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Factors Associated with Elevated Depression Scores among Children and Adolescents: A Study of Selected Children's Homes in Kajiado County, Kenya

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Abstract

The purpose of this study was to assess the effectiveness of behavioural activation (BA) in reducing depression symptoms. Depression is a common mental health problem associated with significant morbidity and mortality. Children entering foster care have a higher prevalence of clinically significant depression than children reared at home. This study examined the factors associated with elevated depression scores among children and adolescents in seven selected children's homes in Kajiado County. A quasi-experimental study was conducted with 186 participants aged 9-17 years. The participants (male and female) with a mean age of 13 years were purposively sampled. Data collection tools included Child Depression Inventory (CDI) for assessment of depression and a demographic questionnaire to gather socio-demographic data. Logistic regression revealed three predictors that were significantly associated with elevated CDI scores, namely using Kiswahili as the primary language of communication, death of father, and age/class. The study reveals that the overall level of depression was 18.6 (±5.6SD). Recommendations were made for routine and frequent mental check-ups to be provided in those homes in an effort to help identify depression symptoms and intervene appropriately and timely.

Keywords: depression, children depression inventory, predictors.

Introduction and background

This study aimed at examining the factors associated with elevated Child Depression Inventory (CDI) scores among children and adolescents in children's homes in Kajiado County. According to the World Health Organization (WHO, 2012), the negative experiences, conditions or environments that affect the mental well-being of younger children also apply to adolescents. This study was conducted based on findings from

research done in orphanages, which showed that children entering foster care have a higher occurrence of clinically significant depression symptoms than children reared at home (Ibrahim, El-Basha, El-Gilany, & Khater, 2012). Further, Ibrahim et al. (2012) observed that orphaned children are more depressed, more anxious, less optimistic about the future, more likely to express anger feelings, and more likely to have more disruptive behaviours compared to non-orphans. Correspondingly, according to Ong et al. (2015), compared to children in the general population, orphans and vulnerable children (OVCs) are exposed at a higher frequency to traumatic events, such as abuse and neglect. Consequently, they are more susceptible to depression. This study thus sought to confirm these findings by examining the factors that led to elevated CDI scores.

Depression remains a chronic illness, with 85% of people who experience a single episode experiencing another episode within 15 years (Gladstone, Beardslee, & O'Connor, 2011). Children and adolescents are within this group. Further, according to Young, Miller, and Khan (2010), despite the availability of measures to identify depressed children and adolescents and the number of effective interventions, a significant number of depressed children and adolescents likely go undetected and untreated.

Methodology

This study was done using a quasi-experimental design with children and adolescents in children's homes in Kajiado County. The CDI was administered on a population of 506, out of which 186 exhibited depression symptoms, that is, they were within scores of between 11–26 for mild, and 26–54 for moderate depression. The study used the cut-off of 11 and not higher because these children and adolescents had previously been exposed to a lot of trauma, physical and emotional abuse. So a higher cut-off might have left off some already exhibiting depression symptoms. Data from the study was collected from children and adolescents ages 9–17 years after consent was obtained. Participants' enrolment was conducted concurrently in all selected homes for the whole study duration.

In this study, Lemeshow, Hosmer, Klar, and Lwanga's (1990) formula was used to calculate the minimum required sample size, using mean and standard deviation estimates by McCauley et al. (2015). Allowing for 20% attrition rate, the total sample size was adjusted upwards to 76. The total number of children and adolescents came to 152. However, in the course of recruitment, the number of participants was slightly over the sample size by 17. Due to ethical implications, however, it was difficult to exclude the children and adolescents who presented with depression symptoms. This brought the sample size to 186 participants. Also, in the course of the study, a total of 16, comprising both children and adolescents dropped out giving an attrition rate of 17.22% and bringing the number of participants to 170. This socio-demographic questionnaire included the following variables: age, gender, class, religion, living with mother/father, step-parent, and grandparents) among other issues.

Depression was assessed using CDI. CDI can be completed in approximately five to ten minutes and does not require specific training for scoring and interpretation. The CDI has proved to have good reliability and validity for describing depression symptoms, has good correlation with other scales, and great prediction validity for suicidal ideation. Regarding its validity, many research studies have backed the CDI as assessing relevant constructs both for explanatory and predictive applications for characterizing symptoms of depression in children and adolescents. The CDI-II is a tool that has been extensively tested for validity and reliability since the 1960s, including use in the paediatric population. One study in Nigeria revealed psychometric evidence in support of the CDI-II in the African setting (Adewuya et al., 2007).

Each item on the CDI contains three statements, graded in order of increasing severity from 0 to 2; children and adolescents select the one that characterized their symptoms best during the past 2 weeks. The item scores are combined into a total depression score, ranging from 0 to 54. A higher CDI scores means a higher depressive state (Bang et al., 2015). Based on CDI interpretative protocol, scores of 0-10 are considered normal, scores of 11-26 are considered mild, and scores ranging between 26-54 are moderate.

Statistical analysis was conducted using IBM SPSS version 20. Microsoft Excel was used in processing statistical output as well as construction of data tables and graphs. Analysis of factors associated with specific outcome variables (CDI) commenced by performing bivariate analysis. The mean and standard deviation for specific outcome variables (CDI) across categories of each independent variable were compared using t-tests (two categories) or one-way ANOVA (three or more categories).

Multiple Regression Analysis: The results of the bivariate analyses informed multivariable statistical regression models for a more thorough exploration of outcome variables. Potential confounders and effect modifiers were tested using multiple linear regression models on continuous outcome variables (CDI). All independent variables with significant mean difference observed were considered together in a multiple linear regression. Beta coefficients, with their corresponding standard error, were tested by means of a t-test. Beta coefficients with corresponding 95% Confidence Interval (CI) were used to estimate the strength of association between independent and distinct dependent (Outcome) variables. The predictors of depression in this study were selected based on $p<0.05$.

Results

The demographic characteristics of the participants are shown in Table 4.1. The sample was made up of 170 participants. A relatively high proportion of the participants (58.1%) was aged 13–17 years, with 57.5% being females. Regarding language of communication, the majority of the participants (81.2%) used English as a primary language of communication and only 18.8% used Kiswahili. Analysis of religious affiliations revealed that most of the participants (54.8%) were Protestants.

Table 1: Demographic Characteristics of the Participants

	Total (n=186)	
Variables	n	%
Age in years		
6 - 12 years	78	41.9%
13 - 17 years	108	58.1%

Gender		
Male	79	42.5%
Female	107	57.5%
Primary language of communication		
Kiswahili	35	18.8%
English	151	81.2%
Religion		
Roman Catholic	18	9.7%
Protestant	102	54.8%
Seventh Day Adventist	38	20.4%
Others	28	15.1%

The mean Children Depression Inventory (CDI) score was 18.6 (± 5.6 SD) which ranged between 11 and 38.

Table 2: Levels of Depression

				95% CI			
Variables	n	Mean	SD	Lower	Upper	Min.	Max.
CDI scores	186	18.6	5.6	17.8	19.4	11	38

Regarding predictors of depression, those speaking Swahili as a primary language of communication had a significantly higher mean on the CDI (20.7 (± 6.2 SD)), compared to those speaking English (18.1 (±5.4 SD); p=0.013). Those who had experienced maternal death had significantly higher mean scores on the CDI (21.3 (± 4.9 SD)), compared to those whose mothers were alive (18.1 (± 5.8 SD); p=0.005). Similarly, those who had experienced paternal death had significantly higher mean scores on the CDI (21.1 (± 5.0 SD)), compared to those whose fathers were alive (18.3 (± 5.6 SD); p=0.004). Those in classes 7 and 8 also had significantly higher scores, 20.6 (± 6.6 SD) and 20.8 (± 6.2 SD) respectively than those in class 6 (score (16.9 (± 5.1 SD)), p=0.009.

Table 3: Factors Associated with Elevated Children Depression Inventory (CDI) Scores among the Participants

Variables	n	Mean	SD	95% CI	Min.	Max.

				Lower	Upper		
Primary language of communication							
Kiswahili	35	20.7	6.2	18.6	22.8	12	35
English	151	18.1	5.4	17.2	19.0	11	38
p value		0.013					
Mother alive							
Yes	130	18.1	5.8	17.1	19.1	11	38
No	34	21.3	4.9	19.6	23.0	11	29
I don't know	22	17.0	4.3	15.0	18.9	11	25
p value		0.005					
Father alive							
Yes	119	18.3	5.8	17.2	19.4	11	38
No	35	21.1	5.0	19.4	22.8	11	29
I don't know	32	16.8	4.4	15.2	18.4	11	25
p value		0.004					
Current grade							
Class 4	45	18.5	5.3	16.9	20.1	11	33
Class 5	44	17.5	4.6	16.1	18.9	11	28
Class 6	41	16.9	5.1	15.3	18.5	11	29
Class 7	35	20.6	6.6	18.4	22.9	11	38
Class 8	21	20.8	6.2	18.0	23.6	11	31
p value		0.009					

Linear regression was used to model CDI scores using factors identified to be significant at P<0.1 during bivariate analysis. Backward conditional method was specified with removal at P<0.05, and three independent predictors of elevated CDI scores among participants were identified as presented in Table 4. The three independent predictors were speaking Kiswahili as the primary language of communication (p=0.006); experiencing paternal death (p=0.002); and being in class 8 (p=0.035). These three factors were found to significantly predict elevated CDI scores among the participants.

Table 4: Predictors of Elevated Children Depression Inventory (CDI) Scores among Participants

		95% CI			p
Variables	B	Lower	Upper	t	value
(Constant)	17.90	16.86	18.93	34.09	<0.001

Primary language of communication:					
Kiswahili	2.79	0.81	4.77	2.78	0.006
Father alive: No	3.19	1.21	5.17	3.18	0.002
Current grade: Class 8	2.01	0.14	3.87	2.12	0.035

This study established that the overall mean CDI scores was 18.6 (± 5.6 SD) ranging between 11 and 38. This means that the average score for the participants in this study was in the mild rating, and the majority of the participants had mild depressive symptoms. The study identified three predictors of elevated depressive symptomatology including using Kiswahili as the primary language of communication, experiencing the death of father, and being in class 8.

Discussion

The logistic regression analysis revealed that the independent predictors for this study were the loss father, the use of Kiswahili as the primary language of communication, and the grade or class the participant was in. These variables were significantly related to higher levels of depression. Regarding the experience of paternal death, the findings of this study are consistent with findings from Ong et al. (2015) who posited that the loss of parents or guardians causes withdrawal, anxiety, and depression in adolescence. Additionally, a study by Fawzy and Fouad (2010) revealed that participants aged 6 to 12 who had experienced the loss of paternal figures were at a higher risk for depression.

Congruent with these findings, research by Nalugya-Sserunjogi et al. (2016) also observed that in the logistic regression analyses, significant depression symptoms were linked to single-sex schools, loss of parents, and alcohol consumption. Moreover, research by Gross (2017) indicated that fathers are as significant as mothers in their individual capacities as caregivers, protectors, financial supporters, and most importantly, as examples of social and emotional behaviour. This argument particularly underscores the importance of the father in the emotional behaviour and development of children. Quite consistent with the findings of this study, it appears that the loss of a parent and, in this study, the loss of father, is a predictor of depression.

In a similar vein, research work by Ibrahim et al. (2012) posited that fathers' involvement in their children's lives guard against risk factors that pose harm for children. Such risk factors include problematic behaviour, maternal depression and family economic hardship. Children whose fathers are involved were reported to have lower rates of problematic behaviours, such as hyperactivity, as well as decreased teen violence, delinquency, and other problems with the law. What is more, an alive, available father is also connected to positive child characteristics such as increased empathy, self-esteem, self-control, feelings of ability to achieve, psychological well-being, social competence, life skills, and less sex-stereotyped beliefs.

It is evident from this discussion that the death of fathers may have a profound and adverse impact on children and adolescents. This may mean that the children or adolescents are at risk or are highly vulnerable to developing depression. This observation is compatible with the results of this study that the participants whose fathers were not alive had higher CDI scores than those whose fathers were alive. The results also underscore the significant role of the father in the children/ adolescents' lives.

In respect to class level, class 8 in Kenya is a national examination class, which involves not just a lot of school work, but also a lot of expectations from teachers, parents, relatives and friends. In addition, students often set out goals or expectations for themselves, which sometimes may be unreasonable and unattainable, and could lead to a lot of stress which may account for the elevated CDI scores.

The results of this study are consistent with prior research that suggested that the prevalence of depressive symptomatology increases sharply from early adolescence (Sund et al., 2011). According to Bang et al. (2015), depression increases throughout adolescence. A similar observation was made by Stapinski et al. (2013), who noted that epidemiological studies consistently reveal a pattern of rising depression symptoms between early to late adolescence. This finding affirms this study in that there were more

older participants with elevated CDI scores, including those in classes 7 and 8, than those in the lower grades.

In reference to use of language, the participants who used Kiswahili as the primary language of communication had higher CDI scores than those who used English. This was a new finding and to the best of the researchers' knowledge, there had not been other studies with corresponding results. The medium of instruction for teaching within the school set-up being mainly English is likely to make the participants who use Kiswahili feel inadequate in communicating with both their schoolmates and the teachers as a result of the language barrier. It is possible that these participants did not understand their lessons. This may be a cyclical problem, in that it might then prevent them from performing well either orally or in writing in class. They may also find it difficult to play or interact with other schoolmates, leading to a feeling of isolation from the others and this may consequently increase the likelihood of stress and depression.

Limitations of the Study

There were a number of limitations in this study:

1. This study only concentrated on children and adolescents in a population of 506 in 7 selected children's homes in Kajiado County. Research work done on the same in other counties in Kenya may have different results.

2. This study was conducted among ages 9-17 leaving out younger children who may also be having depression symptoms. Research shows that the onset of depression is occurring earlier in life today more than in the past decade (Fawzy & Fouad, 2010; Friedberg & Sinderman, 2011). It may be helpful in another study to include participants younger than 9 years old.

3. The children and adolescents may have had difficulties in communicating information about internally experienced affective states. This may have been because the diagnostic instruments may not have captured culture-specific aspects of depression.

4. The study utilized self-report measures to examine perceived depression. While each of the measures is valid and reliable, being a self-report, chances of bias reporting may not be entirely ruled out.

There is need to replicate this study in other settings to determine if similar predictors are associated with higher levels of depression. A positive relationship between use of Kiswahili and elevated CDI scores was a new finding. There is need for more research to establish if this finding is consistent with other studies. It is important to have routine and regular assessment of depression symptoms using CDI in children's homes. This will help to identify the depression symptoms in good time and hence give appropriate and timely intervention.

Conclusion

In respect of the findings of this study, the levels of depression in the children's homes were between mild and moderate, with a greater number of scores in mild rating. The elevations were associated with a number of predictors, precisely class level, using Kiswahili as the primary language of communication, and experiencing the death of father. A new and exciting finding of this research was a positive relationship between use of Kiswahili as a primary language of communication and elevated CDI scores.

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