Children with sickle cell disease who are experiencing psychosocial problems concurrently with their mothers: a Nigerian study

MF Tunde-Ayinmode
Department of Behavioural Sciences, University of Ilorin Teaching Hospital, Ilorin, Nigeria

Abstract
Objective: The objective of the study was to identify children with Sickle cell disease (SCD) who are experiencing psychosocial problems concurrently with their mothers; and comparing the dyads to determine correlation, pattern of correlation and to identify correlating or modifying factors. **Method:** The psychosocial impact of Sickle cell disease in affected children and their mothers was assessed using semi-structured questionnaire and standardized instruments (The Child Behaviour Questionnaire (CBQ) - Parents' version or Scale A2) for the children and Self Reporting Questionnaire (SRQ) for their mothers) Children with bronchial asthma and some with acute medical illnesses (AMI) and their mothers who were also assessed with the same instruments served as the control population. **Results:** There was significant correlation between children who were probable cases with psychological problems based on Child Behaviour Questionnaire (CBQ score of ≥7) and corresponding mothers who were probable cases with psychosocial problems based on Self-Reporting Questionnaire (SRQ score of ≥5).Although there were some group-specific factors that influenced this pattern (child and mother having psychosocial problems concurrently) in one or 2 groups of these diseases, none cut across the 3 groups. **Conclusion:** In psychosocial management of physical illnesses, assessment and care should include a focus on families rather than on the affected individual only. In addition, identifying emotional and social dysfunction in a family member should lead to a search in other members; in this way primary prevention or control can effectively be carried out. Finally, identifying more modifiable factors that positively influence this pattern in which child and mother experience psychosocial dysfunction concurrently should be the urgent task of future and larger studies in this environment.

Keywords: Concurrent; Child; Mother; Psychosocial problems; Sickle cell disease

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Introduction

Sickle cell disease (SCD) is one of the commonest chronic medical condition affecting children in Nigeria, with an incidence of about 2-3%.[1,2] It is estimated that 2-3 million Nigerians have SCD[3], with adverse psychosocial impact on affected children and their families.

Sickle cell disease consists of a group of genetic disorders characterized by the simultaneous inheritance from both parents of sickle cell genes. The genotype that constitutes SCD, and of primary importance in Africa, are the homozygous sickle cell disease (Hb SS) also called sickle cell anaemia and the heterozgous diseases in which Hb S exists in association with another abnormal haemoglobin (Hb) namely sickle cell Hb C disease (Hb SC), Sickle cell thalassaemia disease (SThal), and Sickle cell high persistent foetal haemoglobin disease (S-HPFH).[1,4]

The tripartite interaction between the patient, their disease and their social environment including the family, is dynamic and fraught with risks of maladjustment.[5-8] Chronic physical illnesses are known to provoke psychosocial dysfunction in affected children and their

Correspondence
Dr MF Tunde-Ayinmode
PO Box 693, Ilorin, Kwara State, Nigeria
email: mosunmolaflorence@yahoo.com

families.[5-11] Some factors recognized as mediating psychosocial dysfunction in physical illness include: nature and severity of disability caused by the disease; mode of management; and degree of social restriction imposed by the disease on the patient, and their family.[7] Childhood physical illness impacts greatly on family functioning[12-14]; by virtue of its central role as a socializing agent, the structure and functioning state of the family can affect, and be affected by a child's physical illness.[11-15]

Existing literature on adjustment to physical illnesses indicate that mothers are relied on to provide vital information about the family. This is because mothers are more involved in the daily care of their children, and hence their knowledge about health and how this affects the family. Mothers more often accompany their children to the clinics than fathers[7], and are therefore in a position to give a better description of the burden of the illness on their families. By virtue of these roles, mothers are more likely going to bear a substantial portion of the psychosocial impact of the disease on the family.

The psychosocial impact of physical illness is a dynamic process, which may replicate. When an individual behaves in a way to change an impact he may simultaneously create another. For example the taking on, of extra work by mother of a SCD child to reduce the financial burden of SCD may mean an increased risk of physical, social and emotional neglect of her family with consequent marital disharmony. Psychosocial impact is considered an issue because it may cause significant distress.[6,16]

Family maladjustment in SCD resulting from disruptions in the accustomed form and role of social interaction, and accompanying psychological tension in the family and its members, has been well documented.[12,13,17,18] The social constriction associated with caring for the affected child may encroach on the quantity and quality of parental care available for the siblings, with attendant risk of sibling jealousy; while parents' attention for one another may be compromised, and this may in turn increase the risk of marital disharmony.

Furthermore, other social issues like work absenteeism and divided interest in the work place could play out in the life of affected parents further aggravating a difficult situation. Sometimes financial difficulties or even job loss may occur with serious social consequences.[12,14,18,19] In addition to these social complications, the psychological burden for affected parents could also be substantial: anger, grief, depression, resentment, guilt and fear of early death of affected children are examples of possible psychopathology reported.[12,14,18,19]

Family risk factors for psychiatric disorder in childhood are multiple and additive.[20,21] The risk of psychiatric disorder increases with the number of such family's adverse factors as marital discord, low social status, large family size and parental psychiatric disorders.[21-24] It has been reported that children with two family risk factors have a fourfold increase in rate of disorder.[21]

Rates of psychological disorders are higher in children of mothers with mental illness than children of healthy mothers because of less stimulating environment and/ or less quality of parenting caused by these conditions.[25,26] It can thus be concluded that maternal risk factors reasonably contribute to psychosocial morbidity in children.

In terms of risks of maladjustment, children with physical illnesses whose mothers have psychosocial problems should be more prone to psychosocial maladjustment because they now have a twofold risk (the disease, and the psychosocial problems in their mothers). The parallel should also be true for mothers whose children are found to have psychosocial problems; they should also have a twofold risk of maladjustment. Mothers who have psychosocial problems independent of their children's illnesses could aggravate dysfunction in their physically ill children with psychological disorders. Such child-mother dyad may thus have a triple burden.

Several studies of psychosocial problems of SCD children using standardized instruments have compared them with healthy controls or with children with other chronic disorders.[2,12,27,28] However, few, if any have compared them with their mothers, suggesting that child-mother dysfunction in physical illnesses needs more attention than it presently enjoys. Generally, reports suggest that a reciprocal relationship may in fact exist between children and their mothers when it comes to psychosocial dysfunction.[23-25] In other words, children and their mothers are more likely to have psychosocial problems concurrently. It is this potential concurrent relationship that this study set out to investigate in sickle cell disease afflicted families.

This study was derived from a parent study[29] aimed at assessing the psychosocial problems experienced by children with SCD and their families. It reports the findings of the comparison of psychosocial problems of children who have SCD with controls that have bronchial asthma and acute medical illnesses on one hand and psychosocial problems of their mothers on the other hand.

The study sought to establish whether psychosocial dysfunction in children, correlated significantly with dysfunction in corresponding mothers reasonably enough to suggest concordance, and whether there were any modifying factors involved in this pattern.

Methods

Recruitment and selection of samples

The parent study[29] was a controlled investigation involving 100 SCD children, 75 children with bronchial asthma (asthmatics); and some with acute medical conditions (AMI children). These conditions were mostly malaria fever, acute upper respiratory tract infections, acute urinary tract infections, etc. The study also included their mothers. The former was the study group while, the latter two were the control groups. It was carried out at the University of Ilorin Teaching Hospital (UITH) Ilorin, Nigeria. The children were recruited from the Paediatric SCD, and Chest clinics and the Paediatric unit of the General Outpatient Department (GOPD) of the hospital. The GOPD is essentially a primary care unit since all patients visiting the hospital are seen here first, except

accident and emergency cases.

All consecutive children aged 7-14years and their biological mothers visiting the above clinics, during the period of the study that met the inclusion criteria and gave consent were assessed. Inclusion criteria for study group included: (i) evidence that children have been in steady state (no crises) at least for the two months preceding the study and (ii) that the diagnosis of SCD was confirmed by Haemoglobin Electrophoresis;

For the bronchial asthma group the inclusion criteria included: (i) evidence that the children have not had an attack in the two months preceding the study; and (ii) that the diagnosis of asthma was made at least one year to the time of the study;

For the AMI group the only criterion was that the children did not have SCD, Asthma or any other chronic illness or life threatening condition; all these were excluded on clinical ground. The absence of a history of, and clinical features of sickle cell disease was used to exclude SCD in the asthma and AMI groups. This was done based on knowledge of the natural history of the disease that affected children are unlikely to lack the typical clinical features of the disease by primary school age[27]; which is the lower age limit for this study. This study was approved by the ethics committee of the University of Ilorin Teaching Hospital.

Instruments

The Child Behaviour Questionnaire (CBQ) - Parents' version or Scale A2)[30] and the Self-Reporting Questionnaire (SRQ)[31] were used to assess for psychological problems in the children and in their mothers respectively. Also used was a semi-structured questionnaire developed by the author to gather information on socio-demographic characteristics of the children and their mothers and the effect of the disease on their level of physical, psychological, social and family functioning as guided by existing literature on the subject.[12-14,17,18] Information sought include among others hospital consultation patterns, school days missed per term , hospital admissions, interference with play, domestic work, experiences of discrimination, feeling of inferiority, fear of failure in life and of death; and the effect of illness on family members and on interactions and the nature and degree of support available.

The responses to the questions on social and family functioning were rated as ''not at all'' or ''a little'' or ''moderately'' or ''severe''. All questions were answered by the children's mothers; except for those on psychosocial functioning in the semi-structured questionnaire which the children answered.

The Child Behaviour Questionnaire (CBQ) is a widely used 31-item screening instrument, which investigates the child's behaviour in the previous 12 months. It has been found to be acceptable, applicable, reliable and valid in different treatment and epidemiological settings.[32,33] The parent is asked to indicate the extent to which the statement applies to the child, the frequency of occurrence of the behaviour or the degree of its severity. Each item is rated 0-2, (0: does not apply, 1: apply somewhat, 2: certainly apply). This produces a total score within the range of 0-62. The content evaluation of the emotional and behavioural disorders of childhood by CBQ reveals three clinical diagnostic categories: neurotic, antisocial and mixed disorders.[32]

According to Rutter[37] in the original study children who scored a total of 13 or more (which is the optimal cut-off point) are designated as showing some disorder. The optimal cut-off point is therefore the threshold score from and above which a child is considered to have psychiatric disorder. An optimal cut-off 7 arrived at in a validation study by Omigbodun[34] was used in this study. Omigbodun's study was conducted in a General outpatient department (GOPD) setting among predominantly Yoruba-speaking people who live in a setting similar to that of the present study. The study found the optimal cut-off point of 7 as the threshold score that gave the best trade-off between a high sensitivity and a low false positive rate, at this threshold, sensitivity was 0.61 and specificity was 0.74.

The SRQ was constructed for use in the WHO study on strategies for extending mental health care and was especially designed for screening of psychiatric disturbances in the primary care setting.[31] The SRQ-1 or 20-item version was used, each item in the questionnaire is answered 'No' or 'Yes' and has a score of 0 or 1 respectively.

SRQ I, was validated in a primary care setting in rural South Western Nigeria and found to effectively discriminate between patients with and without psychiatric morbidity.[35] This was best done at an optimal cut-off score of 5, which has the optimal sensitivity of 98.8% and specificity of 90.9%.[35] This optimal cut-off point of 5 was also adapted[36] in a study for assessing the prevalence of psychiatric morbidity among attendees of five primary health care centres in five towns of a rural Local Government Area in South Western Nigeria. Based on the similarities in the setting of this study and the present one an optimal cut-off point of 5 was used.

Instrument translation and pilot-testing

Translation of the instruments and questionnaire to the local Yoruba language and back-translation to English language was undertaken; and the few areas of disparity were harmonised. Both versions of the instruments were pilot-tested using 25 children (10 with SCD, 5 with Asthma and 10 with AMI) selected from two hospitals (other than UITH) in Ilorin. The pilot-testing exercise revealed that most of the items on the measures were comprehensible and easy to complete, and could be administered within 20 to 30 minutes. The author and two trained assistants administered the instruments.

Data analysis

Data analysis was carried out using EPI-info version 6. Simple frequency tables were obtained and chi-square tests were performed to determine significant differences between various variables and correlates. The preliminary analysis of the rating of effects on the semi structured questionnaire (''a little'', ''moderately'', ''severe'') yielded invalid chi-square results (that is at least one expected value was less than 5) hence, the effects were merged into ''no effect'' and ''some effects''. Statistical significant difference was set at a ''p'' value < 0.05.

Results

A total of 250 mothers (100 of SCD children; 75 of Asthmatics, 75 of children with AMI) consented to participate in the study along with their affected children brought to the clinics. A few mothers (11 of SCD children; 4 of Asthmatics and 9 of children with AMI) declined participation on the grounds of lack of interest, and or time. The diagnostic categories of the AMI children include: malaria 64%, acute respiratory tract infections 21% and others 15% (acute urinary tract infections, conjunctivitis, acute tonsillitis and so on). There was no significant statistical difference for socio-demographic characteristics of the children and their mothers across the three disease groups; meaning that they were similar, and therefore, comparable (Table I).

Table I: Socio demographic characteristics of the children and their mothers for both study and control groups

VARIABLES		*SCD* *n*	*Asthma* *n*	*AMI* *n*
Children's age group (years)	7 – 10	49	40	39
	11 – 14	51	35	36
Children's Gender	Male	52	40	41
	Female	48	35	34
Children's level of education	Primary	49	40	39
	Secondary	51	35	36
Birth order	First	15	16	18
	Middle	45	39	40
	Last	40	20	17
Person with whom child resides (current custody)	Both parents	80	64	73
	Mother only	16	7	2
	Others	4	4	0
Children's CBQ scores	≥7 (cases)	30	19	15
	<7 (Non-cases)	70	56	60
Mothers' age group (years)	25-30	9	10	17
	31-35	19	22	14
	36-40	37	20	27
	>40	35	23	17
Mothers' level of education	None	38	24	20
	Primary	21	12	18
	Secondary	25	30	22
	Tertiary	16	9	15
Occupational group of mothers	Skilled	17	14	17
	Semi-skilled	22	25	22
	Unskilled	61	36	36
Mothers' marital status	Not currently married	7	5	1
	Married	93	70	74
Mothers' years of marriage	<10years	6	7	9
	10-20years	61	47	50
	>20years	32	20	16
Type of family	Monogamy	60	51	53
	Polygamy	40	24	22
Mothers' number of children	≤5	75	53	53
	6-10	25	22	21
	>10	0	0	1
Mother SRQ Scores	≥5 (Cases)	28	15	19
	<5 (Non-cases)	72	60	56

N=Total number of children or mothers in each disease group (SCD=100, Asthma=75, AMI=75)
n= distribution of N in the variables examined

The pattern of selected psychosocial effects of the diseases on the children and their mothers was fairly similar across the disease groups, except that the effects appeared to be somewhat most frequent and severest in the SCD group compared to the controls (Tables II and III). Data from these Tables (II and III) provide evidence that all the diseases have some effect on the children and their mothers

There was a statistically significant association between the children with CBQ score ≥7 and mothers with SRQ scores ≥5 across the disease groups and when the groups were combined (SCD :13 of 28/ p=0.046; Asthma: 7 of 15/ p=0.047; AMI: 10 of 19/ p=0.000 and all groups Combined: 30 of 62/ p= 0.000) (Table IV).

In addition, among the maternal variables tested, family type had significant association with the children's psychological morbidity in the control groups and when all the groups were combined (Asthma p=0.014; AMI: p=0.022 Combined: p= 0.000) (Table IV).

Also there was significant association between children who were probable cases of psychiatric disorders, and

Table II: Some psychosocial effects of SCD on the children in comparison with the control groups

VARIABLES		*SCD* n	*ASTHMA* n	*AMI* n	*P Value*
CBQ Scores	≥7 <7	30 70	19 56	15 60	0.324
Average school days missed per term	0-1 ≥2	39 61	67 8	68 7	0.000
No. of hospital visits in 6 months	0-1 ≥2	36 64	61 14	59 16	0.000
Previous hospital admissions	None 1 ≥2	24 23 53	61 11 3	67 5 3	0.000
Interference with daily play activities	Yes No	67 33	45 30	29 46	0.000
Interference with domestic activities	Yes No	57 43	37 38	28 47	0.036
I feel I am a burden to my family	Yes No	33 67	19 56	10 65	0.012
I feel I have given my family a bad image	Yes No	8 92	4 71	2 73	0.313
I feel that people bother me a lot	Yes No	27 73	10 65	9 66	0.016
I feel people discriminate against me	Yes No	25 75	13 62	10 65	0.135
I feel my classmates see me as different	Yes No	32 67	14 61	5 70	0.000
I find it difficult making friends	Yes No	10 90	2 73	3 72	0.089
I feel I have bad luck	Yes No	29 71	3 72	4 71	0.000
I feel am inferior to other children	Yes No	33 67	9 66	1 74	0.000
I feel I am not likely to achieve much in life	Yes No	23 77	4 71	3 72	0.000
I am afraid I may die any time	Yes No	47 53	22 53	10 65	0.000

N= Total number of children in each disease group (SCD=100, Asthma=75, AMI=75)
n= distribution of N in the variables examined

Table III: Psychosocial effects of SCD on the mothers of Sicklers (SCD) in comparison with the mothers of children in the control groups

VARIABLES		*SCD n*	*Asthma n*	*AMI n*	*P Value*
Mother's SRQ score	≥5 (cases) <5 (Non-cases)	28 72	15 60	19 56	0.475
Financial effect	Yes No	94 6	58 17	39 36	0.000
Time Consumption	Yes No	89 11	48 27	38 37	0.000
Disease preventing enjoyment of life	Yes No	59 41	21 54	17 58	0.000
Ignoring the rest of the family to care for patient	Yes No	53 47	17 58	14 61	0.000
Feeling that other children resent the time spent with the patient the time spent with the patient	Yes No	17 83	9 66	7 68	0.311
Extent of first aid cares at home	Yes No	84 16	53 22	52 23	0.041
Extent of discussing illness with patient	Yes No	76 24	45 30	27 48	0.000
Using illness to seek attention	Yes No	9 91	7 68	5 70	0.809
Using illness to manipulate to get wants	Yes No	12 88	6 69	4 71	0.092
Extent of overprotection	Yes No	79 21	34 41	22 53	0.000

N=Total number of mothers of children in each group (SCD=100, Asthma=75 AMI=75)
n= distribution of N in the variables examined

mothers who indicated that they felt the financial burden of the diseases (Asthma: p=0.054) as well as their time consumption burden (Combined group: P=0.041, (Table IV).

Children who were identified as probable cases of psychiatric disorders by CBQ were significantly associated with mothers also identified as probable cases of psychiatric disorders with SRQ across the disease groups and when combined (SCD: 13 of 30/ p=0.046; Asthma: 7 of 19/ p=0.048; AMI: 10 of 15/ p=0.000; Combined: 30 of 64/ p=0.000, (Table V). Other selected variables of psychosocial burden assessment in the children that were found to correlate with psychosocial burden of mothers in at least two groups include the following: 'See self as a burden to family' (Asthma: 7 of 19/p=0.048; AMI: 6 of 10/ p=0.014 Combined: 23 of 62/ p=0.016) and 'I feel people discriminate against me' (Asthma: 5 of 10/p=0.023; AMI: 6 of 10/ p=0.014 Combined: 20 of 52/ p=0.017).

Discussion

This paper intended to identify children with SCD who were experiencing psychosocial problems concurrently with their mothers. A significant number of children with psychosocial problems had corresponding mothers with problems. Incidentally this phenomenon cut across three disease groups separately and when combined (Tables IV and V).

With evidence linking maternal and family risk factors to child psychiatric disorder[21-24], concurrent psychosocial problem or morbidity is a reasonable expectation in the setting of physical illness especially chronic types affecting children. By extension, because of the special relationship between mothers and their children a peculiar psychosocial morbidity pattern is logical to expect. Previous attempts have been made to unravel this pattern[21,25,26], these attempts suggest that psychological and social crises in children can induce, and be induced by maternal psychosocial problems and vice versa.

This mother-child morbidity pattern suggests that psychosocial disorders are transferable between children and their mothers, if unmitigated.[21,23,25,26] It is however important to note that, child and mother morbidities could happen independently, that is, not one inducing the other.[21,23,25] Whichever way it occurs, concurrent psychosocial morbidity is important in the sense that, it produces double burden on the family. It aggravates an

Table IV: Distribution and influence of selected psychosocial factors among mothers who have probable psychiatric morbidity (SRQ scores ≥5)

VARIABLES		*SCD* *X=100* *x*	*N=28* *n*	*P Value*	*ASTHMA* *X=75* *x*	*N=15* *n*	*P Value*	*AMI* *X=75* *x*	*N=19* *n*	*P Value*
Children's Rutter score	<7 (None cases)	70	15	0.046	56	8	0.048	60	9	0.000
	≥7 (Cases)	30	13		19	7		15	10	0.000
Age Group in years	7 – 10	49	11	0.323	40	8	0.772	39	8	0.463
	11 – 14	51	17		35	7		36	11	
Children's Gender	Male	52	19	0.079	40	8	0.772	41	11	0.952
	Female	48	9		35	7		34	8	
Children's level of education	Primary	66	17	0.397	46	11	0.483	47	12	0.811
	Secondary	30	11		28	4		27	7	
Type o f Family	Monogamy	59	12	0.099	51	6	0.014	53	9	0.022
	Polygamy	40	15		24	9		22	10	
Any hospital visits in 6 months	Yes	92	26	1.000	26	8	0.163	26	7	0.961
	None	8	2		49	7		49	12	
Any school days missed per term	Yes	59	16	0.870	17	6	0.091	16	6	0.214
	None	39	12		58	9		59	13	
Any previous hospital admissions	Yes	77	23	0.619	14	3	1.000	8	2	1.000.
	None	23	5		61	12		57	17	
Interference with daily play activities	Yes	67	19	0.902	45	9	0.768	32	6	0.388
	No	33	9		30	6		46	13	
Interference with domestic activities	Yes	56	18	0.510	37	7	0.954	28	6	0.745
	No	43	10		38	8		47	13	
I feel I am a burden to my family	Yes	33	10	0.902	19	7	0.048	10	6	0.014
	No	67	18		56	8		65	13	
I feel that people bother me a lot	Yes	27	11	0.140	10	5	0.023	9	4	0.219
	No	73	17		65	10		66	15	
I feel people discriminate against me	Yes	32	9	0.826	10	5	0.023	10	6	0.014
	No	68	19		65	10		65	4	
Mother's age in years	<30	9	1	0.110	10	2	0.967	17	5	0.761
	31–40	59	13		42	8		41	9	
	>40	35	14		23	5		17	5	
Mother's level of education	None	38	13	0.030	24	10	0.004	20	8	0.196
	Primary	21	9		12	2	18	3		
	≥ Secondary	41	6		39	3		37	8	
Occupational group of mothers	Skilled	17	1	0.084	14	0	0.038	17	5	0.885
	Semiskilled	22	7		25	4		22	5	
	Unskilled	58	19		35	11		33	9	
Mother's number of children	≤5	75	19	0.440	53	10	0.755	53	14	0.966
	≥6	25	9		22	5		21	5	
Financial effect	Yes	94	26	0.671	58	13	0.496	39	12	0.389
	No	6	2		17	2		36	7	
Time Consumption	Yes	90	26	0.721	48	11	0.588	38	13	0.127
	No	10	2		27	4		37	6	
Disease preventing enjoyment of life	Yes	59	18	0.657	21	4	1.000	17	5	0.753
	No	41	10		54	11		58	14	

X= Total number of children in each group (SCD=100, Asthma=75 and AMI=75)
N= Total number of mothers identified as probable cases within each group (SCD=28, Asthma=15 and AMI=19)
x= distribution of X (children) in each variable
n= Distribution of N in each variable

Table V: Distribution and influence of selected psychosocial factors among children who have probable psychiatric morbidity (Rutter scale A2 ≥7)

VARIABLES		*SCD* *X=100* *x*	*N=30* *n*	*P Value*	*ASTHMA* *X=75* *x*	*N=19* *n*	*P Value*	*AMI* *X=75* *x*	*N=15* *n*	*P Value*
Mothers' SRQ Scores	≥5 (cases)	28	13	0.046	15	7	0.048	19	10	0.004
	<5 (Non-cases)	72	17		60	12		56	9	
Mother's age in years	<30	9	3	0.275	10	2	0.188	17	7	0.041
	31–40	56	20		42	8		41	5	
	>40	35	7		23	9		17	3	
Mother's level of education	None	38	11	0.691	24	8	0.019	20	7	0.142
	Primary	21	5		12	6		18	3	
	≥Secondary	41	14		39	5		37	5	
Occupational group of mothers	Skilled	17	4	0.424	14	0	0.030	17	2	0.483
	Semiskilled	22	9		25	6		22	6	
	Unskilled	61	17		36	13		36	7	
Type of family	Monogamy	59	15	0.422	51	8	0.012	53	7	0.030
	Polygamy	40	14		24	11		22	8	
Financial effect	Yes	94	29	0.665	58	18	0.055	39	7	0.862
	No	6	1		17	1		36	8	
Time Consumption	Yes	90	29	0.274	48	15	0.196	38	8	0.954
	No	10	1		27	4		37	7	
Disease preventing enjoyment of life	Yes	59	18	0.929	21	6	0.915	17	3	1.000
	No	41	12		54	13		58	12	
Children's age group in years	7 – 10	49	18	0.222	40	11	0.845	39	9	0.686
	11 – 14	51	12		35	8		36	6	
Children's Gender	Male	52	18	0.407	40	11	0.845	41	11	0.182
	Female	48	12		35	8		34	4	
Children's level of education	Primary	66	20	0.953	46	11	0.865	47	12	0.236
	Secondary	30	10		28	8		27	3	
Any hospital visits in 6 months	Yes	92	25	0.050	26	6	0.961	26	4	0.671
	None	8	5		49	13		49	11	
Any school days missed per term	Yes	59	14	0.111	17	6	0.753	16	7	0.039
	None	39	16		58	13		59	8	
Any previous hospital admissions	Yes	76	26	0.168	14	4	0.743	8	2	0.657
	None	24	4		61	15		67	13	
Interference with daily play activities	Yes	67	19	0.781	45	4	0.551	29	3	0.173
	No	33	11		30	15		46	12	
Interference with domestic activities	Yes	56	18	0.815	37	13	0.946	28	4	0.512
	No	43	12		38	6		47	11	
I feel I am a burden to my family	Yes	33	11	0.781	19	10	0.765	10	6	0.003
	No	67	19		56	9		65	9	
I feel that people bother me a lot	Yes	27	6	0.409	10	4	0.110	9	4	0.072
	No	73	24		65	15		66	11	
I feel people discriminate against me	Yes	32	11	0.674	10	5	0.707	10	7	0.000
	No	68	19		65	14		65	8	

X= Total number of mothers in each disease group (SCD=100, Asthma=75 and AMI=75)
N= Total number of children with probable psychiatric morbidity in each disease group (SCD=30, Asthma=19 and AMI=15)
x= distribution of X (mothers) in each variable
n= Distribution of N in each variable

already difficult situation caused by the disease. If not handled carefully, it could cause further distress for the whole family, and sometimes lead to severe complications such as marital discord or even divorce.[13,17,18]

Furthermore, it can adversely affect the manageability of the child's physical disease by increasing costs (time and money) and undermining compliance; a consequence of the significant role played by mothers when their children are ill.[7,23-25] Moreover, it is more likely that subsisting problems in the mother will adversely affect the physical and psychosocial care of the child, and the family as a whole. Therefore, it is important to identify concurrent psychosocial morbidity irrespective of aetiology and deal with it; although, it is even better to prevent it.

Factors that were associated with significant risk of a mother having SRQ scores ≥5 and her child having CBQ score ≥7 were considered as correlate of concurrent psychosocial morbidity. Modifiable correlates can be changed or controlled by life style modification and behaviour adjustments; non-modifiable factors require awareness of problems and readiness to contain them. No correlate was identified that was significant across the three groups (Tables IV and V). This probably suggests that concurrency may be a largely disease specific phenomenon which needs further exploration. ''Family type'' had a significant association in the Asthma and AMI groups, that is, children and mothers from polygamous backgrounds were at higher risk. In the asthma group ''mothers' education'' was an additional risk factor (mothers with lower education were at higher risk). And in the AMI group 'feeling of being a burden to the family'' and 'feeling that people discriminate against me'' were two additional risk factors. Polygamy as practiced in the study environment is known to be a psychosocial stressor, often linked to family and marital disharmony.[37,38] It is a complex modifiable factor rooted in culture and religion that would require effective communication and education to modify. However, it is a factor worth exploring in a larger study to have conclusive evidence of its effects.

While not all children and mothers reported adverse social effects from these diseases, an indication that they may be coping with their problems, the majority of them reported problems in virtually all the psychosocial variables considered (Tables II and III). Overall, SCD produced adverse social effects most frequently; children with SCD and their mothers had significantly greater burden than Asthma and AMI. This was expected in view of its more severe and debilitating nature. The management of SCD requires that children attend special clinics whether they are ill or not, combined with the experience of intermittent episodes of crises, hospital admissions, and occasional blood transfusion, a lot of stress is generated and psychosocial dysfunction is made more probable.

In a number of psychosocial variables SCD was not significantly different from Asthma and AMI (Table II and III); of note is CBQ score of the children and SRQ scores of their mothers which was not significantly different in the three groups. Examining the reason for this unexpected pattern is imperative. While this could mean that all the diseases were merely similar in respect of these variables; similarities in family environment and medical care may have leveled the expected differences in these psychosocial variables.

Nonetheless, this pattern may also suggest the existence of other, yet to be identified factors, unrelated to severity, which may have lowered the burden of SCD as measured by affected variables, thus this convergence or similarity. More comprehensive report of the psychological and social effects of SCD on children and their mothers has been made elsewhere.[39]

Conclusion

Psychosocial problems occurring concurrently in children and their mothers is a phenomenon that has implications for preventive psychiatry. This study suggests that children should be seen in the context of their families holistically; and that the bio psychosocial approach to health care and consultation-liaison psychiatry should be emphasized. This phenomenon needs further investigation in this environment to ensure prompt intervention and avoidable suffering of children and their mothers.

Whenever a child or mother is identified to have psychosocial problems the minimum of psychosocial assessment should include both parent and child in order to detect any concurrency early. If possible, other members of the family should be assessed too; since mothers are often the ones who accompany their children to the clinics they are more accessible for combined assessment. Combined psychosocial therapy of children and their mothers is more likely to have a better success than treating the child alone when mother is unknowingly the problem.

References

1. *Adeyokunnu A. Control of sickle cell disease. In: Sofoluwe GO and Bennet FJ, Eds. Principle and Practice of Community Health in Africa. Ibadan, University Press 1985: 309-319.*
2. *Ohaeri JU, Sokunbi WA, Akinlade KS, Dare LO. The psychosocial problems of sickle cell disease sufferers and their methods of coping. Soc Sci Med 1995; 40(7): 955-960.*
3. *Omotade OO. Controlling sickle cell anaemia through genetic counseling. Afr Health 1989: 42-43.*
4. *Konotey-Ahulu FE. Sickle cell disease: The case for family planning. Modified from materials first presented at the legal workshop of the 2nd international conference on voluntary sterilization Feb. 25-March 1, 1973, Geneva. Under the title of sickle cell disease: case for voluntary sterilization law? Accra Ghana, Astab Limited, 1973: 1-32.*
5. *Pless IB, Roghmann KJ. Chronic illness and its consequences observation based on three epidemiological surveys. J Pediatr 1971; 79(3): 351-359.*
6. *Pless IB, Clinical assessment: Physical and psychological functioning, symposium on chronic diseases in children. Pediatr Clin North Am 1984; 31(1): 33-45.*
7. *Sabbeth B, Understanding the impact of chronic childhood illness on families. Symposium on chronic diseases in children. Pediatr Clin North Am 1984; 31(1): 47-57.*
8. *Carey WB, Sibinga MS. Avoiding paediatric pathogenesis in the management of acute minor illness. Pediatrics 1972; 49(4): 553-561.*
9. *Mattson A. Long term physical illness: A challenge to social adaptation. Pediatrics 1972; 50(5): 801-811.*
10. *Hamlett KW, Pellegrini DS, Katz KS. Childhood chronic illness as a*

family stressor. J Pediatr Psychol 1992; 17(1): 33-47.
11. Sharpiro J. Family reactions and coping strategies in response to the physically ill or handicapped child: A Review. Soc Sci Med 1983; 17(14): 913-931.
12. Barbarin OA, Whitten CF. and Bonds SM. Estimating rates of psychosocial problems in urban and poor children with sickle cell anaemia. Health Soc Work 1994; 19(2): 112-9.
13. Bamisaiye A, Bakare CGM, Olatawura MO. Some socio-psychologic dimension of sickle cell anaemia among Nigerians. Clin Pediatrics 1974; 13(1): 56-59.
14. Famuyiwa OO, Asuni T. A standard schedule for burden on the family of sickle cell anaemia sufferers. J Trop Med and Hygiene 1991; 94: 277- 282.
15. Smilkstein G. The family APGAR: A proposal for a family function test and its use by physicians. J Family Practice 1978; 6(6): 1231-1239.
16. Leventhal JM. Psychosocial assessment of children with chronic physical disease: Symposium on chronic disease in children. Pediatr Clin North Am 1984; 31(1): 71-86.
17. Adeodu OO, Adekile AD, Alimi T. The child with sickle cell anaemia: Effects of the disease on intra family ties and emotional status Abstracts of proceeding of 26th Annual Conference of the Paediatric Association of Nigeria, Sagamu. Niger J Paediatr 1995; 22(3): 67-84.
18. Abiodun OA. Psychosocial complications and management of sickle cell disease. East Afr Med J 1993; 70(1): 40-42.
19. Aderele WI. Bronchial asthma in Nigerian children. Arch Dis Child 1979; 54: 448-453.
20. Gelder M, Gath D, Mayou R, Cowen P. Oxford Textbook of Psychiatry. 3rd edition: Oxford, 2000: 668-669.
21. Garmezy N, Mastern AS. Chronic Adversities. In: Rutter M, Taylrsor E, Hersov L, eds. Child and Adolescent Psychiatry: A Modern Approach, 3rd edn. Oxford, Blackwell Scientific publications 1994: 191-208.
22. Foreman DM. Maternal mental illness and mother-child relations. Adv Psychiatr Treatment 1998; 4: 135-143.
23. Weissman MM, Pilowsky DJ, Wickramaratne PJ, Talati A, Wisniewski SR, Fava M, et al. Remissions in maternal depression and child psychopathology. A star*D-Child Report. JAMA 2006; 295: 1389-1398.
24. Marmorstein NR, Malone SM, Iacono WG. Psychiatric disorders among offsprings of depressed mothers: Associations with paternal psychopathology. Am J Psychiatry 2004; 161:1588-1594.
25. Gordon D, Burge D, Hammen C, Adrian C, Jaenicke C, Hiroto D. Observations of interactions of depressed women with their children. Am J Psychiatry 1989; 146: 50-55.
26. Rutter M. Children of sick parents: An environmental and psychiatric study. Oxford University press Oxford 1966.
27. Iloeje SO. Psychiatric morbidity among children with sickle cell disease. Dev Med and Child Neurology 1991; 33: 1087-1094.
28. Kumar S, Powars D, Allen J, Haywood LJ. Anxiety, Self concept, and Personal and Social adjustments in children with sickle cell anaemia. J Pediatrics 1976; 88(5): 859-863.
29. Tunde-Ayinmode MF. Psychosocial impact of sickle cell disease on children and their mothers in University of Ilorin Teaching Hospital: A controlled study. Dissertation submitted to the National Postgraduate Medical College of Nigeria in fulfilment of the award of Fellowship of the Faculty of Psychiatry. 1999.
30. Rutter M, Tifard J, Whitemore KL. Education Health Behaviour. London Longmans, 1970.
31. Harding TW, DeArango MV, Baltazar J, Climent CE, Ibrahim HHA, Ladrido- Ignacio L, et al. Mental disorders in primary health care: A study of their frequency and diagnosis in four developing countries. Investigation in a WHO collaborative study on strategies for extending mental health care. Psychol Med 1980; 10: 231-241.
32. Boyle MH, Jones SC. Selecting measures of emotional and behavioural disorders of childhood for use in general populations. J Child Psychol Psychiatry 1985; 26(1): 137-159.
33. Rutter M, Yule W, Berger M., Yule B, Morton J, Bagley C. Children of West Indian Immigrants – 1: Rates of behavioural deviance and of psychiatric disorder. J Child Psychol Psychiatry 1974; 15: 241-262.
34. Omigbodun OO. Screening children for psychiatric morbidity in primary care: Selecting appropriate instrument. Dissertation submitted to the West African College of Physician in fulfilment of the award of fellowship of the Faculty of Psychiatry. 1991: 91-108.
35. Abiodun OA, Sensitivity and validity of the Self Reporting Questionnaire (SRQ) in a primary health care centre in rural community in Nigeria. Psychopathologie Africanie 1988-1989; 22(1): 79-88.
36. Ohaeri JU, Odejide OA, Gureje O, Olatawura MO. Psychiatry morbidity among children attending health facilities in primary health care in a rural Nigeria community. Niger Med J 1994; 26(3): 93-95.
37. Oyewumi LK. Inpatient adolescent psychiatry in a Teaching Hospital in Nigeria. Acta Psychiatr Scand 1989; 80: 639-643.
38. Adelekan ML. Psychiatric disorders of children and young adults in developing countries. In: Tantam D, Appleby L, Duncan A. Eds. Psychiatry for the Developing World. Imprints of Royal College of Psychiatrists. London 1995: 311-340.
39. Tunde-Ayinmode MF,Adelekan ML. Psychosocial impact of sickle cell disease in children seen at University of Ilorin Teaching Hospital, Ilorin, Nigeria. East Afr Med J 2005; 2:73-78.