

Prevalence of Depression among Adolescents in Selected Public Secondary Schools in Makueni County, Kenya.

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Abstract

The purpose of the study was to establish the prevalence of depression among 460 (14-21 years) drawn from selected co-ed day and boarding secondary schools in Makueni County, Kenya. Beck's Depression Inventory 2nd edition (BDI-II) was used to assess the prevalence of depression. Data analysis using statistical package for social sciences (SPSS) version 21 revealed a depression prevalence of 58.9%. Participants aged 16-17 had higher prevalence at 32.2% compared to other age categories such as aged 18-19 at 18.3%, aged 14-15 at 4.4% and aged 20-21 at 3.9% respectively. Depression was significantly ($p=.000$) higher in females at (33.8%) compared to males at (25.1%). The proportion of depression was significantly high ($p=.000$) among the form three participants (23.3%) compared to those in form two (18.7%) and form one (16.8%). The frequency was more among day scholars (35.9%) compared to boarders (22.9%). Likewise, depression prevalence was higher in adolescents who lived with both parents (38.1%) compared to those who lived with single parents (13.3%), grandparents (5.2%) and others (siblings and neighbors) at (2.2%), however there was no significant difference ($p = 0.645$). Overall, the study showed that depression is a common and serious mental health problem among high school adolescents in Kenya. This calls for more attention through diagnosis and treatment to improve adolescents' well-being.

Key words: Depression, adolescence, Beck Depression Inventory edition II (BDI-II).

Introduction and Background

Adolescence is a transitional development stage characterized by behavioral and hormonal changes resulting in emotional instability that predisposes adolescents to depression (Jha et al., 2017; Sandal et al., 2017). Depression is a common mood disorder among adolescents that contributes substantially to mortality and morbidity (Jha et al., 2017). Globally 10-20% of adolescents are reportedly affected by one or more mental disorders including depression (Girma et al., 2021). According to WHO (2016), the prevalence of depression is at 4.4%. A study by

Connelly and O'Connell (2022) in America, reported 7.1% prevalence for adolescents aged 12 - 17 years. A systematic review study in China showed a prevalence of depressive symptoms among adolescents in secondary schools at 24.3% (Tang et al., 2019).

Furthermore, a study in a rural South African university, at the KwanZulu-Natal province conducted among first-year university students aged 16 to 20 years old showed that the depression prevalence was 20.3% with a 7% suicide rate (Pillay et al., 2019). Moreover, a study in Nigeria indicated a high depression rate among adolescents at 28.35% (Adewuya & Ola, 2005). However, a study in the north-eastern part of Uganda showed a lower depression prevalence as compared to Nigeria at 8.6% with girls recoding a higher rate of 8.8% and boys at 8.3% (Kinyanda et al., 2013). Kinyanda et al. (2013) further argued that most African children grow under such challenging psychosocial conditions like war and HIV infections which may predispose the adolescents to depression and other mental disorders.

A study by Ndetei et al. (2008) among 14–18-year adolescents in 17 public secondary schools in Nairobi, the capital city of Kenya, consisting of a stratified sample of the schools using child depression inventory (CDI) indicated the prevalence for depression was 25.7%. A later study by Khasakhala et al. (2012) specifically in public secondary schools in Nairobi city using CDI found the prevalence of adolescent depression was 27% - 29%, and suicide rate of 31.1%. With this increase, they asserted that it calls for urgent need to diagnose and treat depression in adolescents. Like other studies, Khasakhala et al. (2012) found out that the rates of depression were higher in the adolescent girls compared to boys. The results from the study also indicated that prevalence of depression was higher among boarding scholars as opposed to day scholars. They argued that the separation of the adolescents from the rest of the family members to boarding school, the expectation and the stressful curriculum may be have contributed to the high rates of depression. In addition, it was observed that most parents take the troublesome children to boarding school forcefully with the hope that the restricted environment will reform them. Unfortunately, this probably increases the severity of depression among students in the boarding schools. The study further found out that depression was higher among the students in form four compared to students in the lower classes. They attributed this to the national examination year for the students that may have resulted to examination pressure and distress.

A later study by Nyagwencha et al. (2018) among adolescents in Charitable Children's institutions in Nairobi County using BDI-II found out a depression prevalence of 50.4%. Another study on prevalence of depression among Kenyan secondary school adolescents of ages 13-19 years using PHQ-9 established a depression prevalence rate of 45.9% (Osborn, et al., 2019). They contacted the study in schools at Nairobi city, consisting of three public secondary schools and two community-run secondary schools. Notably, a study by Nyayieka et al. (2020) among 13-18 years-old adolescents in Homa Bay County discovered a prevalence rate of 57.5%.

Additionally, a case study in Makueni County, Kenya showed that mental health cases are on the increase with the adolescents experiencing severe depression often without being diagnosed or treated. The stigma associated with mental disorders, and the community perception for such illness as a personal matter with the cause strongly associated with demonic powers has not helped the situation either (Ndeti et al., 2017). Therefore, from the documented evidence, it is most apparent that depression in adolescents is a mental health concern that needs attention to reduce the pain and suffering improve academic performance and interpersonal relationships and reduce possible loss of life among adolescents in secondary schools. Moreover, studies on depression among adolescents in Kenya show higher rates as compared to the global prevalence. Unfortunately, as observed by Mufson et al. (2004) most of the time depression among adolescents goes undiagnosed or untreated and sometimes undertreated. The current study therefore, aimed to determine the prevalence of depression among adolescents in selected co-ed day and boarding secondary schools in Makueni County, Kenya.

Methodology

This is a across-sectional study that was carried out from Jan 2021 to May 2021 in the Makueni County, Kenya in two co-ed public schools. All the adolescents, both males and females and boarders and day scholars in forms one, two and three attending school on the day of recruitment were eligible to participate in the study. Those who were absent on that day were not included in the study together with all form fours students. The total population was 460 (females n=224; males n=236); that included forms one, two and three adolescents aged 14-21 years. The BDI-II was used to screen for depression symptoms. BDI-II total scores are between zero and 63. Scores between 1 and 10 were considered as normal ups and downs. Scores of 11-16 indicative of mild

depression which calls for psychotherapy. Scores of 17-30 are indicative of moderate depression. Scores of over 31 are indicative of severe depression. The collected data was analyzed using SPSS version 21. Data was analyzed by use of frequencies, percentages and variance. Clearance for the data collection was sought from the Daystar University Ethics & Research Board (DU-ERB), National Commission for Science, Technology and Innovation (NACOSTI), from Daystar School of Human and Social Sciences. Permits were sought from the Makueni County Commissioner and the Director of Education Makueni County, the principals of the two schools. While consent was obtained from the parents of the participants and assent from the adolescents.

Results

Participants aged 16-17 were more than the other categories at (262, 57%), those aged 18-19 were (131, 28.5%), those aged 14-15 were (42, 9.1%) and those aged were 20-21 (25, 5.4%). There were (236, 51.3%) males, and (224, 48.7%) female participants. The maximum participants were from two (164, 35.7%), form one was (154, 33.5%) and the minimum participants were the form three (142, 30.9%). There were (289, 62.8%) day scholars and (171, 37.2%) boarders. Participants who lived with both parents were (304, 66.1%), those, who lived with single parents (105, 22.8%), while those who lived with grandparents were (35, 7.6%) and (16, 3.5%) participants lived with siblings or neighbors.

The study revealed that the proportion of participants who scored 11 and above on the BDI-II scale was (271, 58.9%). This means that the general prevalence of depression was at 58.9%. Depression was higher in participants aged 16-17 (32.2%) compared to those aged 18-19 (18.3%), those aged 14-15 (4.4%) and those aged 20-21 (3.9%). Depression was found to be significantly high in female participants ($p=0.000$) at (33.8%) compared to males (25.1%). Prevalence of depression was found significantly ($p=0.000$) high in form three participants (23.3%), compared to participants in form two (18.7%), and in form one (16.8%). Day scholars were found to be more depressed (35.9%) than the boarders (22.9%) but the difference was not significant ($p = 0.326$). The findings indicated that depression was high among participants who lived with both parents (38.1%) compared to those who live with single parent (13.3%), grandparents (5.2%) and those who lived with other people that included siblings and neighbors (2.2%) though the difference was not statistically significant ($p = 0.645$).

Table 1: Prevalence of Depression at Baseline

Variables	Frequency	Percent
0-10 = Normal ups and downs	189	41.1
11-40 = Depressive disorder	271	58.9

Table 2: Key Socio-Demographic Characteristics and Depression

Variables	Total	Participant's score of depression at baseline		Chi-Square Test		
		0-10 Normal ups and downs	11-40 Depressive disorder	χ^2	df	Sig.
Participant's Age						
14-15	42 (9.2)	22 (4.8)	20 (4.4)	5.971	3	.113
16-17	261 (56.9)	113 (24.6)	148 (32.2)			
18-19	131 (28.5)	47 (10.2)	84 (18.3)			
20-21	25 (5.4)	7 (1.5)	18 (3.9)			
Participant's Gender						
Male	235 (51.2)	120 (26.1)	115 (25.1)	19.435	1	.000
Female	224 (48.8)	69 (15.0)	155 (33.8)			
Participant's Form						
Form One	154 (33.6)	77 (16.8)	77 (16.8)	23.440	2	.000
Form Two	163 (35.5)	77 (16.8)	86 (18.7)			
Form Three	142 (30.9)	35 (7.6)	107 (23.3)			
Participant's mode of schooling						
Day	289 (63.0)	124 (27.0)	165 (35.9)	.964	1	.326
Boarding	170 (37.0)	65 (14.2)	105 (22.9)			
Whom the participant lives with						
Both parents	304 (66.2)	129 (28.1)	175 (38.1)	1.662	3	.645
Single parent	105 (22.7)	43 (9.4)	61 (13.3)			
Grand parents	35 (7.6)	11 (2.4)	24 (5.2)			
Others (including neighbors, siblings)	16 (3.5)	6 (1.3)	10 (2.2)			

Discussion

The aim of the current study was to establish the prevalence of depression among adolescents in selected co-ed day and boarding secondary schools in Makueni County, Kenya. The study

revealed that the general prevalence of depression among the secondary adolescents was 58.9% (Table. 1). The prevalence reported was similar to 57.7% by Nagendra et al. (2012) from a study carried out among adolescents in Darvangere district, Karmataka, in India. Additionally, the current study finding is closer to 52.7% prevalence of depression reported by Malik et al. (2015) in a cross-section study among 9th and 10th grade students in public schools in an urban setting, where BDI was used to screen for depression. However, this finding was higher than that reported by Tang et al. (2021) at 24.3%. Similarly, this study contrasts finding by Fatiregun and Kumapayi (2014) that reported 21.1%, from a study they carried out in South West Nigeria. Additionally, this study revealed a higher prevalence than rate of 26.4% reported by Khasakhala et al. (2012) from an adolescents' study in Nairobi, Kenya. Nevertheless, this study prevalence rate was lower than finding of a study done in Iran where prevalence of depression among adolescents was reported at 72% (Moeini et al., 2019). Furthermore, this study reported a prevalence lower than that by a systemic review by Montazeri et al. (2013) in Iran from 2000-2010 that revealed a prevalence of 73%.

The variations in prevalence rates of depression may be due to differences in sample sizes used in the studies and the use of different tools in depression assessment. The geographical and environmental factors in the different study setting may explicate the variations. Different psychosocial conditions and experiences may also explain the varying rates of depression among the adolescents.

The current study reported disparities in the prevalence rates of the depressive symptoms in the various socio-demographic variables. Considering participants' age, 16-17 category had a higher prevalence of depression at 32.2% as compared to the other categories. This was consistent with Billah et al. (2014) who argued that the peak age for depression among adolescents was around 16 years. The study finding is also in line with a previous study by Kuringe et al. (2019) that showed depression among adolescents increasing with age, and reported fewer depressive symptoms at younger ages. Furthermore, the finding of the current study disagreed with results by Nyayieka et al. (2020) who reported a higher depression prevalence among younger respondents aged 14-16 at 33.2%. This study equally disagreed with Modabernia et al. (2007) who reported higher rates of depression among the 19-year-olds. Additionally, the literature reviewed showed a disparity with the study by Kabunga et al. (2021), who reported higher rate

of depressive symptoms among adolescents older than 17 years. Additionally, the study is contrary to Moeini et al. (2019) who reported that depression rates did not increase with age. The Moeini et al. (2019) study was conducted among secondary school adolescent females aged 14-18 years in Iran and they attributed their finding to the participants being in the same secondary grade.

In the current study, the high prevalence of depression at 17 years may be attributed to the physical and emotional changes at peak around this age group, and the changing life styles. The age is also around the peak of adolescence hormonal development which may result to developmental depression. Additionally, as the adolescents grow older the society expects a lot from them like better behavior, better academic performance, and given more responsibilities (Said & Hasan, 2009). This could be stressors to them hence contributing to more depression among them. Nevertheless, Schmidt et al. (2021) observed that several emotional problems like depression involve cognitive skills. In this regard it may explain the drop in depression prevalence at age category 18-19 as the adolescents may have acquired cognitive skills that improve their functioning hence less depressed as they approach the young adult stage. However, direct comparisons of the findings on the rates of depression in related age groupings of study is difficult due to the different categorizing of the age groups in the studies. As mentioned earlier, the differences may also be attributed to the settings of the study and the data collection tools.

In terms of gender, this study reported significantly high prevalence of depression among female participants at 33.8% compared to the males at 25.1%. The finding is in agreement with Modabernia et al. (2007), who reported a higher prevalence among females (38.9%) than in males. Jha et al. (2017) reported higher prevalence of depression among the females than males, and that depression was significantly associated with gender. Similarly, Miller and Campo (2021) in their study among 13–18-year-olds, reported higher prevalence of depression among the girls than the boys and that depression is a predictor of suicide in adolescents. They also observed that a depression episode lasting for about 27 weeks may lead to impairment in academics and other developmental aspects in the adolescent like autonomy and independence.

In contradiction to the current study finding, Khesht-Masjedi et al. (2019) reported more males depressed at 29.5% than girls at 17.8% in a study done in Northern Iran. They argued that males

at adolescence struggle with how to behave when experiencing low moods for they still need to appear normal and in control of their emotions. This is supported by a study by Paul et al. (2021) in India who reported higher depression prevalence among the males at 14.53%. The study involved 1057 adolescents from six schools in 8th to 12th grades. Cultural differences may be among the factors which accounts for the difference in prevalence. Notably, this study disagreed with findings revealed by Latiff et al. (2016) who reported that gender had no effect on depression among the adolescents. This is in agreement with a later study by Kabunga et al. (2021), who reported that there were no gender differences in depression.

This study reported a significantly high prevalence of depressive disorder among the form three participants at 23.3% compared to 18.7% among form two participants and 16.8% among form one participants. The finding is consistent with a study by Gautam et al. (2021) that revealed more depression among the 12th- grade (OR = 1:676, CI: 1.056-2.659) adolescents. They associated the higher depression levels with stress of exams and exam preparation. The study is in agreement with Khasakhala et al. (2012) findings that depression rates increased with increase in class/grade. The study further agreed with Sign et al. (2017) who reported that students at the higher grades were 1.6 times more likely to be at the risk of being depressed (OR = 1:659, CI: 0.228-12.099).

However, contrary to the current study, Peng et al. (2022) reported 9th grade students being more depressed. Similarly, Nyayieka et al. (2020) contradicts findings of the current study as they revealed that depression was higher among the form two students at 20% compared 19.2% among form one participants and 18.2% among the form three participants. The current study further contradicts the findings by Latiff et al. (2016) that reported younger adolescents in form one being more depressed. To explain these findings, Latiff et al. (2016) observed that in the earlier years of adolescence, the individuals were experiencing life changes that come with a lot of stress hence leading to depressive symptoms.

The current study was done during the COVID-19 pandemic, a period similar to a study by Peng et al. (2022). However, the study by Peng et al. (2022) reported that the 9th grade adolescents were more depressed than those in higher grades. They explained that the high depression rates among 9th graders may be attributed to the challenges of transition from junior

high school to senior high school, due to struggles of adapting to new environment and other psychosocial challenges. On the other hand, for the current study, the form three students were about to join form four where they are to take the very important national examination, Kenya Certificate of Secondary Education (KCSE)- whose grade determine their university entry. Hence, the high rates of depression among form three adolescents, may be related to the fear of the forth coming national examination, KSCE, and possible pressure to perform from parents, teachers and society at large. This is in line with the observation by Fauzi et al (2021) that academic pressure may lead to distress among the adolescent's precipitating depression. In addition, KCSE examination determines which university or college the adolescents join and the program to pursue. Most of them may want to join prestigious universities within or outside the country. The anticipation may increase distress among the adolescents.

Moreover, the results of KCSE exam in Kenya are announced and received with pomp and color whereby those who pass are broadcasted in news flash all over the national radio channels and television stations. Many of those, who perform well are celebrated and carried shoulder high by parents, teachers, friends and neighbors. This may be the dream for many adolescents. Therefore, it may have contributed to added distress to the form three participants, hence the significantly high depression prevalence. This is consistent with Moeini et al. (2019) argument that, the world has become quite competitive and the academic achievement may in many cases determine the area of study in college and place in society. This may eventually influence the financial status of the individual in the future. Therefore, low academic achievement may bring uncertainty for the future. Hence, the academic pressure and expectations can be associated with increased prevalence of depression in adolescents.

In terms of the living arrangements or who the adolescents lived with, this study found out that the prevalence of depression was high among the participants, who lived with both parents at 38.1%, though the difference was not significant. The study finding is consistent with that by Sander and McCarty (2005) that revealed adolescents who lived with both parents experienced depression more. Additionally, the study is in line with a study by Moeini et al. (2019) that reported a high prevalence of depression among adolescents who lived with both parents at 17.9% compared to prevalence of depression among those who live with single mothers at 16.1%, and those, who lived with single fathers at 12.1%. They attributed the high rate of

depression it's rare for females in Iran to have children before marriage so most children live with both parents except in cases where there is death of the father.

However, the study finding contradicted Daryanavard (2011) who reported high depression rates among the adolescents who lived with single parents at 40%. Also, Kabunga and Nambozo (2021) reported that adolescents living with single parents were more distressed than those living with both parents. They argued that this is due to inadequate social support and physical deprivation related to single parenthood. Similarly, a study by Kinyanda et al. (2013) reported higher depression rates among adolescents living with grandparents (24.2%) as compared to those, who lived with father only (19.6%), other people (16.1%), mother only (10.7%), and both parents (4.0%). Their study investigated prevalence and risk factors of depression among youths in South-eastern Uganda where a sample of 1587 participants was used.

Latiff et al. (2016) observed that the variations in the prevalence of depression can be associated with a number of factors which included psychological factors like high parental and teachers' expectations, and academic pressure that may subject the adolescents to anxiety and distress. Others are like social economic levels whereby lower social support from parents and friends may increase depressive symptoms (Zhou et al., 2020). In addition, they observed that in some low-income societies, like some Asian country's adolescents are socialized on demonstrating high levels of self-control, compliance and esteem for those in authority and avoiding becoming problems to others around them. In this kind of setting and expectations, it becomes hard to try to find support from family and peers when they are experiencing distressful moments. Such communities uphold characteristics like being aware of one's limitations, accomplishing self-improvement and demonstrating humility are more elevated in Asian culture than in the West (Moeini et al., 2019). Therefore, the Asian adolescents are more likely to have self-disapproval and self-disregard resulting in a higher risk of developing depressive symptoms. Other factors which account for prevalence of depression include industrialization, ecological and genetics (Latiff et al., 2016). Communicating poor academic results to both parents may induce great pressure to the students leading to distress related to depression.

The COVID-19 pandemic came with its fair share of stress in the society. COVID-19 has been documented as contributing to distress among families (Zhen et al., 2020). This may explain the

elevated rate of depression among those who lived with both parents which meant living with possibly two distressed parents. Daryanavard (2011) observed that the behavior of distressed parents including verbal abuses, and especially both of them may precipitate depression in the adolescents. The current study was carried out during the COVID-19 period which may explain the depressive effect among adolescents, who are either day scholars or lived with parents.

This study revealed that depression prevalence for day scholars was higher at 35.9% than for boarders at 22.9%. The result concurred with a study conducted in India with 125-day school adolescents and reported a prevalence of 50.8% (Rajan, 2019). Emotional instability was cited as one of the possible reasons for the increased rates of depression. Arguably, day scholars encounter many environmental and social factors that may predispose them to depression.

The finding was however, incongruent with a study by Khasakhala et al., (2020) among adolescents in schools in Nairobi city, Kenya, where they indicated that prevalence of depression was higher among boarding scholars as opposed to day scholars. They argued that most parents in Nairobi take the troublesome children forcefully to boarding schools with the hope that the restricted boarding environment will reform them. Therefore, this may increase the severity of depression among students in the boarding schools.

The current study was carried out at Makueni County which has high levels of poverty due to recurrent drought and famine, and has a low socio-economic index of 0.56% (Ndetei et al., 2017). There is possible lack of basic needs such as food, school supplies among other necessities in different households in the county. This is likely to subject the adolescents, especially the day scholars to risk of depression due to the uncertainty of the next meal; not to mention inadequate supply for education needs like lack of school tuition fee and other basic supplies (Musyimi & Musau, 2017; Ndetei et al., 2017). According to Girma et al. (2021) such socio-economic factors can increase occurrence of depression among adolescents. Most of the day scholars, unlike the boarders are likely to be exposed to this reality on daily basis, which is likely to precipitate and maintain depressive symptoms among the participants. This is supported by Said and Hasan (2021), who reported that poverty and challenges in meeting daily necessities may increase the tendency of depression among adolescents. According to Thapar et al. (2012) poverty may also lead to higher rates of depression. This is in line with several studies in India,

which have reported association between socioeconomic status and depression (Shukla et al., 2019).

The day scholars may have been in constant contact with the family environment hence the pressures affecting the family may also be resulting in feelings of depression. According to Billah et al. (2014), violence in the family, parental depressive symptoms and familial disharmony may contribute to adolescents' depression. Therefore, in case of such experiences in some homes, this may lead to feelings of depressive mood for the adolescents since they go back to the home environment each day. This is supported by findings of a study by Girma et al (2021) which found out that exposure to violence and stressors increased depression rates among adolescents. The dynamics of the home environment including the relationship of the parents may have contributed to the increased depression among the day scholar participants.

Additionally, the day scholars had to walk from home to school and back in the evening. Some may have been covering longer distances; they were almost always tired from the journey they make and because food could be a challenge due to general poverty in the county. Thus, this may explain the high levels of depression among the day schooling participants.

Conclusion

The general depression among the secondary school adolescents was high in Makueni, Eastern Kenya at 58.9% compare to the global mental health prevalence of 10-20% in adolescents. This becomes a health challenge and health burden to the individual adolescent, the family and the community. It calls for more attention and intervention through diagnosis and treatment to improve school going adolescents' well-being. This study calls for further research among adolescents using a larger sample to examine the significant gender and grade level differences.

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