PAC UNIVERSITY
JOURNAL OF ARTS & SOCIAL SCIENCES
VOL. 5, N0. 1, (2023)

THE RELATIONSHIP BETWEEN PRECOCIOUS PUBERTY AND SYMPTOMS OF DEPRESSION AMONG PREADOLESCENT GIRLS.

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Abstract: - *This article sought to establish the relationship between precocious puberty and symptoms of depression among preteen-age girls in primary schools in Kiambu County, Kenya. The study employed both correlational and comparative research designs to achieve the study objectives and was guided by the psychosocial theory of human development. A total of 442-, 11- and 12-year-old girls, and 12 female class teachers from 13 schools participated in the study. Primary data was collected using questionnaires, focus group discussions, and structured interviews. The instruments were pilot-tested on 36-, 11- and 12-year-old girls and 3 class teachers from 3 schools within Kiambu County, who were omitted from the actual study. The quantitative and qualitative data were analyzed using the Statistical Package for Social Sciences (version 26) and NVivo version 12 respectively and the analyzed data was presented using tables and figures. Statistical analyses showed that there was a significant relationship (β=0.00, P=0.00) between precocious puberty and symptoms of depression among preteen-age girls in primary schools in Kiambu County, indicating that early maturity significantly affected the emotional functioning of preadolescent girls. The researchers recommend that teachers, therapists, parents, and other stakeholders work together to find better ways of taking care of early-maturing girls, as a way of preventing depressive symptoms and their adverse effects on the well-being of the developing girls.*

Keywords: Precocious puberty, preteen-age girls, depressive symptoms

Introduction

Precocious puberty is one of the factors that has been linked to depressive symptoms among preteen age girls. Puberty is the period of growth that marks the dynamic transition from childhood to adulthood with full reproductive capacity. Kota and Ejaz (2022) defined puberty as a developmental interval characterized by three physical and sexual manifestations: 1) growth spurts resulting from increases in weight and height, the secretion of sex hormones and maturation of gonads, 2) the appearance of secondary sexual characteristics (changes in breasts and genitals, growth of pubic, facial and body hair), and the 3) acquisition of reproductive potential. Puberty results from a complex neuroendocrine system characterized by the increased release of gonadotropin-releasing hormone (GnRH) by the hypothalamus and is influenced by the integrated multiple, central, and peripheral signals leading to the physical and sexual manifestations (Kaplowitz, 2022; Stagi et al., 2020). In years gone by, it was generally accepted that pubertal maturation in girls began at around age 8 and lasted for three to four years culminating with the onset of menstruation at age 12 (Kaplowitz & Block, 2016). Current statistics, however, show that pubertal maturation seems to occur much earlier than these timelines a condition known as precocious puberty.

Most people experience sinking feelings of sadness, nervousness, discouragement and loneliness, especially after going through a difficult experience such as divorce, bereavement or loss of a livelihood. However, when sinking feelings persist for more than two weeks and interfere with the daily functioning of the individual, it becomes a serious mental health problem. Depression is characterized by emotional, cognitive, motivational, and neuro-vegetative changes and it can be mild, moderate, or severe (Bhanawal et al., 2017). The general symptoms of depression include; loss of interest or pleasure in previously enjoyed activities, prolonged sadness, or emptiness, hopelessness, helplessness, worthlessness, guilt, restlessness, anger, irritability, changes in appetite and sleep, fatigue, difficulty in concentrating or decision-making, chronic or psychosomatic pain, withdrawal from friends and family, and suicidal ideations (Bhanawal et al., 2017). Depression is one of the most common neuropsychiatric disorders with twice as many women as men experiencing clinical depression in their lifetime. The prevalence of depression is similar in both girls and boys during childhood, but this changes at the onset of adolescence, when the incidence increases sharply in females. The emergence and persistence of depressive symptoms, their association with other disturbances in associated comorbidity, poor response to treatment, and frequent recurrences, may cause adverse outcomes such as; deficits in social skills, little involvement in recreational activities, poor academic performance, poor peer relationships and suicide during adolescence (Bhanawal et al., 2017).

Literature Review

Pubertal maturation in general and precocious puberty, in particular, has been associated with symptoms of depression. According to Costello et al. (2016), female pubertal maturation in and of itself is a stressful life event that places all individuals at an increased risk for depression. Several empirical studies support this argument. In a study that sought to explore self-consciousness and depression in precocious pubertal children and analyze its effect, Huang et al. (2021) found that children with precocious puberty had higher rates of depression compared to those without and that girls were more prone to anxiety and unhappiness than boys (Huang et al., 2021). These researchers concluded that children who experienced early puberty were at a greater risk of developing psychosocial problems than children with normal puberty because their emotional and cognitive development did not match the physical changes that occurred in early maturation (Huang et al., 2021).

Another study conducted by Jiang et al. (2021) to examine the influence of the pubertal development stage on depression and its psychosocial mechanisms in a non-clinical population in china found that: 1) pubertal development was positively correlated with depression, low self-esteem and interpersonal stress, 2) adolescent depression was closely associated with adult depression and suicidal ideations, 3) depression in puberty could affect normal growth, impair social relationships with friends and family and cause serious educational barriers, and that 4) body dissatisfaction was a major predictor of low self-esteem, depression and eating disorders in adolescents. Explaining the causal relationship between early maturation and depression, Jiang et al. (2021) noted that the media along with significant others have painted a picture of beauty as

thinness for girls which causes body dissatisfaction, low self-esteem and the risk of depression. This study identified low self-esteem as the key mediator underpinning the predictive role of puberty in adolescent depression (Jiang et al., 2021).

Supporting the above studies, Mendle et al. (2018) wrote that early pubertal maturation in girls was associated with higher rates of depressive symptomatology, substance use, suicidality, panic attacks, and academic difficulties. They posited that females who matured earlier than normal continued to report elevated psychopathology even later in life (Mendle et al., 2018).

Findings from a study conducted to compare the association between breast versus pubic hair development and depression among female adolescents showed that: 1) girls who were at more advanced stages of breast development at age 14, had more depressive symptoms than girls at lower stages of breast development, irrespective of age at pubertal onset and that, 2) girls who were at more advanced stages of breast development at age 14, continued to report depressive symptomatology and were more likely to meet the criteria for major depressive disorder at age 17 (Lewis et al., 2018). Lewis and colleagues concluded that girls at more advanced stages of development were at an increased risk for depressive symptoms.

In a study to establish the role of relational aggression in the relationship between pubertal timing and youth internalizing psychopathology, Pomerants found that early pubertal timing in girls and late pubertal timing in boys were related to elevated levels of relational aggression, which was in turn associated with elevated levels of internalizing problems. Pomerant's study also examined both depressive and anxiety symptoms as key indicators of broadband internalizing problems and found that early pubertal timing was indirectly associated with both anxiety and depressive symptoms (Pomerants, 2016).

Two key hypotheses explain the relationship between depression and precocious puberty. According to Singh et al. (2015), one possibility is that the timing of puberty is influenced by the same genes that influence depression, a situation known as pleiotropy (an occurrence where a single gene affects multiple traits). The second possibility is that early menarche provokes adverse environmental circumstances by placing girls in situations for which they are unprepared for both cognitively and emotionally, stressing them to a point of becoming depressed (Singh et al., 2015).

Research Methodology

This study was part of larger study that investigated the relationship between precocious puberty and the psychosocial functioning of preadolescent girls in 13 primary schools in Kiambu County. This study applied the stratified random sampling method to divide Kiambu Country into 13 Sub Counties. All the public schools in each Sub Country were grouped together and then one school was randomly selected from each Sub County. At the school level, whole populations of girls who were 11 and 12 years old, enrolled in class five, and who were willing to participate in the study were included bringing the total number of respondents to 468. In addition, one female class teacher from each of the 13 selected schools was invited to take part in the study to provide collaborative information. Before the actual study, a pilot test of 36 girls from 3 schools in the

study location was done to test the applicability of the instruments. These were excluded from the actual study.

Two instruments, a self - self-administered pupils' questionnaire with a self-rating pubertal development scale, and the children's depression scale adopted from the Revised Children's Anxiety and Depression Scale (RCARDS) were used to assess for pubertal maturation and depressive symptoms respectively. Both tools showed good reliability and validity when used in different assessment settings, Countries, languages and populations across the globe (Chorpita et al., 2015; Donnelly et al., 2018). The questionnaire was distributed to the respondents for self-administration by the researcher with the help of the class teachers. In addition, four focus group discussions (each comprising of 10 girls) in four different schools were conducted. To gather collaborative information, the researchers also interviewed one class teacher in each of the participating schools. The interviews and discussions were recorded using both field notes and audio recordings. In total 442 girls and 12 class teachers completed the study successfully.

Discussions and Findings

Frequency tabulations from the Pubertal Development Scale (as assessed by the observable changes in the body) demonstrated that 349 respondents had grown taller, 365 had pubic hair, 430 had breast development and 237 had begun menstruating. The findings also showed that 65 respondents had pubic hair before age 8, 127 of them had breast development before age 8, and 178 girls had begun menstruating before the age of 12. Development of secondary sexual characteristics before the age of 8 or experiencing menstruation before the age of 12 are clear signs of precocious puberty. For this study, the defining factor for precocious puberty was the onset of menstruation before the age of 12. Findings from this study indicated that 178 (40.3%) out of 442 study participants met the criteria for precocious puberty. This number was significant, meaning that the prevalence of precocious puberty was relatively high among girls in public primary schools in Kiambu County.

Symptoms of Depression

To determine the relationship between precocious puberty and symptoms of depression among preadolescent girls, both regression and Chi-Square tests were conducted and the results are shown below.

Table 4.14

The relationship between Xn (Precocious Puberty) and Y_2 (Symptoms of Depression)

Variables Entered/Removed [a]

Model	Variables Entered	Variables Removed	Method
1	Precocious Puberty Xn [b]	.	Enter

a. Dependent Variable: Y_2 Symptoms of Depression.

a. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.268[a]	.057	.055	.49474

a. Predictors: (Constant), Xn Precocious puberty

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.469	1	6.469	26.427	.000 [b]
	Residual	107.699	440	.245		
	Total	114.168	441			

a. Dependent Variable: Y_2 Symptoms of Depression

b. Predictors: (Constant), Xn Precocious Puberty

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2. 174	.064		33.820	.000
	Precocious Puberty Xn	-178	.035	-.238	-5.141	.000

a. Dependent Variable: Y_2 Symptoms of Depression

The simple regression between precocious puberty and symptoms of depression above gave a p value of 0.000 which is less than the standard error 0.05. These results indicate that the relationship between precocious puberty and symptoms of depression among preadolescent girls in schools in Kiambu County was statistically significant. To confirm this finding, a Chi square test was conducted for the two variables and the results are as follows.

The statistical tests for the relationship between precocious puberty and symptoms of depression among the preadolescent girls gave a p value of less than 0.05 (P=0.000, P=0.006), implying that the relationship between the two variables was statistically significant. This means that early pubertal maturation had an influence on the emotional functioning of preadolescent girls in primary schools in Kiambu County. This was collaborated by the responses from the class teachers who confirmed that when pubertal maturation began early, the girls developed emotional challenges such as loss of interest, sadness and withdrawal which are clear symptoms of depression. Out of the 12 teachers interviewed, five of them said the girls lost interest in school related activities such as class work and sports, two noticed that some girls were always sad, three said that the girls withdrew from friends and wanted to be by themselves, one shared that the girls became arrogant and disrespectful, and another teacher said that the girls became more responsible when they matured earlier than expected. In summary, the quantitative data demonstrated that precocious puberty had a statistically significant relationship with symptoms of depression among the preadolescent girls. The qualitative data confirmed this relationship and demonstrated that precocious puberty contributed to depressive symptoms in most of the girls in schools in Kiambu County.

This finding was supported by the study of Jiang et al. (2020) which examined the influence of pubertal development stage on depression, and its psychosocial mechanisms in a non-clinical population in china. This study found that: 1) pubertal development was positively correlated with depression, low self-esteem and interpersonal stress, 2) adolescent depression was closely associated with adult depression and suicidal ideations, 3) depression in puberty could affect

normal growth, impair social relationships with friends and family and cause serious educational barriers, and that 4) body dissatisfaction was a major predictor of low self esteem, depression, and eating disorders in adolescents. Another study by Mendle et al. (2018) found that early maturation in girls was associated with higher rates of depressive symptomatology, eating disorders and substance use.

Conclusion

This article investigated the relationship between precocious puberty and depressive symptoms among preteen age girls. The statistical results showed that there was a significant relationship between precocious puberty and symptoms of depression, as demonstrated by a p value of 0.000. The focus group discussions and the teacher's interviews results revealed that maturing earlier than normal led to symptoms such as hopelessness, withdrawal from friends and sadness, which are characteristic of depression. Considering these findings, this study concluded that precocious puberty significantly contributed to depressive symptoms in preadolescent girls.

References

Bhanawal, N., Maheshwari, V., Joshi, G., Dhaduk, P., Singh, A., Gambri, R. S., & Kahlon, H. (2017). A study of association between depression and self-esteem among dental students of Udaipur. *International Journal of Orafac Res, 2*(2), 57-60.

Chorpita, F., Ebesutani, C., & Spencer, H. (2015). *Revised children's anxiety and depression scale and subscales: user guide*. Retrieved from https://www.childfirst.ucla.edu.

Donnelly, A., Fitzgerald, A., Shevlin, M., & Dooley, B. (2018). Investigating the psychometric properties of the revised child anxiety and depression scale (RCADS) in a non-clinical sample of Irish adolescents. *Journal of Mental Health, 28*(4), 345-356.

Huang, H., Liu, L., Su, S. & Xie, D. (2021). Self-consciousness and depression in precocious pubertal children. *Journal of International Medical Research, 49*(5). 1-7. Http//:doi:10.1177/03000605211020227

Jiang, L., Yang, D., Li, Y., & Yuan, J. (2021). The influence of pubertal development on adolescent depression: the mediating effects of negative physical self and interpersonal stress. *Frontiers in Psychiatry, 12*, 1-8. Https.doi:10.33389/fpsyt.2021.786386.

Kaplowitz, M. D. (2022). *What are the global trends in the incidence of precocious puberty?* Https://www.medscape.com/answers/924002-95737

Kaplowitz, P., & Bloch, C. (2016). Evaluation and referral of children with signs of early puberty. *Paediatrics, 137*(1), 1-6.

Kota, A. S., Ejaz, S. (2020). *Precocious Puberty*. https://www.ncbi.nlm.nih.gov/books/NBK544313.

Lewis, G., Ioannidis, K., VanHarmelen, A. L., Nuelfield, S., & Stochl, J. (2018). *The association between pubertal status and depressive symptoms and diagnoses in adolescent females: a population based cohort study*. Retrieved from https://doi.org.

Mendle, J., Ryan, M., & Mckone, P. (2018). Age at menarche, depression and antisocial behaviour in adulthood. *Pediatrics, 141*(1), 1-8.

Pomerants, E. (2016). *Pubertal timing and youth internalizing psychopathology: the role of relational aggression* (Master's thesis, UVM College of arts and sciences). Retrieved from http:// scholarworks.uvm.edu/casteses.

Singh, K., Bassi, M., Junnarkar, L., & Negri, L. (2015). Mental health and psychosocial functioning of adolescence: an investigation among Indian student from Delhi. *Journal of Adolescence 39*, 59-69.

Stagi, S., Demasi, S., Bencini, E., Losi, S., Paci, S., Parpagnoli, M., Ricci, F., Ciofi, D., & Azari, C. (2020). Increased incidence of precocious and accelerated puberty in females during and after the Italian lockdown for the coronavirus 2019 (COVID-19) pandemic. *Italian Journal of Pediatrics, 46*(1), 165. Https:// doi: 10.1186/s13052-020-00931-3.