9733	7.3	7.6467	7.52	7.3067	7.3947
p value	<0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Physical illness						
Present	7.3750	7.4750	8.0438	7.9375	7.5135	7.7319
Absent	7.2214	7.4071	7.1857	7.0714	7.50	7.2086
t value	0.57	0.26	4.18*	3.30*	1.60	2.72*

* p<0.05

TABLE 4
PARENTAL ATTITUDES TOWARD REARING OF CHILD

	Group A (%)	Group B (%)	t value
Problems in child rearing	76.77	20	9.53*
Special instructions (>2)	30	70	12.14*
Protection from unpleasant experiences	63.33	50	0.00
Possibilities & limitations	96.67	43.33	12.24*
Age - away from home (10-12 years)	30	56.67	2.98
Spare time at home	83.33	23.33	20.16*

* p<0.05

TABLE 5
PSYCHIATRIC MORBIDITY IN GROUP A

	Present (n=13)	Absent (n=17)	t value
Complications +	9 (63%)	13 (76%)	p>0.05
Adherence to treatment regime	11(85%)	14(82%)	p>0.05
Glycemic Control	5 (38%)	9 (53%)	p>0.05
Reactivity to Stress	7 (54%)	12 (70%)	p>0.05
Family H/O DM+	6 (46%)	2 (11%)	p<0.05
DIMS Ia	6.8308	7.2529	0.98
DIMS Ib	6.9000	6.8412	0.28
DIMS II	7.7154	6.9353	5.93*
DIMS III	7.9077	6.9412	7.90*
DIMS IV	7.5231	7.0765	4.80*
DIMS Total	7.4223	6.9712	3.94*

* p<0.05

significant relation was observed between a positive family history of diabetes and presence of psychiatric morbidity whereas the same was not observed for the other illness variables (presence of complications, quality of adherence & quality of glycemic control).

Also, a significantly higher impact was noted on the DIMS II, III, IV & total scores in the diabetic adolescents with psychiatric morbidity (Table 5).

DISCUSSION

Studies all over the world have found diabetes to be a more difficult problem in the adolescents. The present study, on the contrary, revealed a greater impact on the adults on the subscales Ib, II & total scores (Table 1).

In the pilot study by the authors of DIMS, similar results were observed on the subscales

II & III (Aoki, 1992). Presence of symptomatic neuropathy has been found to be most strongly associated with depression and other mental disorders in diabetic subjects' (Vinamaki *et al.*, 1995) (Questions included in DIMS-II). At the same time, it remains possible that diabetes could confound the expression of depression in patients with more diabetic symptoms (Lustman *et al.*, 1992). A high incidence of sexual dysfunctions has been found in both male and female diabetics as a result of the illness (Fairburn *et al.*, 1982; Bancroft, 1982). The adult group in our study, marked this aspect more and higher on the DIMS-II. Concurrent hypertension has been studied to be a risk factor in the progression of vascular complications in diabetics (Fairburn *et al.*, 1982; Okada *et al.*, 1995). This importance of a concurrent chronic medical illness (like hypertension & IHD) is underlined in the present study by a higher score on the subscales DIMS II, III and total scores in the group of adult diabetics with a comorbid physical disease. Presence of complications produced a significant difference on the DIMS Ia, which includes questions pertaining to various complications (Table 3). Hence, the factors contributing to a marked impact on the adult diabetics observed here could be a longer duration of diabetes, chronic complication of diabetes and concurrent medical illness. On studying the type of complications, it was observed that the juvenile diabetics suffered more from acute complications (hypoglycemia & diabetic ketoacidosis) while the adult diabetics more from chronic complications (peripheral neuropathy, retinopathy, nephropathy etc). This observation corroborates with the study by Sachdeva & Chedha (1981).

Vaishnav *et al.* (1977) highlighted the difficulties faced especially by an Indian household, where presence of a joint family system may have every member reacting differently, depending on their psychological make-up that may worsen the situation. Our study, on the other hand, found a higher impact in the juvenile diabetics from nuclear families on DIMS Ia & Ib (Table 2). Reduced chance of

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discussion and expression of their problems could explain this.

Juvenile Diabetics contend with all usual issues of children of this age. Some of these issues are accentuated, some distorted and some made more difficult as a consequence of the altered physical and social experiences that accompany the illness. Despite good intellectual capacity, school problems are frequent and the social contact with classmates and friends are made difficult. This could account for the significantly higher frequency of behavioral deviations i.e. school and peer problems in the diabetic adolescents in this study. The school problems observed in our study were decline in school achievement and school absence. The juvenile diabetics are often excluded from many age-appropriate activities and interactions with peers because of frequent illness episodes, functional restrictions and reactions to peer and parents. This may lead to a heightened sense of social isolation and inadequacy. This in turn may lead the juvenile diabetic to develop behaviors that evoke more negative responses in social contacts than the disease itself, thus forming a vicious cycle (Weitzman, 1984). Studies have reported a high frequency of maladjustment in diabetic children (Fallstrom, 1974; Koski et al., 1970). Nerurkar et al. (1989) found 10 out of 40 children evaluated to be affected academically. Lower frequency of problems in normal adolescents was found by Johnson & Kalvesten too (1960), in a group of unselected school boys aged 7-15 years in Stockholm.

For the child, parents are the key to the adjustment. For a child who is already suspecting that there is something wrong, it is a reassurance if he sees parents taking the situation in their stride. Answers indicative of an overprotective attitude were significantly more frequent among parents of diabetic adolescents (>2 instructions, knowledge about possibilities and limitations, preference to have the child at home during the spare time) on the FQ (Table 4). A diagnosis of Diabetes has been postulated to lead to a feeling of 'guilt' in parents and subconscious rejection of 'defective' child. Also a difficulty in disciplining

a juvenile diabetic adds to parental anxiety and guilt about their child rearing abilities (Jacobson et al., 1994; Laron et al., 1985; Sullivan, 1979; Wishner et al., 1978). The result is 'overprotection' of the child at one end and other 'neglect' at the other (White, 1971). The overprotective attitude has been correlated to cerebrolésional and perceptual disturbances in the child (Fallstrom, 1974). Such a correlation needs to be explored in further studies.

The next facet to be studied was the family of these adolescents. In the present study there was no significant difference in the family environment of both the adolescent groups. Quality of home environment has been quoted to be a significant factor in determining emotional disturbances among adolescents (Dhoundiyal, 1984). A significantly higher incidence of psychiatric morbidity was observed in the juvenile diabetics but irrespective of the family environment. This may imply the additional role played by the illness by itself in the development of psychiatric morbidity. Also, an overprotective attitude is said to facilitate emotional disturbances among adolescents. The psychiatric disorders observed in the present study were adjustment disorders, anxiety and depression. Canning (1994) quoted a high prevalence of mental disorders, in children with chronic illnesses as juvenile diabetes. Despite the best care, there may be a spiral deterioration of the medical problem or enlarging impact of the illness as the child grows (Stein & Jessop, 1984). Nerurkar et al. (1989) found 25% of his study population of 40 juvenile diabetics to be affected by anxiety and 30% by depression. There have been various reasons for depressive symptoms cited as physiological and/or psychological characteristics predisposing them to depression, tight glycemic control, means of achieving good glycemic control, feelings of loss of coping abilities, lack of personal reward, dependence on clinic, family difficulties and family history of mental/physical disorders (Cox, 1994).

Juvenile Diabetes has been described as the manipulator's delight because the control of illness is greatly dependent on patient behaviour (dependent on patients mental state) through

adherence to treatment regime, monitoring blood and urine glucose levels and reactivity to stress (Kaminer & Robbins, 1988). However, the present study did not reveal any significant influence of psychiatric morbidity on these aspects (Table 5). The role of positive family history of diabetes in making the family environment unfavourable cannot be denied (Kirk & Savage, 1985). This could be an important factor towards development of psychiatric morbidity and hence towards the significant difference observed. Disturbed family environments are usually associated with poor diabetic control too (Minuchin et al., 1975).

Also, presence of psychiatric morbidity was found to be significantly related to the impact of the illness especially on DIMS-II, III, IV and total scores (Table 5). Hence the cause-effect relation between family and psychiatric morbidity and the illness itself in a Juvenile Diabetic is very difficult to interpret (Johnson & Rosenbloom, 1982). The above discussion highlights the important role played by each factor in itself and the indisputable interactions between them.

In conclusion, the illness produced greater impact on the adults than the adolescents. But, these adolescents suffered from more behavioral deviations and their parents had a more overprotective attitude towards them as compared to normal adolescents. An increased incidence of psychiatric morbidity was also observed in the same group irrespective of the family environment. Also, presence of psychiatric morbidity produced significant differences on the impact of the illness. But in the present study, the two adolescent groups were matched for all sociodemographic variables. Whether a variation in these would lead to a difference in the incidence of behavioral deviations and parental attitudes warrants further study.

A family whose adolescent has diabetes can teach us about living with an adolescent with any chronic condition. Also for the juvenile diabetic, peer group counselling sessions focussed on attitudes towards diabetes, may be an effective approach.

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