



Psycho-social Issues among Adolescents with Diabetes Mellitus: Experience from Two Nigerian Hospitals.

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KEYWORDS

ADOLESCENTS,
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ABSTRACT

Background: Diabetes mellitus is known to have adverse effect on the psycho-social functioning of the adolescent but its magnitude is poorly documented.

Objective: To describe the psychosocial issues observed among Nigerian adolescent diabetics attending the Paediatric outpatient clinics of two Nigerian hospitals.

Methods: In this cross-sectional study, information was obtained via an interviewer-administered questionnaire from 33 adolescents with diabetes mellitus attending Paediatric Clinics of two Nigerian hospitals. The socioeconomic status of the families of the subjects was assessed as well as their knowledge and attitudes towards diabetes mellitus.

Results: Over one-third of the families (33.6%) of the participants were of low socioeconomic status. The aspect of the treatment which majority (75.8%) of the subjects disliked most was the insulin injection. Delayed menarche and short stature occurred in 15.8% and 9.7% of cases respectively. The two obese adolescents with type 2 diabetes were skipping meals as a strategy for weight reduction. Majority (93.5%) of the participants stated they were not enjoying things the way they used to before the diagnosis of diabetes.

Conclusion: Psychosocial challenges are common among adolescents with diabetes mellitus, indicating the need to assist the patients and their families in adapting to the psychosocial burden of the disease.

Key words: Adolescents, diabetes mellitus, psychosocial issues, knowledge, attitudes.

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INTRODUCTION

Adolescence is the transition period before adulthood and it is categorized into three phases; early (10-13 years old), middle (14-16 years old) and late (=17 years old) because of the rapid physical, emotional, cognitive and social development that characterize this period.¹ The World Health Organization (WHO) considers individuals between the age of 10 and 19 years as adolescents.²

Although most diabetic children are physically fit and have few somatic symptoms, the psychosocial impact of the disease is ubiquitous, involving the entire family, the schools and the society.³ This

psychosocial impact include financial cost of diabetes care, misunderstandings, external influences such as acceptance or rejection of the patient by peers and the needs imposed by the disease itself.³ It is estimated that adjustment to the diagnosis of diabetes takes 6-9 months for children and 9-12 months for parents.⁴ In this context, therefore, diabetes mellitus is one of the most difficult clinical problems in adolescent medicine because the control of the hyperglycaemia involves alterations, restrictions and intrusions into essential aspects of the daily life of the patient as well as that of the family.⁵ As a

result, psychological issues of dependence/independence as well as compliance/adherence become, increasingly, areas of conflict not only between the adolescent diabetic and his parents, but also, between the adolescent diabetic and his healthcare providers. The unique features of adolescent diabetics in relation to other chronic diseases are the incessant demands it makes on the patients and families for self-care and the clinical decision-making responsibilities it hurls on the patient almost immediately after diagnosis.⁵ Although the complexity of the relationship between diabetes mellitus and psychosocial functioning in adolescents has been recognized, there is no single tool for screening for psychosocial functioning in adolescents with diabetes.⁶

Reports of earlier studies indicated that children and adolescents with diabetes mellitus are prone to a variety of psychological disorders with a prevalence ranging from 12 to 83%.⁷⁻⁹ This is because the therapeutic regimen in diabetes are highly intrusive, inducing dependency and lack of flexibility when the natural tendency of adolescence is geared toward independence and increasing flexibility of lifestyle.^{10,11} In Nigeria and other developing countries with poor health and social welfare facilities, the heavy economic burden of diabetes care is borne entirely by the patient and his family.¹² An earlier study in Nigeria have reported that many patients and their families have a great deal of difficulty paying for medical treatment out of their pockets.¹³ Given the strong link between diabetes and emotional distress reported even from developed countries where there is abundant opportunities for treatment and care,^{8,9} the emotional condition of similar patients in Nigeria where the healthcare system is poorly developed with impoverished population becomes unimaginable. Although some studies in Nigeria have acknowledged the socio-economic impact of diabetes, such studies were conducted decades ago and involved only adults.^{14,15} Consequently, there is a general paucity of information on psychosocial issues as it relates to the Nigerian adolescent diabetic.

The purpose of the present study is to describe some psychosocial issues observed among adolescents with diabetes mellitus attending the Paediatric clinics of the University of Benin Teaching Hospital (UBTH) and St Philomena Catholic Hospital (SPCH), Benin City. Hopefully, this will further sensitize diabetes-care providers to the psychosocial challenges faced by their patients, leading to more effective counselling and better glycaemic control.

MATERIAL AND METHODS

The study involved all the adolescents (aged between 10 and 19 years) with diabetes mellitus who were attending the Paediatric Clinics of the University of Benin Teaching Hospital (UBTH) [Endocrinology clinic] and St Philomena Catholic Hospital (SPCH), Benin City between September, 2011 to August, 2012. Ethical clearance was obtained from the Research and Ethics Committee of UBTH and permission to conduct the study was obtained from the hospital authority of SPCH. The data were obtained using a structured interviewer-administered questionnaire. The questionnaire sought information on the social situation of the patient and their families, knowledge and attitudes of the patients about diabetes. The height and weight values were determined by direct measurement and the body mass index (BMI) was calculated, using the formula weight (kg)/height (m²). Individuals with BMI = 95th percentile for age and sex were considered obese, using the National Centre for Health Statistics criteria.¹⁶

The socio-economic status of the patients' parents was determined using the criteria suggested by Ogunlesi et al.¹⁷ This was determined by combining the highest educational attainment, occupation and income of the parents (based on the current mean income of each educational qualification and occupation in Edo State). In this Social Classification System, Groups I and II represent high socioeconomic class, Group III represents middle socioeconomic class while Groups IV and V

represent low socioeconomic class. In this way, the subjects were categorized into high, middle and low socioeconomic classes.

Knowledge about diabetes and its treatment was assessed based on questions on signs and symptoms, diabetic diet, physical exercise, insulin, self monitoring of blood glucose, and acute complications of diabetes mellitus. The subjects were also asked what they disliked most in the treatment of diabetes and whether or not they would like to tell their friends they have diabetes and whether or not they enjoyed things the way they used to before the diagnosis of diabetes. Their perception of their health status was also assessed. Where applicable and appropriate, descriptive statistics such as frequencies, means, ratios, standard deviations, confidence intervals, percentages were used to describe all the variables.

RESULTS

Over a period of 12 months, 33 adolescents with diabetes mellitus were interviewed. Thirty one (93.9%) of them had type 1 diabetes mellitus (T1DM) while the remaining two (6.1%) had type 2 diabetes mellitus (T2DM). The two patients with T2DM were females aged 14 and 16 years respectively and each of them was obese with positive family history (maternal side) of diabetes mellitus. The mean body mass index (BMI) of those with T1DM compared with those with T2DM was 18.6 ± 2.4 versus 33.5 ± 2.9 kg/m². The two patients with obesity and T2DM were noted to be skipping meals as a strategy to achieve weight reduction. Physical examination revealed acanthosis nigricans in one of two patients with T2DM for which she was applying some topical medication. The two patients with T2DM rated their health status as good but expressed concern about body image because of their weight. The socio-demographic characteristics of the subjects from the two hospitals were similar and were therefore combined and depicted in Table 1. Over half of the families (55.1%) of the subjects were

from the middle socioeconomic status. Concerning the importance of exercise in the diabetes care, over one-half (54.5%) of the patients did not know the importance and nearly one-fifth (18.2%) stated categorically that it is not important (Table 1). At least, 9 out of every 10 patients (93.5%) appreciate the important role of diet in diabetes care (Table 1). Among the study subjects, there was a female preponderance, 1.8:1 (Table 1). As shown in Table 2, over half (61.3%) stated they could not afford insulin regularly. Over two-thirds, stated they cannot afford test strips regularly (Table 2). At least, 9 out of every 10 patients administered insulin to themselves without parental supervision either most of the time or sometimes (Table 2). In response to the question "is there anything you particularly do not like in the treatment?" 23 patients (74.2%) answered "the insulin injection" followed by "dietary restriction" in the remaining 8 cases (25.8%). One-tenth of the patients admitted they were worried about their short stature and another one-tenth were worried about delayed menarche (Table 2). As depicted in Table 2, 8 out of every 10 patients will not like to tell their friends they have diabetes while at least, 9 out of every 10 stated they do not enjoy things as they used to before the diagnosis of diabetes. With regard to acute complications of diabetes, 20 of 31 patients (64.5%) mentioned hypoglycaemia. Only 9 patients (29.0%) mentioned ketoacidosis and they related it to a mode of presentation at time of initial diagnosis of diabetes. None of the patients withdrew from school or trade for frequent illnesses. Two of the 31 patients (6.4%) with T1DM missed their Senior School Certificate Examination and had to sit for it the following year. Only in 2 out of 33 (6.1%) cases did the father accompany the child to the clinic. In majority of cases, the patient either attends clinic alone or is accompanied by the mother. The responsibility of administering insulin was shifted to the patient right from discharge from hospital in 25 out of 31 (80.6%) cases. Where there was supervision of insulin administration, it was performed either by the mother or an elder sister.

Table 1: Socio-demographic characteristics of 33 Nigerian adolescent diabetic patients.

SOCIO-DEMOGRAPHIC VARIABLES	FREQUENCY (%)/STATISTICS
GENDER	
Female	21(63.6%)
Male	12(36.4%)
Female-to-male ratio	1.8:1
Mean age at onset of diabetes	12.3±3.1 years (95% CI=11.2-13.4)
Mean duration of diabetes	26.4±24.7 months (95% CI=18.0-34.8)
SOCIO-ECONOMIC STATUS (SES) OF THE FAMILIES:	
-High SES	11.3%
-Middle SES	55.1%
-Low SES	33.6%
Is physical exercise important in diabetes care?	
-Yes	27.3%
-No	18.2%
-I do not know	54.5%
Is diet important in diabetes care?	
-Yes	93.5%
-No	6.5%
Mean frequency of monitoring blood glucose at home.	1.2±0.5 times per day (95% CI=1.0-1.4)

Table 2: Psychosocial issues in 31 Nigerian adolescents with type 1 diabetes mellitus.

PSYCHOSOCIAL VARIABLES	FREQUENCY (%)
Are you able to afford insulin regularly?	
-Yes	12(38.7)
-No	19(61.3)
Do you have a personal glucose meter?	
-Yes	21(67.7)
-No	10(32.3)
Are you able to afford test strips regularly?	
-Yes	9(29.0)
-No	22(71.0)
Do you administer insulin to yourself without parental supervision?	
-Most of the time	19(61.3)
-Sometimes	10(32.3)
-Never	2(6.4)
Worried about pain from twice daily insulin injection	28(90.3)
Worried about growth (shorter than peers)	3(9.7)
Delayed menarche (Number of females=19)	3(15.8)
Will you like to tell your friends you have diabetes?	
-Yes	6(19.4)
-No	25(80.6)
Do you think SMBG* at home is important?	
-Yes	18(58.1)
-No	9(29.0)
-I do not know	4(12.9)
Your assessment of support from parents:	
-Good	10(32.3)
-Fair	16(51.6)
-Poor	5(16.1)
Are you following any special diet?	
- Yes	18(58.1)
-No	13(41.9)
How will you rate your health?	
-Good	11(35.5)
- Fair	18(58.1)
- Poor	2(6.4)
Do you enjoy things as you used to before diagnosis of DM?	
-Yes	2(6.5)
-No	29(93.5)

*SMBG= *Self monitoring of blood glucose*

DISCUSSION

Data from the present study indicate that most of the adolescent diabetic patients have at least one psychosocial challenge or the other. Other studies, both in developed and developing countries, yielded similar results.^{18,19} This situation is buttressed by our finding that majority (93.5%) of the patients stated that they have not been enjoying things as they used to before the diagnosis of diabetes mellitus. The negative impact of diabetes on quality of life of the adolescent diabetic has been reported in previous studies,²⁰ thus emphasizing the high frequency of psychosocial challenges confronting adolescents with diabetes mellitus. It is noteworthy that the two girls with T2DM were obese, had positive family history of diabetes and were skipping meals as a means of achieving weight reduction. This not surprising as similar finding has been reported in other studies.^{21,22} However, meal skipping is an unhealthy eating habit capable of upsetting the metabolic control.^{22,23} In keeping with previous studies in Nigeria^{24,25} and other African countries,^{26,27} the present study showed that there was a female preponderance. The explanation may be found in the report of Bloch et al²⁸ who postulated that there was a relative increased incidence in females at the time of puberty due to the pubertal growth spurt induced by gonadal steroid together with increased pubertal growth hormone secretion, antagonizing insulin action and unmasking evolving diabetes. This view is supported by our finding that the mean age of the study population was 12.3 years, coinciding with the age of puberty.

In the present study, only one-tenth of respondents were from families in the high socioeconomic strata, suggesting that majority of the patients came from poor families. This is not surprising as a similar social situation has been described in other Nigerian studies.^{13,18} This low socioeconomic status of the respondents in the present study is further buttressed by our finding that two-thirds of the patients stated that they could not afford insulin and test strips regularly. These are two key requirements for achieving a meaningful glycaemic control and

depicts a picture of the difficulties experienced in endocrine practice in developing countries. Families in the low SES might have greater difficulty in changing dietary habits to accommodate the needs of a family member with diabetes.

The aspect of the treatment which the patients disliked most was the daily insulin injections because of pain. Its prominence as a nuisance had been reported in earlier studies.²⁹ Although insulin is essential for survival in adolescents with insulin-dependent diabetes mellitus, the need for daily injection represents a constant reminder of the presence of a chronic disease capable of stimulating a feeling of disability and inadequacy. In this regard, it may elicit in the individual a negative effect on self-esteem. The clinical implication is that during puberty with the associated rapid growth the amount of insulin required might change, necessitating frequent hospital contacts in order to adjust the insulin dosage. The resultant increased restriction and intrusions in the way of life of the adolescent is in direct conflict with the basic developmental concepts of personality structure, such as body image, the ego structure and the identity process which are the principal pre-occupation of adolescents.³⁰ Such developmental conflict may engender rebelliousness and non-compliance with medical advice, resulting in poor glycaemic control and ultimately, increased risk of acute and chronic diabetic complications.

One out of every seven (15.8%) and one out of every ten (9.7%) cases expressed anxiety concerning delayed attainment of menarche and short stature respectively. This finding is not surprising as it is well documented in literature.⁵ In a sense, insulin can be regarded as a growth hormone. As a consequence, inadequate insulin replacement results in poor growth and slow adolescent development. It is, therefore, not surprising that delayed attainment of menarche is a common complaint in poorly controlled diabetic adolescent females. Recording of Tanner stages during clinic follow-up visits allows for assessment of rate of progress through adolescence. The complaint concerning short

stature emphasizes the importance of accurate recording of height and weight at each clinic visit and plotting of these data on an appropriate growth chart. A declining growth rate calls for initiation of evaluation for the cause.

Parental support was rated as poor in one out of every six cases (16.1%). Interestingly, the mothers played more intensive role than fathers in the home management of their diabetic children, suggesting the need for greater concordance between the father and the mother with regard to diabetes care issues. Such concordance has been linked to better metabolic control. Support may be related to better metabolic control through a “buffering” effect of some sort which protects the affected adolescent from potentially harmful effects of stressful experiences. In the literature, there is evidence that availability of family support inhibits autonomic sympathetic activity in response to stress, reducing free fatty acid production and promoting a better metabolic control.³¹

In conclusion, psychosocial challenges are common among adolescents with diabetes and include poverty, body image concern, delayed menarche, short stature, and the pain associated with twice daily insulin injections. It is suggested that diabetes-care providers should assess their patients for psychosocial challenges, both at the time of diagnosis and periodically thereafter, to allow for more effective counselling and better glycaemic control.

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