

RELATION BETWEEN PUBERTY AND DEPRESSION: REVIEW

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ABSTRACT

Puberty is the time in which a child's sexual and physical characteristics mature. It is initiated by hormonal changes triggered by the hypothalamus. Unipolar depression becomes more common in girls than boys at the time of puberty, as a result of an increased incidence of depressive episodes in girls at that time. The various signs and symptoms of this condition includes abdominal pain, insomnia or over-sleeping, headache, stomach problems, breathlessness, tremors, and heart palpitations, Eating disorders, severe depression. It is estimated that depression rates increase to 5% to 8% during puberty. The relation between puberty and depression has been published in various journals. Research suggests that an pubertal maturation in girls correlates with a number of detrimental outcomes. This article reviews the relation between Puberty and Depression.

Keywords: Puberty, Depression, Hormonal change

INTRODUCTION

Puberty is a dynamic period of physical growth, sexual maturation, and psychosocial achievement that generally begins between age 8 and 14 years. The age of onset varies as a function of gender, ethnicity, health status, genetics, nutrition, and activity level.[1]

In normal puberty, hormone secretion changes dramatically. Central to the process is a section of the brain called the hypothalamus, which produces a substance called gonadotropin releasing hormone (GnRH). During childhood, GnRH secretion is minimal but with the onset of puberty, secretion of GnRH is enhanced. The primary function of GnRH is to regulate the growth, development, and function of the testes in the male and the ovaries in the female. GnRH signals the pituitary gland to secrete luteinizing hormone (LH) and follicle-stimulating hormone (FSH) (also known as gonadotropins). In boys, LH stimulates testosterone production and FSH promotes sperm production. In girls, both LH and FSH are necessary for ovulation (rupture of follicle and release of egg from the ovary) while FSH stimulates development and maturation of a follicle in one the ovaries [2]

Though Puberty can be a difficult time for both parent and child it is often a sign that the child is now mature, able to do evaluate and make decisions for themselves. This shows the healthiness of the child .During this period many have attributed withdrawal, moodiness and other behavioral changes to this normal developmental stage, but researchers are realizing that in some cases they could indicate that puberty is actually contributing to depression.

Frequency of Depression during Puberty

According to the American Academy of Pediatrics. it is estimated that 2% of children under age 10 experience depression, However, between the ages of 10 and 14, the average age range of puberty onset, depression rates increase to 5% to 8% for children overall. Though rates of depression are higher for boys than girls before puberty, the rate for girls becomes double that of boys during puberty. Researchers now know that hormonal changes associated with puberty occur in children as young as seven, which in turn may affect their emotional development and ability to cope with stress.[3,4]

Puberty is part of any persons life, but if it comes to early this can have very bad side effects. Early puberty being linked to depression can have long term side effects, that is why it is important to remember that we should not be in a hurry to to help our child mature, for this can have a very side effect when they grow up.

Mood and depression.

During puberty young girls frequently exhibit a negative self-image. Pre pubertal boys and girls demonstrate an equal frequency of depression, although there is a more frequent occurrence in girls at

stage 3. This change in the prevalence of depression appears more related to serum sex steroid concentrations than to LH or FSH values or the physical changes of puberty.[5,6,7] Reports of attempted suicide increase sharply during puberty, and suicide now ranks fourth as a cause of death among 15-to 19-year-olds[8]

A retrospective analysis showed that adolescents who actually committed suicide during puberty had the onset of their depression in childhood or early puberty, even though the act of suicide occurred later in puberty[9]

Psychosocial changes

Puberty includes a profound social change from the sheltered, single-classroom environment of elementary school to the multiple classrooms and teachers of middle school [10,11].

There is exposure to new peers, often with different life experiences and behavior patterns. Risk-taking behaviors often increase, including sexual precocity and alcohol and cigarette abuse. In contrast to the concrete reasoning of childhood, the child entering puberty develops maturing abstract thought and decision-making processes. Other psychological and psychosocial changes that occur during this time include the ability to absorb the perspectives or viewpoints of others, the development of personal and sexual identity, the establishment of a system of values, and increasing autonomy from family[12]

Now research conducted by University of Bristol and the University of Cambridge has found a link between when a girl first menstruated and symptoms of depression. The findings published in the British Journal of Psychiatry found that girls who started their periods before the age of 11.5 years had the highest rates of depression at 13 and 14.

Reasons for Depression during Puberty

Several theories for the striking increase in depression during puberty exist. However, there is little agreement among researchers and clinicians:

- **Hormones:** Estrogen and androgens may influence depressive symptom levels by acting on central nervous system structures that are important for mood. A female sex hormone Estrogen has been linked to depression. Estrogen levels dramatically increase in girls during puberty, which may contribute to the increase in depression rates among them. Studies suggested that increased levels of gonadal sex steroids increase risk of negative affect regardless of timing of pubertal development or other depressive correlates, such as stressful life events. The dramatic hormonal shifts associated with puberty may result in arousal, excitability, or excessive emotionality Negative affect may spike as the endocrine system enters gonadarche or is "turned on" at the initiation of puberty [13,14]

Stage of Physical Development: Various studies reported that physical development (e.g., emergence of secondary sexual characteristics and changes in body proportion, as well as sexually dimorphic facial appearance including alterations in facial bone structure, facial hair, and fullness of lips) during mid-puberty predicted the increase in depression rates more than other any factor. Physical Amidst these changes in early adolescence arise sharp increases in the rate of problems associated with the regulation of emotion and behavior, including increases in risk-taking behaviors, sensation-seeking, experimenting with alcohol and substance use, the number of accidents, suicide, as well as the prevalence of affective disorders [15]

- **Timing at Puberty Onset:** The timing of puberty onset may have an impact on depression rates: Children who self-reported that they were "early" or "late developers" exhibited more depressive symptoms than those who felt they were developing at the same time as their peers.[16]

- **Stressful Life Events:** Some study reports as a result of stressful life events some children are more prone to depression. During puberty, academic work and social relationships become more complex and demanding, which can be stressful.[17]

1.5 Signs of Depression During Puberty

After puberty, girls are twice as likely to become depressed compared to boys.

Depression has been linked to various issues in children and teens:

- Lower school performance
- A higher risk of suicide
- Lower work performance
- Being in trouble with the law
- A higher risk of drug or alcohol abuse
- Early pregnancy
- Psychosomatic symptoms like abdominal pain, insomnia or over-sleeping, headache, stomach problems, breathlessness, tremors, and heart palpitations\
- Eating disorders, severe depression
- Anxiety and disturbed self-image
- Suicide attempts
- Delinquent behavior

The onset of puberty as well as its effects are tightly linked with body size and shape, which might contribute to depression and issues with food.[18]

1.6. Treatment of Puberty Depression

The treatment will vary based upon the severity. Different types of treatments are Education, psychotherapy, family sessions and use of medications

Psychotherapy

The first choice for mild to moderate depression (where there are only a few symptoms) is talking treatments, from a psychiatrist; psychologist or counselor educating the young person and their family about the illness is also an important part of treatment. The child psychiatrist or therapist can help to educate parents and teachers about depressive illness, so that they will be better equipped to manage and help the young person.

The strongest evidence is for cognitive behavioral therapy, but other types of therapy and counselling may be helpful too.

If the depression is really severe (with bad sleep disturbance, weight loss or persistent suicidal ideas), treatment with antidepressants may be helpful.

Antidepressant medication [19,20,21]

Treatment with antidepressants is recommended for severe depressive illness or where depression fails to respond to an adequate trial of talking treatment. It should never be the only type of treatment.

Selective serotonin reuptake inhibitors (SSRIs) like fluoxetine (eg Prozac), paroxetine (Seroxat) and sertraline (Lustral) were the first choice to treat childhood and adolescent depression for several years.

However, the Committee on Safety of Medicines, the advisory body on drug safety in the UK, revised their recommendations for the use of these drugs in childhood and adolescence in December 2003.

In summary, the CSM's advice is that fluoxetine (eg Prozac) is now the only SSRI antidepressant for which the evidence of benefit outweighs the possible harms from using this group of drugs.

The older type of antidepressants, called tricyclic antidepressants, is not affected by the CSM's advice on SSRIs so they are still available for prescription.

However, they are significantly more likely to cause side effects and all can be toxic in overdose. The options for drug treatment of depression in childhood and adolescence have therefore become significantly more limited.

Whatever the choice of drug, all antidepressants have a lag of at least two weeks (and up to six weeks) before they start to work.

This early stage is when any side-effects are at their greatest, so it's important to persevere with treatment, provided the side-effects are tolerable. If the first antidepressant doesn't suit the young person, a different one is worth trying.

All antidepressants should be started gradually, taken for at least a six-month course and withdrawn very slowly over six weeks when it is appropriate to do so.

CONCLUSION

Puberty, the most significant milestone of adolescence relates in a meaningful way to depression psychopathology, particularly among female adolescents. This review highlighted the organizational role of gonadal steroid hormones, which become elevated during puberty and is responsible for depression. Even though there are different treatments available, the proper treatment should start based on severity. The commonly used antidepressants are Selective serotonin reuptake inhibitors (SSRIs) like fluoxetine (eg Prozac), paroxetine (Seroxat) and sertraline. The CSM's advice is fluoxetine (eg Prozac) among the SSRI antidepressants. Antidepressant medications should be started gradually, taken for at least a six-months course and withdrawn very slowly over six weeks.

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