

MAJOR DEPRESSIVE DISORDERS IN PAEDIATRIC SURGICAL PATIENTS: AN OVERVIEW OF THE NIGERIAN ADOLESCENTS

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ABSTRACT

Introduction: Less than three decades ago, depression was seen as a predominantly adult disorder as children were considered too developmentally immature to experience depressive disorders, and adolescent low mood was considered as part of ‘normal’ teenage mood swings. Major depressive disorder in children and adolescents is a serious psychiatric illness especially in paediatric surgical patients. This may be due to their altered metabolic rate and heightened metabolic response to trauma which has significant implications for the psychological development of the child, yet it remains under-recognized and undertreated.

The well-being of the care givers is also not left out as the care givers are inundated with the task of sourcing and providing finance for hospital care., in addition to the stress of providing care for the patient. This may result in loss of man hour, sleeplessness, and physical exhaustion associated with caring for these ill children which can ultimately significantly increase the risk of them having depressive episode.

The aim of this commentary is to highlight the fact that paediatric surgical patients are not exempt to having a major depressive disorder and the care givers should also be evaluated during hospital admission of their wards.

Methodology: This is a commentary on depressive disorders among Nigerian paediatric surgical patients. Related publications on children and adolescents presenting to hospital were searched using the domain – Depression in Nigerian adolescent, Paediatric surgery patients on PubMed, Google Scholar, and MEDLINE to appraise this review.

Conclusion: Mood disorders, especially depression in children and adolescents have been studied increasingly over the last two decades and surgical conditions worsen the outlook, culminating in increased knowledge about the presentation, and treatment. Despite this, it is still often missed or misdiagnosed because it sometimes presents with uncharacteristic symptoms. Prevalence of depression among paediatric surgical patient were found to be between 46-82% in this review among Nigerian patients.

Keywords: Depressive disorders, Paediatrics, Surgical adolescents, Nigeria.

INTRODUCTION

The Convention on the Rights of the Child (CRC), defined a child as “every human being below the age of eighteen years, or below the legally defined age limit for the country, whereas the World Health Organization defines adolescence as beginning at age 10 years and continuing through age 19 years¹. Major depression is an episodic, recurring disorder characterized by persistent and pervasive sadness or unhappiness, loss of enjoyment of everyday activities, irritability, and associated symptoms such as negative thinking, lack of energy, difficulty concentrating, and appetite and sleep disturbances.²

Less than three decades ago, depression was seen as a predominantly adult disorder as children were considered too developmentally immature to experience depressive disorders, and adolescent low

mood was considered as part of ‘normal’ teenage mood swings.³ Few would now doubt the reality of child and adolescent depressive disorders, or that youth depression is associated with a range of adverse outcomes including social and educational impairments as well as both physical and mental health problems later in life. Major depressive disorder in children and adolescents is a serious psychiatric illness especially in paediatric surgical patients. This may be due to their altered metabolic rate and heightened metabolic response to trauma which has significant ramifications for the psychological development of the child, yet it remains under-recognized and undertreated.⁴

The well being of the care givers are also not left out as the care givers are inundated with sourcing and providing finance for hospital care, to to the stress

of providing care for the patients. This may result in the loss of man hour, sleeplessness, and physical exhaustion associated with caring for these ill children which can ultimately significantly increase the risk of them being a depressive episode which was corroborated by Aggo and Okafor⁵ where they found the prevalence of preoperative depression to be 49% among parents of children undergoing anaesthesia and surgical operations at University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.

As debates continue regarding the validity of psychiatric diagnoses in children and adolescents, paediatric patients with surgical conditions are also not exempt. Longitudinal research, however, has continually demonstrated that most adult disorders have their origins in childhood, and most childhood disorders have consequences that persist to adulthood.⁶ For example, a subset of untreated and neglected hydrocoele can persist till adulthood with associated morbidity. Dienne *et al.*,⁷ found a 62% depression rate among men presenting with giant hydrocoele in a rural clinic in Nigeria.

A cross-sectional study by Nkporbu *et al.*,⁸ on the pattern of depressive illness among school age children presenting at the university of Port Harcourt Teaching Hospital showed a higher prevalence of depression in children aged 15 – 19 (82 %) while 10 – 14 was 46 %. However, there is evolving evidence to suggest MDD can even exist in preschoolers.⁹ Additionally, MDD that emerges in children aged 5-12 years can be severe and lead to poorer outcomes compared with later onset MDD⁹.

EPIDEMIOLOGY AND BURDEN OF ILLNESS

The prevalence of MDD is estimated to be approximately 2% in children and 4% - 8% in adolescents.¹⁰ At any given time, up to 15% of children and adolescents have some symptoms of depression while 5% of those 9 to 17 years of age meet the criteria for major depressive disorder, and three percent of adolescents have dysthymic disorder.¹¹ The prevalence among Nigerian adolescents has been estimated to be 6-12%.¹² The ratio of depression in males and females is similar in pre-pubertal children, but markedly increases after puberty such that by age 14, depressive disorders are more than twice as common in girls as in boys, possibly because of differences in coping styles or due to hormonal changes during puberty.¹³ The risk of depression increases by a factor of 2 - 4 after puberty, particularly in females, and the cumulative incidence by age 18 is approximately 20% in community samples.¹⁴ Also approximately 5% - 10% of children and adolescents have subsyndromal

symptoms of MDD. Generally, the frequency of depressive disorders increase with increasing age in the general population.¹⁵

According to the World Health Organization, depression was expected to be a leading cause of disability worldwide by 2020, second only to cardiovascular disease.¹⁶ In fact, current prediction indicates that by 2030, depression will be the leading cause of disease burden globally¹⁷. Depression poses a substantial burden to the individual suffering from this disorder and to the society at large. For the Paediatric surgical patients, a lot of burden is also placed on the care givers which could lead to emotional stress, exhaustion, anxiety, and even depression.¹⁸ A study by Olagunju *et al.*, on Child's symptom burden and depressive symptoms among caregivers of children with cancers showed that more than one third of care givers (38.2%) screened positive for significant depressive symptoms^{19,20} while the prevalence of emotional distress and parenting stress were 16% and 12% respectively among parents of children with clubfoot in south-western Nigeria.²¹

Depression negatively impacts growth and development, school performance, peer, and family relationships, and may lead to suicide. Major depressive disorder is a leading cause of youth suicidal behavior and suicide¹⁰. Specific data on the economic burden of depression in childhood are currently unavailable. However, assuming a large continuity of the disorder into adulthood, burden is likely to be very substantial. A study estimated that a randomly selected 21-year-old woman with early-onset major depressive disorder could expect future annual earnings that were 12% - 18% lower than those of a randomly selected 21-year-old woman whose onset of depressive disorder occurred after age 21 or without depression.² Unfortunately, more than 70 percent of children and adolescents with depressive disorders or other serious mood disorders do not receive appropriate diagnosis and treatment.¹⁵ Possible reasons may include the stigma attached to these disorders, an atypical presentation, a lack of adequate child mental health training for health care professionals, and inadequate number of child psychiatrists. Under-diagnosis and under-treatment are greater problems in children younger than seven years, in part because of their limited ability to communicate negative emotions and thoughts with language, and consequent tendency toward somatization.²³ Thus, it can be said that depressive disorders in young represent a significant public health concern, in that they are prevalent and result in long-term adverse effects on the individual's cognitive, social, and psychological development.¹⁰

DIAGNOSIS

Depression in the young is often undiagnosed and untreated partly because of the observers' difficulty interpreting children's emotions and behavior. For instance, parents and teachers tend to under-estimate depressive feelings in children because of the limited interaction with the child at home and in school respectively¹⁵. Hence, it is essential to interview the child, often on several occasions, and to ascertain if the current problems represent a change from the child's previous level of functioning or character; e.g. depression may account for the recent academic failure of a child who had previously topped his/ her class¹⁵. Thus, while diagnosis is not usually difficult, depression in children and adolescents is often not detected or treated.

Clinical depression manifests as a spectrum disorder with symptoms ranging from subsyndromal to syndromal.²⁴ In order to meet the Diagnostic and Statistical Manual V criteria for a major depressive episode, a person must present with five of the following symptoms for a period of at least two weeks and one symptom must be depressed or irritable mood, or loss of interest. The symptoms list include depressed or irritable mood, markedly diminished interest or pleasure in all or almost all activities, significant (>5% body weight) weight loss or gain or increase or decrease in appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or inappropriate guilt, diminished concentration or decisiveness, and recurrent thoughts of suicide or death²⁵. Symptoms must cause significant distress or functional impairment, must not be due to effects of a substance or medical condition; and must not be better accounted for by the loss of a loved one²⁵. Overall, the clinical picture of MDD in children and adolescents is like the clinical picture in adults, but there are some peculiarities in the pattern of their presentations. For example, children may have mood lability, irritability, low frustration tolerance, temper tantrums, somatic complaints, and or social withdrawal instead of verbalizing feelings of depression²⁴. Young people also often tend to present initially with behavioral or physical complaints which may obscure the typical depressive symptoms seen in adults.

Amin *et al.* found an increase risk of having depressive disorder among individuals with Hirschsprung diseases in Sweden.²⁶ Some peculiar complaints which should alert clinicians to the possibility of depression in the child and adolescent population include: irritability or cranky mood, loss of interest in previously enjoyed leisure activities (for example, dropping out of sporting activities, or dance and music lessons), avoiding school,

decline in academic performance, change in sleep-wake pattern, frequent unexplained complaints of feeling sick, headaches, stomach-aches, development of behavioural problems (such as becoming more defiant, running away from home, bullying others), abusing alcohol or other substances, poor performance in school, lack of concentration or forgetfulness, suicidal thoughts or actions (e.g., cleaning out locker, giving away items).¹⁵

COURSE AND PROGNOSIS

The course and prognosis of major depression in children and adolescents depends on a number of factors including age of onset, severity of illness, the rapidity of interventions, and the degree of response to the interventions, presence of comorbid medical and/or psychiatric disorders. In general, the younger the age of onset, the greater the recurrence of multiple episodes and the presence of comorbid disorders predict a poorer prognosis.¹⁰ Earlier onset is associated with multiple indicators of greater illness burden in adulthood across a wide range of domains such as never being married, more impaired social and occupational functioning, poorer quality of life, greater medical and psychiatric comorbidity, more lifetime depressive episodes and suicide attempts, and greater symptom severity.²²

Like what happens in adults, clinical depression in youth follows a recurring course. An episode of depression in clinically referred patients lasts 7 to 9 months on average, but it can be shorter in non-referred community samples.¹⁵ That is, depressive episodes are, on the average, a spontaneously remitting illness. In general, 90 percent of youth recover from a first episode of moderate to severe major depressive disorder within 1 to 2 years.¹⁰ The relapse rates for childhood major depression into adulthood are also high. In fact, recurrence is high even after treatment. For example, participants in the 5-year follow up of the Treatment of Adolescent Depression Study (TADS) showed that although the immense majority (96%) of patients recovered from the index episode, after five years almost half (46%) had a recurrence.²⁷ Papakostas *et al.* found a 17% prevalence for depression symptomatology in 4-16yrs old children compared to 4% prevalence in the general population and 10-20% in the paediatric hospital population.²⁸

The likelihood of further episodes in adulthood is up to 60%.²⁹ Thus, depressive illness should optimally be conceptualized as a chronic condition with remissions and recurrences. Predictors of recurrence include poorer response to treatment, greater severity, chronicity, previous episodes, comorbidity, hopelessness, negative cognitive style, family problems,

low socioeconomic status, and exposure to abuse or family conflict.²⁷ Furthermore, children and adolescents with major depression are at higher risk for the development of future bipolar disorder, compared to adults. Overall estimates of children with an episode of major depression developing bipolar disorder are about 20 to 40 percent.¹⁰ The risk of suicide, which accounts for about 12 percent of adolescent mortalities, is significant among adolescents with depressive disorders.¹⁰ Tamara *et al.* found that seizure status was related to the presence of affecting symptoms, irrespective of whether the parties had undergone surgery.³⁰

TREATMENT

It is necessary to aim high, that is, seeking to achieve full remission of symptoms and a return to the premorbid level of functioning. Anything less is a suboptimal outcome because persistence of depressive symptoms increases the likelihood of poorer psychosocial functioning, suicide and other problems (e.g., substance abuse), as well as relapse and recurrence.¹⁵

The American Academy of Child and Adolescent Psychiatry practice parameters made evidence-based recommendations for the treatment of children and adolescents with depressive disorders. These include psychoeducation and supportive interventions for mild forms of depression, and psychosocial interventions and/or pharmacotherapy for moderate to severe depression, recurrent episodes of major depression, with significant impairment and with active suicidal thoughts or behaviors, or psychosis.¹⁰

1. Cognitive behavior therapy (CBT)

CBT is widely recognized as an efficacious intervention for the treatment of moderately severe depression in children and adolescents. CBT aims to challenge maladaptive beliefs and enhance problem-solving abilities and social competence.¹⁰ CBT is based on the assumption that depressed mood is associated with an individual's behavior and thoughts, and that changing behavioral and cognitive patterns will lead to a reduction in depressive feelings and improved functioning.¹⁵ The aim of treatment is to turn back this vicious cycle by learning

(a) that one's feelings, thoughts, and actions are interconnected, and

(b) by developing strategies for more positive patterns of thinking and behaving, which in turn lead to more positive feelings.³¹

The goals of CBT include:

(1) to help patients identify links between mood, thoughts, and activities in their lives.

(2) To help the patient discriminate between helpful and unhelpful thoughts, to generate more helpful thoughts, and to practice using helpful thought patterns in response to stressful situations.

(3) To equip the young person with skills to build and maintain relationships by training in social skills, communication, and assertiveness.

2. Interpersonal psychotherapy (IPT)

Interpersonal psychotherapy stresses the importance of interpersonal relationships and that people experience distress when disruptions occur in their significant attachments. This results in a loss of social support that causes or maintains depressive feelings.¹⁵ IPT focuses on current interpersonal conflicts, and targets depressed adolescents' interpersonal skills to improve their relationships.³² The four main areas of focus with interpersonal psychotherapy include loss, interpersonal disputes, role transition, and interpersonal deficits.¹⁰ The focus is on interpersonal issues and on teaching the adolescent how to deal with them constructively.

A modification of interpersonal therapy to more specifically address depression for adolescents (IPT-A) includes a focus on separation from parents, authority figures, peer pressures, and dyadic relationships. IPT-A has been studied and found to be correlated with decreased depressive symptoms, increased social functioning, and improved problem solving.¹⁰

3. Pharmacotherapy

Antidepressants are particularly recommended in the treatment of moderate to severe depression in the young. It is however important to note that not all antidepressants that are effective in adults are effective in the young, while some are too risky to use in this age group.¹⁵ Thus, adult treatment regimen and protocols cannot necessarily be generalized to children and adolescents. As a rule of thumb, it is important to start with a low dose, and then gradually increase until symptoms lessen, or side effects appear. Thus, patients on medications should be reviewed regularly to watch out for side effects and provide appropriate intervention.

Although, Selective Serotonin Receptor Inhibitors (SSRIs) are the most studied and recommended class of antidepressants for the management of child and adolescent depression, not all of them are appropriate for use among this age group. Fluoxetine is the best studied and has the best evidence of effectiveness. It is approved by the FDA for those aged 8 years or older.¹⁰ Sertraline, citalopram, escitalopram have less robust evidence of effectiveness, though they may be

effective in patients who did not respond to fluoxetine.³³ However, escitalopram has been approved by the FDA for adolescent depression. Paroxetine use is not recommended as it doesn't appear to be effective in the young and shows more side effects than the other SSRIs¹⁵. Its short half-life that increases the risk of withdrawal symptoms also doesn't help.

Tricyclic antidepressants aren't recommended at all because it showed no evidence of effectiveness especially among pre-pubertal children¹⁵. Other possible reasons include the risk of toxic overdose, and other side effects including QT prolongation and anticholinergic side effects.

Other classes of antidepressants aren't recommended because evidence to support their effectiveness is lacking.

4. Physical treatments

Besides medication, several physical treatments are used in the management of depression in children and adolescents. Of these, electroconvulsive therapy (ECT) has been administered to the young for about 60 years, while transcranial magnetic stimulation (TMS) is a more recent physical treatment method.

ECT has been used for a variety of psychiatric illnesses in adults, primarily severe depressive and manic mood disorders and catatonia. Its use among children and adolescents is however rare and controversial. Although published case reports indicate its efficacy in adolescents with depression and mania,²⁴ there are no controlled trials as they pose significant ethical challenges. ECT may be treatment option of choice for adolescents who have persistent severe affective disorders, particularly with psychotic features, catatonic symptoms, or persistent suicidality, and when other treatment options have failed.¹⁰

More recently, TMS has been used in young people but some still consider it an experimental treatment¹⁵. Currently, there are limited studies on the effectiveness of TMS in the management of child and adolescent depression, but early results appear promising.¹⁵

DIFFERENTIAL DIAGNOSIS

Because of the sometimes-non-characteristic features in a child and adolescent, it may bear semblance to some other conditions including:

1. Normal child and adolescent behaviors
 - a. Symptoms are not usually persistent.
 - b. Not usually associated with significant impairment in functioning
2. Bipolar affective disorder

- a. History of previous hypomanic or manic episode
3. Schizophrenia
 - a. Dysphoria and self-neglect of a prodromal stage of schizophrenia to be misdiagnosed as depression.
 - b. Negative symptoms of schizophrenia may also be misdiagnosed as depression.
 - c. Often, only the passage of time helps to solve the diagnostic problem.
4. Medical illnesses: anemia, cancer, hypo/hyperthyroidism, infections e.g., HIV etc.
5. Effect of medications e.g., antipsychotics, corticosteroids, beta-blockers etc.
6. Substance use disorders
 - a. Psychostimulants withdrawal can present (particularly after episodes of intense use) with a picture of dysphoria, fatigue, sleep disturbance and psychomotor retardation that can be very similar to depression.
7. Adjustment disorder
 - a. Usually follows an identified stressor.
 - b. Symptoms should disappear once stressors have ceased.

CONCLUSION

Mood disorders, especially depression in children and adolescents have been studied increasingly over the last two decades, culminating in increased knowledge about the presentation, and treatment. Despite this, it is still often missed or misdiagnosed due to the fact that it sometimes presents with uncharacteristic symptoms. Surgery and surgical conditions worsen the outlook and should be looked out for as prompt diagnosis and treatment is however needed to prevent some of the debilitating long term effects to individuals, and the larger community.

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