

# Bio-Psychosocial Impact on the Development of Depression in Adolescents

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**Abstract:** Depression is a complex and multi-layered mental health disorder, which leads to a loss of interest in the person's usual daily life activities with apparent low moods that last for an extended period and feelings of hopelessness. Depression is prevalent among all age groups, including adolescents, with devastating consequences that pose a public health concern. This paper analyzed the bio-psychosocial impacts on the development of depression in adolescents. The paper demonstrated that the onset of depression in adolescents is facilitated by bio-psychosocial factors of a biological, psychological, and social nature. Taking cognizance of the vulnerable nature of the adolescent developmental stage, this paper gave an expository explanation of the bio-psychosocial factors affecting the development of depression in adolescents. Proper understanding of and identifying the bio-psychosocial factors promulgating depression in adolescents underscores the need for propounding protective factors that could facilitate adequate prevention and intervention to mitigate the development of depression in adolescents.

**Keywords:** Adolescents, Bio-psychosocial, depression, development, impact.

## INTRODUCTION

Over the decades, depression has constituted a significant mental and public health concern with devastating consequences. Depression is a complex and multi-layered mental health disorder, leading to a loss of interest in the person's usual daily life activities with evident low moods that last for a long time. It is associated with feelings of hopelessness, helplessness, social withdrawal, poor decision-making, low self-esteem, loss of interest in pleasure, thoughtfulness. It is also sometimes related to societal maladaptation "American Psychiatric Association" (APA, 2013). Freeman and Joska (2013) projected that globally, depression would be one of the leading causes of disability among all age groups by the year 2030. The World Health Organization (2020a) maintains that depression is a common mental health condition that affects more than 265 million people globally. Depression affects the general population, ranging from children to adults. The World Health Organization (2020b) maintains that depression is among the leading causes of illness and disability in adolescents. The WHO (2020b) further states that depression in adolescents at worst predisposes them to suicide. Furthermore, Nalugya-Sserunjogi, Rukundo, Ovuga *et al.* (2016) state that the recent mental health review showed that globally, 10 - 20% of adolescents are to suffer depression in their lifetime or at any point in time during the year.

Depression in adolescents is undoubtedly prevalent in society. Individuals suffering from depression and their families seem to be ignorant of it, which stops them from seeking help and escalates the devastating effects (Chukwuere, Pienaar & Sehularo, 2020a). Furthermore, depression in adolescents is a serious health challenge that poses detrimental effects to the person. In contrast, adult depression, in itself, cannot be overlooked and is also a matter of concern (Khasakhala, Ndetel, Mutiso, Mbwayo & Mathal, 2012). Research has shown that females are affected by depression twice as often as men are (Maughan, Collishaw & Stringaris, 2012). Depression in adolescents poses a considerable disease burden to individuals, families, and society, with relapsing tendencies.

Many biological changes characterize the developmental stage in the life of an individual. Especially in girls, with numerous developmental influences and challenges that require careful and adequate handling by parents, guardians, and other concerned individuals such as teachers, counselors, and caregivers to grow and properly fit in with society. Doing so could facilitate the curtailing of the prevalence of depression in adolescents. Niwa, Jaaro-Peled, Tankou, *et al.* (2013) posit that adolescent behaviors are influenced by what happens around them during their development, and these things, including genetic compositions, interact with each other. The interaction of these factors in their various natures influences depression among adolescents, which is a severe concern for mental health-care practitioners such as mental health nurses and society (Knowles, Chew-Graham, Adeyemi, Coupe & Coventry, 2015). On the

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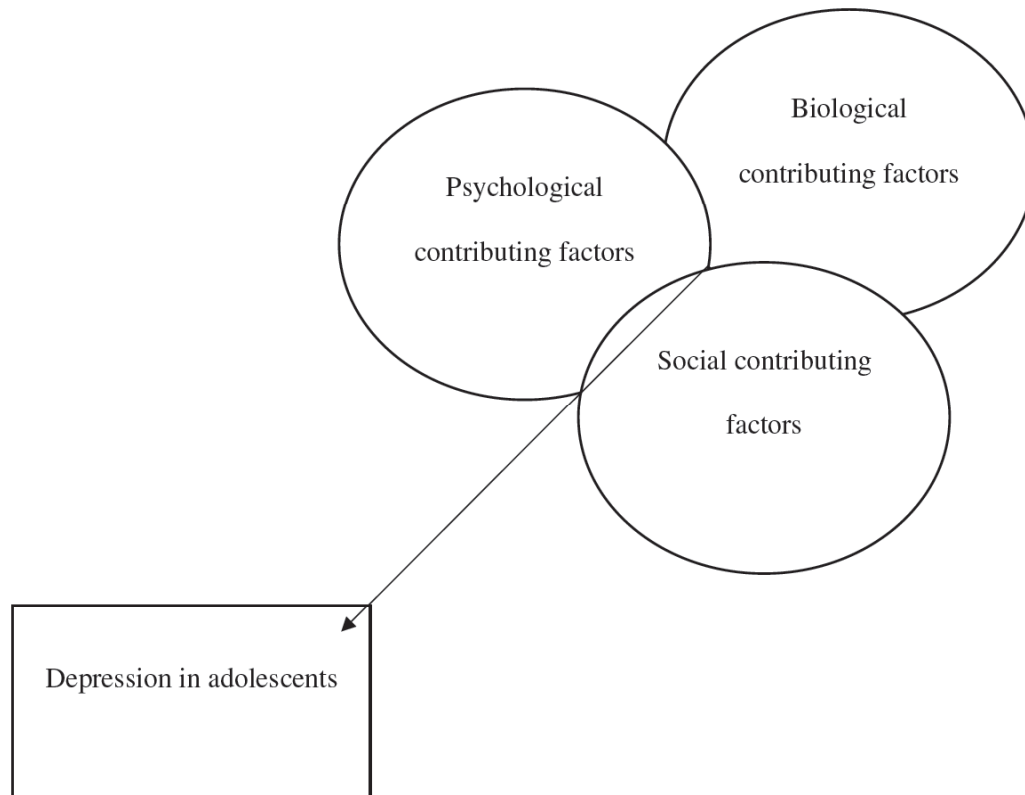
above premise, this paper is of the view that it is imperative to understand the interactive factors that could promulgate the development of depression in adolescents. Understanding these contributing factors could facilitate the mitigation of those factors that could be mitigated and promote decisions for protective measures that could enhance the development of an appropriate coping mechanism to combat the symptoms of depression and associated consequences. This paper explored the bio-psychosocial impacts on the development of depression in adolescents. The literature review facilitated the conceptualization of ideas regarding the bio-psychosocial factors in developing depression in adolescents.

**BIOLOGICAL, PSYCHOLOGICAL AND SOCIAL FACTORS**

According to WHO (2020a), the complex interaction of biological, psychological, and social factors promulgates the development of depression. The interaction of Biological, Psychological, and Social factors on one's life, including developmental changes and accompanying challenges associated with gender and age, financial worries, abuse, employment status, disabilities, non-communicable. Diseases like lung

diseases, arthritis, hypertension, and stroke, play considerable roles in developing depression (Nalugya-Sserunjogi, Rukundo, Ovuga, Kiuwa, Musisi & Nakimuli-Mpungu, 2016). These three variables (biological, psychological, and social factors) interact, especially during adolescence. The adolescent stage is essential in an individual's life with various developmental changes and influences. People usually have poor coping mechanisms at this stage which tends to facilitate the development of depression (Luking, Gilbert, Kelly, *et al.*, 2020).

Research has shown that the development of depression in adolescents can be facilitated by a combination of genetic, brain biology, and chemical factors (Thapar, Collishaw, Pine & Thapar, 2012; Luking *et al.*, 2020). The way people feel, think, perceive, and interpret the happenings in their lives and social environments impact positive or negative in their lives and can also facilitate the development of depression (Rawatlal *et al.*, 2015). Human beings tend to get carried away by unfavorable situations. Many even tend to exaggerate adverse events more than positives ones. Depression can develop because of the challenges of life, including inherited genes, low-income family backgrounds, marital issues, premature death of parents, perceived low self-esteem, being a



**Figure 1:** Preliminary conceptual framework.

female, low social support, poor coping skills due to reduced intellectual competence, poor physical health, excessive interpersonal dependency and child developmental experiences of an adolescent (Shao, Xu & Pan, 2017). Today, many people in society perceive depression in adolescents as a sign of weakness, which prevents the individual from receiving the necessary medical attention.

The prevalence and consequences of depression in adolescents call for more serious attention because they are the leaders of tomorrow. It could be said that the future of every progressive society solely relies on adolescents, and consequently, their mental health cannot be neglected. Interestingly, a lack of proper individual coping mechanisms in the face of life challenges facilitates depressive symptoms (Moreh & O'Lawrence, 2016). Furthermore, when depression is in a developed stage, the individual, family, and society are affected in different ways (Welthagen & Els, 2012). Therefore, there is a severe need to properly understand the interaction of these contributing factors and how they lead to the development of depression in adolescents. Adequate understanding of these factors could facilitate the development of measures crucial in mitigating the prevalence of depression in adolescents. The preliminary conceptual framework presented above shows the bio-psychosocial factors encouraging the development of depression in adolescents.

### **Biological Contributing Factors**

Studies have shown that children born by parents who at a time in their life suffered depression are three to four times at higher risk of inheriting depression compared to children from healthier parents. Hammen (2018) explained that children of depressed mothers inherit genetic predispositions that could facilitate depression in adolescents. Maughan *et al.* (2012) posit that depression is a multifactorial illness with diverse pathways and risk factors. Still, there is much evidence of biological and psychosocial factors, with more evidence pointing at neurocognitive and neuroendocrine mechanisms. Furthermore, family inherited genetic factors account for three-to-four elevated risk rates in offspring, although genome-wide association studies have not detected the replicated gene involved in depression. Genetic information studies have suggested that familial transmission of depression is associated with psychosocial mechanisms. Thapar *et al.* (2012) posit that adolescents with genetic risks for depression tend to manifest depressive symptoms faster when exposed to

stressors. In addition, hormonal and maturational changes can also facilitate the development of depression in adolescents.

Thapar *et al.* (2012) further maintained that inherited factors contribute to depression in adolescents in two ways, directly increasing risk and indirectly affecting it through gene-environment interplay. Gene-environment interplay now escalates adversity through exposing the individual to unhealthy environments. Furthermore, in support of this notion, studies on twins and family demonstrated that girls with hereditary traits are more vulnerable to depression when exposed to psychosocial risk factors. Studies suggest that variants (5-HTTLPR) found in serotonin gene transporters can increase depressive risk only in the presence of severe stressors (Bernaras, Jaureguizar & Garaigordobil, 2019).

In a different study, Calhoun, Franklin, Adelman, Guerry, Hastings, Nock, and Prinstein (2012) explained biological contributors to depression in adolescents utilizing physical responses to stressors, which vary between individuals. A primary stress response system regulates the functioning of the hypothalamic-pituitary-adrenal (HPA) axis system when dysregulation predisposes an adolescent to depression. A perceived threat through a simple process self-initiates a response action by the HPA axis, causing the amygdala to trigger the release of corticotrophin-releasing hormones by the hypothalamus, thereby causing the adrenal gland to increase its production of glucocorticoids. Glucocorticoid has a type of cortisol that studies have found is hyper-secreted by depressed adolescents because of stress. To Jones, Thapar, Stone, Thapar, Jones, Smith, and Simpson (2017), hereditary aspects also play a huge role in depression among adolescents. Adolescents who have parents or a parent suffering from depression have a higher tendency to inherit it from them. Nelson, Infantolino, Klein, Perlman, Kotov, and Hajcak (2017) found that abnormalities in brain reward circuitry and other multiple neural measures contribute to depression.

### **Psychological Contributing Factors**

Psychological factors contribute to the development of depression in adolescents. These factors increase the adolescent's vulnerability to depressive symptomatology or interact with other predisposing factors in facilitating the development of depression in adolescents. In the presence of depressive symptomatology in adolescents, emotional instability is

inevitable. According to Babore, Trumello, Candelori, Paciello, and Cerniglia (2016), self-esteem as a contributing psychological factor plays a crucial role in developing depression in adolescents. Various studies have shown that low self-esteem may facilitate the interactive activities of other vulnerability factors in developing depression in adolescents (Cimino, Cerniglia & Paciello, 2015; Adams, Abela & Hankin, 2007). Furthermore, Orth and Robins (2013) maintain that several longitudinal studies evaluating the relationship between self-esteem and depression have shown that low self-esteem leads to depression.

In short, psychological factors such as an adolescent sense of failure in academic or relationship life, overthinking such as exaggeration of or overstressing the negative, the assumption that others are thinking bad or negatively about you, and stressful events such as the loss of a loved one, could facilitate the development of depression in adolescents. Furthermore, adolescent females are more predisposed to depression due to self-image changes because of puberty, discrimination from boys, and their tendency to amplify emotional situations. In addition, feelings of despair, not coping in school, poor academic performance, low-income family coping, stigmatization, poor concentration, poor relationship coping, and loss of interest in lovemaking are psychological factors resulting in depression in adolescents. Research has also shown that childhood traumatic experiences affect a child's stress threshold and trigger depression during low-stress conditions in adolescent stages (Oldehinkel, Ormel, Verhulst & Nederhof, 2014). Thapar *et al.* (2012) maintained that the psychological processes associated with adolescent HIV infestation expose the individual to depression and other psychiatric disorders, especially when there is a family history of such disorders.

Emotional adversities encountered by a child during the developmental stage of life have a high tendency of modifying later stress sensitivity and the risk of developing depression in many ways, including through stress amplification, stress sensitization and stress, and stress inoculation. However, children who were not emotionally traumatized during their developmental stage have a low risk of developing depression compared to the traumatized ones, even in the presence of childhood adversities (Oldehinkel *et al.*, 2014).

### **Social Contributing Factors**

The development of depression in adolescents could be facilitated by social contributing factors such

as poor socialization, compulsive gambling, reckless driving, behavioral abnormalities, and substance abuse. Furthermore, workplace maladaptation, poor social support, deterioration of physical health, loss of job, loss of productivity, loneliness, poor functional health, self-harm or harm towards others, and a financial burden on the adolescent's family could also add to the prevalence of depression in adolescents. Maughan *et al.* (2012) maintained that the early development of depression during childhood or adulthood could be traced back to family stress. These stresses could be because of financial challenges, which predispose adolescents to the financial burden to help the family. Similarly, Lorenzo-Blanco, Unger, Baezconde-Garbatani, and Soto (2012), in their attempt to ascertain the influence of culture and family in the development of depression, found that family cohesion and family conflict are associated with the development of depression in adolescents. Bernaras, Jaureguizar, and Garaigordobil (2019) further recognized the influence of sociocultural changes in the development of depression in adolescents.

Similarly, Thapar *et al.* (2012) reported that "personal injury, bereavement, maltreatment, family discord, bullying by peers, poverty, physical illness" are social contributing factors to depression in adolescents. In addition, Chukwuere (2018) found that the stress of life, maltreatment from foster parents, poverty, and family problems contribute to depression in adolescents. With the vulnerable nature of the adolescent stage, social issues such as homelessness tend to affect the individual and lead to depression negatively. Most adolescents are ignorant of depression, while some lack mental coping skills, making them more vulnerable to depression. Calhoun *et al.* (2012) posit that, generally, social stress manifests depression in adolescents. Du Plessis (2015) confirmed that stress on its own is a predictor of depression among adolescents.

Furthermore, adolescents from abusive or violent families are vulnerable to depression. Hailemariam, Tessema, Asefa, Tadesse & Tenkolu (2012) maintained that most of the depression in adolescents emanated from what the individual is going through, such as issues related to their school experience. Other social contributing factors to depression in adolescents include relocating to another city, social isolation, physical abuse, rape, accident, and defamation of character or public disgrace resulting from false accusation.

## DEPRESSION IN ADOLESCENTS

Depression is a serious health issue among adolescents, with approximately a quarter of the population experiencing depression in their lifetime. The depression often resurfaces later in life (Weersing, Shamseddeen, Garber, *et al.* 2016). It constitutes serious challenges, especially in developing countries. Chrisman and Richardson (2014) add that depression in adolescents causes disease comorbidity and death, including poor academic performance, abuse of substances, abnormal weight gain, suicide ideation, and suicide. Fallucco, Seago, Cuffe, Kraemer, and Wysocki (2014) further posit that depression in adolescents is still underdiagnosed and undertreated, and therefore poses a severe public health problem. Statistics from the US show that 50% of adolescent cases are identified annually, and of the 2 million adolescents diagnosed with depression, 38% duly receive the appropriate treatment. However, untreated depression among adolescents is quite challenging, as it leads to various detrimental conditions, including suicide ideation and suicide (Fallucco *et al.*, 2014). Bodden, Stikkelbroek, and Dirksen (2018) add that the high prevalence of depression among adolescents in the world has become a greatly humanistic problem ravaging society. Studies have shown that depression arguably starts from the adolescent stage, but despite treatment measures available for it, adolescents encounter difficulties getting the needed professional care (Bruce & Kutcher, 2016).

The prevalence of depression among adolescents is usually as high as 28% in primary health-care facilities, denoting a severe challenge. Studies have revealed that 1 in 5 adolescents have the possibility of suffering from depression at any point in time in their lives (Cheung, Zuckerbrot, Jensen, Laraque & Stein, 2018). In their study, Nelson *et al.* (2017) maintained that the adolescent period remains a vulnerable stage, while depression prevalence escalates more at the age of 14. Furthermore, the lifetime prevalence of depression tends to increase almost twofold from 8.4% to 15.4% during the adolescent period. Girls are also more prone to depression.

## BARRIERS TO LACK OF CARE

Although there has been an effective treatment for depression over the years, as a percentage, fewer and fewer affected individuals worldwide access these available treatments, which leads to a psychosocial impact on society, and especially on the adolescents themselves. Barriers to the effective treatment of

depression globally include poverty in many countries of the world. The management of depression has proven to be cost-intensive, and many families globally find it difficult to cope with it. Furthermore, there has also been misdiagnoses of the depressed individual and poor administration of appropriate medications, ignorance among families, and a lack of appropriately trained counselors and appropriately trained medical personnel to make such diagnoses due to low income of the country, societal crises such as war, and social stigmatization of those suffering from mental disorders. Jones *et al.* (2017) maintained that poor identification represents one barrier to proper care for depression in adolescents. Recognizing depression in adolescents is usually a difficult task. In addition, Hernan, Philpot, Edmonds, and Reddy (2010) maintain that personal and logistical barriers lead to a lack of care for adolescents suffering from depression. Emotional barriers include self-consciousness, fear, and embarrassment (Jorm, Wright & Morgan, 2007).

WHO (2020a) reported that a lack of adequately trained health care providers, social stigma, and a lack of resources are some of the barriers to appropriate care for mental health conditions, including depression in adolescents. Furthermore, adolescents' and parents' low levels of mental health literacy are also barriers to care (Wang, Do, Frese & Zheng, 2019). Barriers to care to underscore the inability of a depressed adolescent to get the appropriate mental health care for the condition. This escalates the symptoms and the consequences of the mental health disease condition on the adolescent and the family. In addition, more scholars reported cost for transportation, limited available health care materials, and cultural belief as barriers to care for depressed adolescents (James, Moonesinghe, Wilson-Frederick, Hall, Penman-Aguilar and Bouye, 2017; Cordasco, Mengeling, Yano, & Washington, 2016; Douthit, Kiv, Dwolatzky, & Biswas, 2015). A lack of confidentiality and privacy while accessing the health care facilities, such as in rural areas is also important (Grilo, Catalozzi, Santelli *et al.*, 2019).

## CONSEQUENCES OF DEPRESSION IN ADOLESCENTS

When an individual is in a positive mood and healthy, accomplishing tasks is inevitable, and there is a sense of fulfillment. When that same person is depressed, negativity sets in, which leads to loss of interest in pleasures, poor productivity, poor academic performance, and loss of social contact (Khurshid,

Parveen, Yousuf & Chaudhry, 2015). Depression interrupts the individual's life cycle, leading to poor quality of life, loss of interest in pleasure, poor workplace production, poor academic performance, and low self-esteem, possibly resulting in psychological morbidity (Sharma & Wavare, 2013). Researchers have shown that depression compromises individuals' development and hampers coping skills, causing more stress to the sufferer (Du Plessis, 2015). Chukwuere, Pienaar, and Sehularo (2020b) and Naidoo, Naidoo, and Naidoo (2015) maintained that depression predisposes adolescents to suicidal ideation and suicide, with suicide behaviors constituting the significant causes of health-care burdens and diseases globally. Studies have also shown that annual suicide rates will escalate to 15 million within the next couple of decades. Studies have proven that more than half of adolescents who have committed suicide were depressed before their suicide. Depression is thus a significant risk factor for adolescent suicide, with more than half of adolescent suicide victims reported having been depressed before death (Thapar *et al.*, 2012). Furthermore, adolescent depression underscores other mental health conditions among adolescents, such as bipolar disorder, anxiety, and substance use disorder, which makes it more threatening to public health.

Depression is a significant suicide risk factor, especially among adolescents, which constitutes the second to the third leading cause of death. Depression also predisposes an adolescent to poor physical health and deliberate self-harm, which includes a disease burden to the individual, family, and the community and poor social and educational performance (Jones *et al.*, 2017). Zoonen, Buntrock, Ebert, Smit, Reynolds, Beekman, and Cuijpers (2014) say that depression leads to financial and disease burdens on the individual and family, reducing the quality of life of an individual. They also say that it can cause untimely death. The World Health Organisation (WHO) (2012) and Moreh and O'Lawrence (2016) maintained that depression does not constitute a disease burden and a common cause of disabilities alone among adolescents, but across all age groups, which is cause for concern when it comes to public health.

Furthermore, Rubble, Leon, Gilley-Hensley, Hess, and Swartz (2013) maintained that depression remains a high cause of morbidity and mortality among adolescents. Suicide, however, is a resultant effect of depression in adolescents, which is a leading cause of teenage death and a substantial public health concern. In addition, depression in adolescents predisposes the

individual to various negative consequences such as poor academic performance, poor social adaptation, and physical illness with high tendencies of reoccurrence during adulthood (Nelson *et al.*, 2017).

## **INTERVENTION TO ADOLESCENT VULNERABILITY**

According to Blom, Duncan, Ho, LeWinn, Chesney, Hecht, and Yang (2014), treating adolescent depression using the more traditional methods has not been sufficient owing to the increase in prevalence. They, therefore, proposed a new treatment model, which they have called "Training for Awareness, Resilience and Action" (TARA). According to the authors, this aligns with the National Institute of Mental Health, Research Domain Criteria (RDoC). Niwa *et al.* (2013) maintain that intervention approaches to adolescents vulnerable to depression should start with disseminating more information regarding the underlying mechanism and predisposing factors. Thapar *et al.* (2012) add that addressing adolescent vulnerability should aim to put in place prevention strategies such as modifying risk and promotion factors to protect vulnerable children from the effects of stress, bearing in mind the multifactorial causes of depression in adolescents and the impending cost of management.

Furthermore, government policies should be put in place to tackle inequalities in society. Prevention strategies should include psycho-education and the use of cognitive-behavioral therapy (CBT). McIntyre, Williams, Lavorato, and Patten (2013) posit that preventing depression in adolescents should be the general duty of society through early detection, especially when there are unfavorable circumstances for the prevention of depression in adolescents and possibly reoccurrence during the adult stage.

Owing to the devastating consequences of depression in adolescents in society, research has proven that early prevention is a significant concern to public health workers. It is often difficult to detect among adolescents, which hinders the involvement of that age group in early prevention programs (Jones *et al.*, 2017). Thus, Watson, Mehra, Hawke, and Henderson (2019) state that successful early intervention for depression in adolescents has significant public health benefits. The National Institute of Health and Care Excellence (NICE) and American Academy of Child and Adolescent Psychiatry (AACAP) maintains that it is imperative to disseminate appropriate information and psychosocial intervention programs to adolescents, families, and the public as a way of facilitating the mitigation of symptoms and

curtailing its prevalence in society. This psychosocial intervention program can improve resilience among adolescents, thereby enabling the mitigation of symptoms of depression in adolescents (Jones *et al.*, 2017). Prioritizing the mitigation of the prevalence of depression in adolescents should be the focus point underlining intervention programs for vulnerable adolescents. This should be done with the aim of strengthening adolescent protective factors, such as the building of resilience (Zoonen *et al.*, 2014). Intervention for depression on vulnerable adolescents should be targeted at the secondary schools level to enhance adolescents' protective factors against depression. Resilience enhancing activities such as school-based programs prioritizing problem-solving approaches and cognitive and social skills development will be important in this regard (Wan, 2012).

Du Plessis (2015), Vogel (2012), and Fallucco *et al.* (2014) further posit that the early detection of the problems fosters effective management through the destruction of the 'vicious circle' of the disease, thereby enabling the vulnerable adolescent to attain life fulfillment. Psycho-education can equally contribute massively to the improvement of depressive states in adolescents. However, Freire *et al.* (2014) argued that correct intervention to vulnerable adolescents should be prioritized on maintaining the optimal well-being of the adolescents through symptom reduction and the enhancement of mental health well-being. Adolescents spend a large chunk of their lives and time in school, which presents a proper avenue to catch them young. Schools-based depression education will serve a greater purpose in reducing depression in adolescents and suicide and will replace the more traditional suicide prevention approach (Ruble *et al.*, 2013).

Furthermore, Chukwuere (2018) confirmed that the adolescent stage is already vulnerable. Depression in adolescents should therefore be addressed at the school level. Since the majority of adolescents spend a larger portion of their time in school, schools should have effective counseling units for adolescents and equip teachers with the necessary knowledge that could enable them to reduce the prevalence of depression in adolescents through imparting skills that will help adolescents develop effective coping skills against depression. Reinecke and Simons (2005) suggested that special attention should be paid to puberty and the accompanying hormonal and physical changes. Studies have shown that they could be associated with depression in adolescents.

## CONCLUSION

This paper presented an in-depth discussion on bio-psychosocial impacts on the development of depression in adolescents. The researcher developed a preliminary conceptual framework that portrays the constructs of biological, psychological, and social contributors to the development of depression in adolescents. Furthermore, crucial concepts for depression in adolescents, including barriers to lack of care, consequences of depression in adolescents, and intervention to adolescent vulnerability, were adequately discussed to understand the paper better. Depression in adolescents continues to be a talking point in mental health, and the need to promote the optimal health of every adolescent is imperative. The study's unique contribution is that it explained the bio-psychosocial factors facilitating the development of depression in adolescents through the exploration of literature. An appropriate understanding and identification of the bio-psychosocial factors that exacerbate the development of depression in adolescents and propounding protective factors that could facilitate adequate prevention and intervention will mitigate the prevalence of depression in adolescents.

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The paper was solely conceptualized and written by Dr. Precious Chibuike Chukwuere.

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Data sharing is not applicable in this paper.

**DISCLAIMER**

The views and opinions expressed in this paper are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the author.

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