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Morbidity Pattern in Adolescents attending the Ambulatory Care Unit in Abakaliki

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Summary

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Background: Adolescents form a sizeable and vulnerable group whose special needs are increasingly being acknowledged. In order to address their health problems effectively, a determination of the size, baseline disorders and causes of death in this group is of strategic importance, particularly in developing countries.

Objectives: To determine the number of adolescents attending our Institution over a defined period of time, as well as the morbidity pattern and outcome of various diseases among them.

Design: Retrospective analysis of hospital records.

Patients and Methods: The hospital attendance and admission registers of all patients aged 10 years to 24 years, seen at the various outpatient clinics of Ebonyi State University Teaching Hospital, Abakaliki, between January, 2001 and December, 2001 were reviewed and analyzed.

Results: Of the 16,684 patients seen during the study period, 4600 (27.6 percent) were aged 10-24 years with F: M ratio of 1.4:1. However, only 2813 patients (61.1 percent) of this number had complete data for analysis. While 16 percent of the 2813 patients were in the age group 10-15 years, a far greater proportion (84 percent) were aged 16-24 years with a peak at age group 19-21 years and a trough at 10-12 years. Malaria in 690 (24.5 percent) patients was the most common clinical condition for which the patients attended the clinic, followed by gastrointestinal disorders in 522 (18.6 percent), genitourinary tract disorders in 367 (13.0 percent), and trauma in 177 (6.3 percent) patients. Unwanted pregnancy was diagnosed in 105 patients (3.7 percent). Peptic ulcer disease was responsible for 54.9 percent of all gastrointestinal disorders. Sexually transmitted diseases including HIV infection were responsible for 63.8 percent of all genitourinary tract disorders. Road traffic accident and its complications formed the bulk (80.2 percent) of the trauma cases encountered. Psycho-somatization and drug abuse accounted for 46.1 percent and 22.7 percent respectively, of all neurological/psychosocial disorders, while acne vulgaris was predominant (57.4 percent) among the skin disorders. The following disorders were either unique to, or had their onset predominantly in adolescence: sexually transmitted diseases, unwanted pregnancy, peptic ulcer disease, trauma, psychosocial disorders, drug abuse and acne vulgaris. Six hundred and twenty-six patients (22.3 percent) out of whom 39 (6.2 percent) died, were admitted into various wards while 2187 patients (77.7 percent) were discharged home. The major causes of death were trauma with complications in nine cases (23.1 percent), malaria in seven cases (17.9 percent) and HIV/AIDS in six cases *HIV*(15.4 percent).

Conclusion: The present study has shown that adolescents are indeed a sizeable group with a unique morbidity and mortality pattern. We therefore advocate the establishment of an Adolescent Clinic at our institution so that health interventions specific to this age group and the identified disorders may be addressed effectively and in a timely manner.

Key words: Adolescents, morbidity, mortality, outpatient visits

Introduction

ADOLESCENCE is the period of transition from childhood to adulthood. The World Health Organization's (WHO) approach to adolescents is well formulated with recognition of the overlapping definitions of adolescents, youth and young people. To eliminate confusion concerning these definitions, WHO clearly defines adolescence as the period of life from 10-

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19 years, youth as 15-24 years and young people as those aged from 10-24 years.[1] Problems of interchanging the definition of youth and adolescence have also been countered by accepting that the dynamic transitions of this stage of life have as much to do with biological aspects as with socio-cultural conditions. Therefore, the health of young people, youths and adolescents are often taken together.[1] For policy purposes therefore, the Nigerian Adolescent Health Policy defines an adolescent as a person aged 10 years to 24 years.[2]

Adolescence is increasingly being recognized as a period that poses specific challenges for treating disease, prevention of ill health and the promotion of healthy behaviours that are played out against a background of rapid physical, psychological and social developmental changes that produce specific disease patterns, unusual symptom presentations, and above all, unique communication and management challenges.[3] Most national health programmes provide for children and the aged, recognizing their susceptibility to certain diseases resulting from biological factors. Because adolescents are less vulnerable to the diseases of childhood and the elderly, little emphasis has hitherto been placed on the needs of this age group in this environment. As a result, there is a paucity of information on their disease pattern in Africa in general and Nigeria in particular, probably because communicable diseases and nutritional problems constitute bigger problems.[4] Most published reports on adolescent health in Nigeria have mainly been on their reproductive health.[5-8]

Worldwide, concerns about the health and social situations of adolescents have in recent years, attracted attention. The special needs of adolescents were acknowledged at the 1994 International Conference on Population and Development (ICPD) in Cairo,[9] and at the 1995 Fourth World Conference on Women (FWCW) in Beijing.[10] In the aftermath of the Cairo and Beijing conferences, the Nigerian government approved a National Adolescent Health Policy for the country in 1995.[2] Unfortunately, adolescents are still subject to many constraints derived from the past and reinforced by other laws and practices within the country, which existing policy is yet to address. In Nigeria, adolescents make up about 20 percent of the entire population with the majority being females.[2,11] Clearly, adolescents are a sizeable and vulnerable group whose problems a need to be highlighted.

Presently, there is no Adolescent Clinic at the Ebonyi State University Teaching Hospital (EBSUTH), Abakaliki. Children of the age group 10-24 years are seen in various units of the outpatient clinics while an adolescent clinic is at the planning stages. With this goal in view, the study was undertaken to determine the size of this age group, the baseline prevalence and distribution of the various disorders and their outcome in the group. We believe that such a study will contribute to appropriate health planning and delivery strategy for effective adolescent health.

Subjects and Methods

This retrospective study was carried out at the outpatient clinics and wards of the Ebonyi State University Teaching Hospital, Abakaliki over a period of 12 months (January 1, 2001 to December 31, 2001). Patients aged 10 years to 24 years, who were seen in the various components of the outpatient department (OPD) were included in the study. Also included were follow-up cases from the children and adult emergency rooms.

The components of the OPD included paediatric, medical, general surgical/trauma, community health, psychiatric, and dental clinics; others were the various subspecialty clinics in paediatrics and internal medicine. Although the antenatal clinic (ANC), children's emergency room (CHER), main emergency room and surgical subspecialty clinics are also part of the OPD, only follow up cases from CHER and the main emergency room were included in this study. In general, cases from ANC and surgical subspecialty clinics were excluded; however, cases related to these clinics who were seen in other OPD clinics were included. [Ambulatory Care Clinic encompasses all health services that are provided to clients who are not residing in health care institutions at the time that care is given]. Admitted cases from the ambulatory services were also included in order to determine their final outcome.

Ambulatory care services include- emergency services, day/night care, non-specialty clinics, specialty clinics, community clinic, day surgery, private practice and home care and ongoing symptom management to follow up for patients discharged from inpatient services.[12,13] Patients seen in such clinics may have been seen earlier in the course of their illness, and may be receiving both palliative and curative/restorative therapy.[12,13]

Relevant data retrieved from the hospital attendance and admission registers included age, sex, date of visit, diagnosis and outcome. The outcome of the OPD visits was classified as admissions into the wards, discharges home from the clinics and wards and deaths. Patients who were seen on follow-up visits and laboratory reviews with incomplete data were excluded from the final data analysis.

The data obtained was analyzed using Epi Info software version 6.

Results

During the study period, 16,684 patients were seen in the various outpatient clinics. Of this number, 4600 (27.6 percent) consisting of 2683 females (58.3 percent) and 1917 males (41.7 percent), a F: M ratio of 1.4:1, were aged 10-24 years. The highest monthly visits were in July and November. A total of 1787 (38.9 percent) of the 4600 patients who were seen for laboratory reviews and follow-up were excluded, due to incomplete data. The remaining 2813 patients (61.1 percent) had complete information for analysis. Of this number, 1375 were seen in the Medical clinic, 901 in the Paediatric clinic, 318 in the General Surgical/Trauma clinic, 101 in the Community Health clinic, 67 in Psychiatric clinic and 51 in the Dental clinic.

The age and sex distributions of the 2813 patients are shown in Table I. Female to male ratio was 1.32:1. The age group 10-15 years constituted 16.0 percent, while those aged 16-24 years constituted 84.0 percent, with a peak at the age group 19-21 years and a trough at 10-12 years.

The major diagnoses/reasons for consultation are shown in Table II, while the detailed distribution and

Table I

Age and Sex Distribution of the Subjects

Age Group (yrs)	*Males*	*Females*	*Total*	*% of Total*
10-12	70	96	166	5.9
13-15	152	132	284	10.1
16-18	170	221	391	13.9
19-21	523	743	1266	45.0
22-24	299	407	706	25.1
Total	1214	1599	2813	100.0

Table II

Major Conditions for which Outpatient Visits were made

Conditions	*No of Patients*	*% of Total*
Malaria	690	24.5
Gastrointestinal tract disorders	522	18.6
Genitourinary tract disorders	367	13.0
Trauma	177	6.3
Upper respiratory tract disorders	142	5.1
Neurological/ Psychosocial disorders	141	5.0
Skin disorders	136	4.8
Lower respiratory tract disorders	118	4.2
Unwanted pregnancy	105	3.7
Cardiovascular disorders	79	2.8
Haematological disorders	72	2.6
Surgical disorders	69	2.4
Tumours	58	2.1
Meningitis/Septicaemia	38	1.4
Dog bite/Rabies	37	1.3
Metabolic disorders	35	1.2
Ophthalmological disorders	16	0.6
Measles/Mumps	11	0.4
Total	2813	100.0

Table III

Distribution and Frequency of the most frequent Diagnoses in 2813 Adolescents

Diagnoses	*No of Cases*	*Total*	*% of Total*
Malaria		690	24.5
Gastrointestinal Disorders		522	18.6
Peptic Ulcer Disease	287		
Helminthiasis	112		
Gastroenteritis	84		
Liver disorders	29		
Dental disorders	10		
Genitourinary Tract Disorders		367	13.0
Pelvic inflammatory disease	115		
Urinary tract infection	82		
Vaginal candidiasis	43		
STD (gonorrhoea, syphilis, herpes etc)	39		
HIV infection	37		
Dysfunctional uterine bleeding	36		
Pyelonephritis	15		
Trauma		177	6.3
Road Traffic Accidents/Fractures	149		
Blunt trauma/assaults/lacerations/falls	28		
Upper Respiratory Tract Disorders		142	5.1
Rhinitis/Sinusitis	68		
Otitis media	58		
Pharyngitis	16		
Neurology/Psychosocial		141	5.0
Epilepsy/cerebral palsy/Bell's palsy	44		
Psychosomatic/anxiety disorders	35		
Drugs (cigarettes, marijuana, cocaine etc)	32		
Depression	16		
Psychosis	14		
Skin Disorders		136	4.8
Acne vulgaris	78		
Impetigo	29		
Tinea	21		
Others	8		
Lower Respiratory Tract Disorders		118	4.2
Pneumonia	45		
Asthma	37		
Tuberculosis	36		
Pregnancy		105	3.7
Teenage pregnancy (13-19 years)	27		
Total	2398	2398	85.2

frequency of the top nine diagnoses are shown in Table III. Malaria was diagnosed in all age groups with the age group 19-21 years being the most frequently affected (245/690) with a male to female ratio of 1:1.04. Peptic ulcer disease was seen in all age groups but most commonly in those aged 19-21 years (122/287) with a female to male ratio of 1.8: 1. Other STDs were more commonly seen after 15 years, with the youngest patients being 12 years old (one case of gonorrhoea and one case of genital herpes); the age group 19-21 had the

largest number (14/39) with a male to female ratio of 2.25:1. HIV infection was diagnosed in all age groups with a peak in the age group 19-24 years (30/37) and a female to male ratio of 2.36: 1. Pelvic inflammatory disease occurred most frequently in the age group 19-21 years (54/115); the two youngest patients with this disease were 13 and 14 years old, respectively. Twenty seven of the 105 adolescents with unwanted pregnancies were aged between 13 and 18 years, but the highest age group was 19-21 years (41/105); it is interesting to note that among these were three 13-year old girls, one 14-year old and two 15-year olds. Trauma was evenly distributed among all the age groups with the highest frequency at 19-21 years (75/177) and a male to female ratio of 1.46:1. Psychosocial disorders were also evenly distributed from 16 to 24 years with its peak in the age group 19-21 (48/97), and were more prevalent in males (M:F ratio = 1.69: 1).

Of the 2813 patients, 626 (22.3 percent) were admitted to the hospital wards, while 2187 patients (77.7 percent) were discharged home. Of those discharged home, 697 (31.9 percent) were discharged after one visit without the need for laboratory investigations. These patients were treated mainly for uncomplicated malaria and non-specific abdominal pain. Of the 626 cases admitted, 182 (29.1 percent) had malaria, followed by gastrointestinal tract disorders in 101 cases (16.1 percent), genitourinary tract disorders in 65 (10.4 percent) and respiratory tract disorders in 57 (9.1 percent). Others were trauma in 45 cases (7.2 percent), haematological disorders in 41 (6.5 percent), cardiovascular system disorders in 37 (5.9 percent), tumours in 29 (4.6 percent), meningitis in 27 (4.3 percent), metabolic in 25 (4.0 percent), neurological/psychosocial disorders in 14 cases (2.2 percent) and rabies in two cases (0.3 percent).

Thirty nine (6.2 percent) of the 626 cases, died. The major causes of death were trauma with complications in nine cases (23.1 percent), malaria in seven (17.9 percent), HIV/AIDS in six *HIV*(15.4 percent), pneumonia, meningitis and tumours in three cases each (7.7 percent), congestive cardiac failure, hepatoma and rabies in two cases each (5.1 percent), while sickle cell disease and diabetes mellitus accounted for one case each (2.6 percent).

Discussion

An appreciable number of adolescents was seen during the study period with the majority being females. It has been estimated that 85 percent of about 1.2 billion adolescents in the world live in developing countries.[14] One reason for considering adolescents differently from other children is their sheer numbers; young people between 10 and 20 years of age make up between 12 and 15 percent of the population in most developed countries. For instance, in the United Kingdom (UK), they form about 13 percent of the population and this percentage is as large as that of children under 10 in that country.[15] The reason for the female preponderance in our study is not known but similar finding has been documented by others. Teenage pregnancy, rape, early marriage, prostitution, poor sex or condom use, poor negotiating power and inadequate or lack of education in females are reported to be the main contributing factors which make them more vulnerable than males, thereby necessitating their increased use of health facilities.[16] While adolescence is generally considered to be a healthy period, health resource use by young people is reported to be higher than in late childhood.[17] This conforms with our findings where 84 percent of those seen were in the age group, 16-24 year compared to 16 percent in the 10-15 year old group.

A special approach to adolescent health has been canvassed because epidemiology of diseases and health risks in them are distinct and present a unique constellation of symptoms and problems not found in younger children or adults.[15] This is in conformity with the findings in this study in which the following disorders were found to be either unique to, or had onsets predominantly in adolescence namely, sexually transmitted diseases, unwanted pregnancies, peptic ulcer disease, trauma, psychosocial disorders, drug abuse and acne vulgaris. Similar disorders have been reported in studies carried out in the UK [15,17,18] and the United States of America (USA).[19]

One of the most compelling arguments for a focus on adolescence is that it is during this period that new health behaviours are laid down; behaviours that may track into adulthood and influence health and morbidity life-long.[15] The continuity between adolescent initiation of health behaviours and adult behaviour is well documented. For example, mental health problems are rare in childhood, but rise through puberty to adult levels in late adolescence.[18,20] This is in conformity with the findings in this study where psychosomatic disorders accounted for 46.1 percent of all neurological/psychosocial disorders with more males than females being affected and peaking at age group 19-21 years. Similarly, in a study by Maru, Kathuku and Ndetei [21] on psychiatric morbidity in adolescents aged eight to 18 years, a high rate of 44.4 percent was documented, with conduct and emotional disorders ranking the highest. Peptic ulcer disease as a reason for consultation was common in this study. The reasons for this finding could not be determined; further studies are required to elucidate this. Similarly, drug use accounted for 22.7 percent of the neurological/psychosocial disorders. Health education, provision of personal and job skills

training, counseling and provision of recreational facilities with emphasis on the promotion of healthy lifestyles are some of the factors that are reported to help reduce the morbidity due to drugs abuse and psychosomatic disorders.[21-23] Adolescent sexuality is one of the behaviours that tract into adulthood. In Nigeria, most previous studies which focused on adolescent sexuality reported an increasing adolescent sexual activity and its complications with a trend towards early onset and a peak in late adolescence.[8,24,25] Similar finding was seen in the present study in which teenage pregnancy, one of the most unfavourable and usually unplanned outcomes of adolescent sexual activity was also documented. Earlier sex debut and increased rates of high-risk sexual activity leading to high rates of teenage pregnancy and STDs have also been documented in developed countries such as the UK and the USA.[15]

Environmental or social causes of mortality such as accidents/trauma make up a larger proportion of total adolescent mortality than in any other age.[15] In the present study, trauma constituted the commonest cause of mortality in 23.1 percent of cases as well as a major cause of morbidity with male preponderance. In the UK, injury and poisoning were the leading causes of mortality in young people aged 15–19 years in 1997.[15] In the USA, where large numbers of teenagers are licensed drivers of motor vehicles, young men are at especially high risk, with road traffic fatality risks nearly twice those observed among young women.[26] About 50 percent of deaths due to RTAs in the United States were related to drinking.[26] In New Zealand, as in most developed countries, rates of mortality and morbidity due to injuries, peak in late adolescence (15-19 years) when they account for about three quarters of fatalities and a third of hospitalizations, with male gender and drinking status independently associated with speeding.[27] In contrast, rapid growth of motorized vehicles compared with the small number of motorable roads, the state of disrepair of roads and vehicles, the use of motorcycles for commercial purposes and street trading involving children and adolescents are some of the noteworthy factors concerning road traffic accidents in Nigeria.[28]

Finally, large studies of adolescent behaviour and health show convincingly that health risk behaviours of all types occur together, and are strongly associated with deprivation and ethnicity.[29] Strong family, community and social support have been found to protect against most health risk behaviours in adolescents.[29] Identifying such 'resilience' or protective factors is now the focus of public health interventions with young people.[29] Approaches like the establishment of youth friendly services such as adolescent clinics which will serve as a resource, counseling, social and treatment centres may be one of the interventions that will be of immense help to young people. The unique disorders identified in this study will be better handled in a separate Adolescent Clinic so that health education and other health interventions specific to this age group will be addressed effectively, efficiently and in a timely manner; hence our advocacy for such a clinic.

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