



Broken Homes and Intact Homes Students' Academic Attainment in Mathematics in the Kasena-Nankana Municipality, Ghana

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AK, AFY and VNA did the conception, methodology, data collection and analysis. Literature review, drafting of final manuscript, validation was done by authors AMA, MBA and NA. All authors read and approved the final manuscript.

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ABSTRACT

Students' academic attainment in mathematics can be influenced by several factors including the structure of student's home. This study was therefore conducted to compare the academic achievement of students from intact homes and their colleagues from broken homes in mathematics in the Kasena-Nankana Municipality, Ghana. The study embraced a survey design using 26 students from broken homes who were purposely and conveniently selected and 26 students from intact homes selected using simple random sampling technique. The study relied on secondary data (mathematics scores from students report cards) and the data was analysed using independent sample t-test. The test results revealed a significant difference in mean scores between the two groups of students and this difference was in favour of the students from intact homes suggesting that students from broken homes performed poorly compared to those from intact homes. The finding implied that, family structure (broken or intact) is a factor that should not be undermined when looking at students' performances in mathematics. The study concluded that broken home has a negative impact on basic school students' academic achievement in mathematics.

Keywords: Broken home; intact home; academic attainment; single parenting and single parent household.

1. INTRODUCTION

Education and academic achievement play a crucial role in shaping informed citizens who can contribute positively to society. Well-educated individuals are more likely to be engaged in civic activities, make informed decisions, and advocate for positive change. Education also drives innovation and progress in various fields, from science and technology to arts and culture (Nyaumwe, 2013 as cited in Kombat et al. [1]. It again hones critical thinking and problem-solving skills, which are essential for addressing complex issues and making informed decisions in various aspects of life and therefore often seen to correlate with better career prospects and higher earning potential. Many professions require specific levels of education and academic qualifications, which can open doors to a wider range of job opportunities and career advancement. Achievement in academia refers to the successful completion of educational milestones/goals such as obtaining high grades, knowledge, skills and competencies, degrees, certificates, or recognition for outstanding performance in academic endeavours within an academic setting [2].

Academic achievement in mathematics contributes to a country's economic development, technological advancements, and global influence and also serves as a powerful tool for social mobility; allowing individuals from diverse backgrounds to improve their socio-economic status and break the cycle of poverty (Nyaumwe, 2013 as cited in Kombat et al. [1].

Moreso, engaging in academic pursuits encourages lifelong learning, intellectual curiosity and allows individuals to explore diverse subjects, expand their knowledge base, and stay informed about the latest developments in various fields. In a rapidly evolving global economy, nations with well-educated populations are better positioned to compete and adapt to changing circumstances.

While academic achievement is undeniably important, it's essential to recognize that its attainment is influenced and can be affected by several factors including the structure of students' home (whether broken home or intact home).

"Broken homes," also referred to as "single parenting," are terms used to describe a family structure in which a child or children are raised by one parent or guardian, usually due to the absence, separation, divorce, or death of the other parent [3,4]. This type of family arrangement contrasts with the traditional nuclear family, where both biological parents reside together in the same household and share the responsibilities of child-rearing.

The impact of broken homes or single parenting on students' academic performance has been a subject of extensive research and discussion in the fields of psychology, sociology, and education. Numerous studies have explored the potential effects of family structure on children's educational outcomes, by bringing to light both the short-term and long-term implications, with a

seemingly consensus emerging that there can be significant negative effects on various aspects of a child's educational outcomes. These studies also highlighted the potential challenges faced by children raised in broken homes or by single parents and how the challenges are impacting their academic achievement, cognitive development, and overall educational attainment. Also, studies have demonstrated a correlation between broken homes or single parenting and lower academic achievement. For instance, an investigation conducted by Amato and Keith [5] found that children from broken homes, exhibited lower academic achievement compared to their colleagues from the intact families. This lower academic achievement of students from broken homes can be attributed to increased stress, reduced parental involvement, and financial hardships that often accompany a divorce or separation [5]. The instability caused by parental separation, divorce, or the absence of one parent has the potential of disrupting the child's routine, leading to decreased focus on studies, absenteeism, and a decline in grades.

In the Kasena-Nankana Municipality, where this study was conducted, there exist little or perhaps no studies in literature on the impact of home or family structure on students' academic achievement in mathematics. Also, with the little studies conducted on the topic in other regions and countries, not much attention was given to the impact of broken homes on students' attainment in mathematics hence the need to bridge the gap in literature.

The study was guided by the null hypothesis;

There is no statistically notable difference in mathematics attainment mean scores between students from intact homes and their counterparts from broken homes.

2. LITERATURE REVIEW

2.1 Conceptual Review

The emotional and psychological well-being of children is often affected by family structure. Children from broken homes sometimes experience higher levels of stress, anxiety, and emotional distress. These emotional and psychological stressors that often accompany family disruption can lead to difficulties in concentration among students which in turn impact negatively on their ability to focus on their

academic work. For instance, a study by Hetherington [6] emphasized that the adjustment to parental divorce or separation can result in emotional distress, which may affect a child's ability to engage effectively in their studies. Reinhardt and Reinhardt [7] also noted that children from single-parent households are more likely to experience emotional and behavioural problems, which can negatively impact their academic progress. These children from broken homes or single-parent households may experience a lack of stability and consistency in their daily lives as a result of the frequent changes in living arrangements, schools and routines which can disrupt their learning environment and hinder their academic success. A study by Adebayo and Akinloye, [8] highlighted the importance of stable family environments for promoting positive academic outcomes. The lack of a stable family environment and the potential economic challenges associated with broken homes and single-parent households can have a negative influence on student's motivation and ability to access educational opportunities. Limited financial resources might hinder access to educational resources, extracurricular activities, tutoring, and even basic necessities like books and school supplies which are needed for the child's progression in education [9]. These economic constraints can limit a child's ability to fully engage in their academic pursuits. Also, the impact of broken homes or single parenting can extend into the long term, influencing a child's educational trajectory. In line with this, research by Magnuson and Berger in [10] indicated that children from single-parent families were less likely to pursue higher education compared to those from intact families and that the cycle of limited educational attainment might continue if the child faces barriers to entry into higher education and well-paying jobs. Again, studies by McLanahan et al. [11] have indicated that children from single-parent households are at a higher risk of not completing high school or pursuing higher education. This could be as a result of the single parent inability to single-handedly provide all the educational needs of the child or children. Also, a study by Amato [12] found that children from divorced families tend to have lower educational attainment, lower grades, and are more likely to drop out of school compared to children from intact families. This disparity in academic achievement can stem from factors such as increased stress, reduced parental involvement, and economic challenges

commonly associated with single-parent households.

Furthermore, parental involvement has been identified as a crucial factor in students' academic success. Research by Sui-Chu and Willms [13] found that children from single-parent households often receive less parental involvement and support in their education and this has the potential of hindering their academic progress. Also, an investigation by McLanahan and Sandefur [14] showed that children raised in single-parent households, particularly those headed by a single mother, are at a higher risk of academic underachievement. The absence of a second parent can lead to reduced supervision, fewer resources, and limited access to educational support, ultimately impacting a child's educational attainment [14]. Single parents may struggle to balance work, household responsibilities, and parenting, which can limit their ability to provide consistent academic support. Jeynes [15] indicated that students who have both parents involved in their education are more likely to excel academically. The presence of both parents allows for a more balanced distribution of responsibilities, including academic guidance and emotional support [13].

2.2 Empirical Review

Kasoma [16] studies on the influence of broken homes on pupils' academic performance in selected schools in Mbala District, Zambia found that broken home is a contributory factor to pupils' poor performances. The study revealed that pupils from intact families or homes outperformed their peers from the broken homes.

Also, Ogbeide et al. [17] on the influence of broken homes on secondary school students' academic performance in Essan West Local Government area of Edo State in Nigeria revealed that broken homes have a negative impact on students' academic performance. Students who came from intact homes outperformed their colleagues from broken homes significantly.

In addition, Assimonye and Nneji [18] in their study titled "home structure: determinant of students' performance in mathematics and English language in Agbani education zone of Enugu state" found that students from intact homes outperformed their friends from broken homes.

However, Abrantes and Casinillo (2020) study on the impact of broken homes on students' academic performance using 168 students from broken homes and 168 from intact homes found that broken homes have no effect on students' performances. There was no significant difference in performance between students from broken homes and their counterparts from intact homes.

In conclusion, the impact of broken homes or single parenting on students' academic performance is a complex one and can have far-reaching consequences. While not all children from such backgrounds might experience negative outcomes, it is clear that there is a heightened risk for academic challenges due to the various factors associated with broken homes or single-parent families. Understanding these potential challenges can guide educators, policymakers, and families in providing appropriate support systems to help mitigate the negative effects and promote positive educational outcomes for all students.

3. METHODOLOGY

Cross-sectional survey design was employed in the conduct of this study. In a cross-sectional study, data is collected from the study's participants at a single point in time just as it was done in this study. Purposive and convenience sampling techniques were used to select 26 students from broken homes whilst simple random sampling technique was employed in the selection of another 26 students from intact homes in order to avoid the effect of unequal sample sizes. This sample size of 52 students were selected from six basic schools in the Kasena-Nankana municipality. The selected schools and students were assured of the confidentiality of the data and that the data was to be used for research purpose only. Data for this study was obtained from students' cumulative report cards. To ensure that the data used in the study are valid, reliable and gives a true picture of each student performance, the average score of their previous class; term one, term two and term three scores were used instead of the scores from a single test which could be influenced by some other factors such as sickness and difficulty level of the test items. The data was analysed using the independent sample test to determine if there exist any statistically significant difference in mathematics performance between students from broken homes and those from intact homes.

4. RESULTS AND DISCUSSION

To ascertain the role that broken homes play on students' academic attainments in mathematics, an independent sample t-test was conducted to compare the scores of students from intact and broken homes. The results of the t-test are summarized in the Table 1.

Table 1. Independent sample t-test for students' scores in the two homes

Home type	N	M	Std. D	t	df	Sig
Intact	26	72.92	10.24	2.58	50	.013
Broken	26	65.85	9.53			

Source: Survey data, 2023

The independent samples t-test results in Table 1 show that there is a significant difference in the mean scores of students from intact homes (M = 72.92, SD = 10.24) and students from broken homes (M = 65.85, SD = 9.53) on their standardized test scores, $t(50) = 2.58, p = .013$. This suggests that there is a significant difference in students' scores between the two home types, with students in intact homes having higher scores on average. The effect size for the t-test is medium ($d = 0.71$), suggesting that the difference between the two groups is practically meaningful. These results provided enough evidence to reject the null hypothesis which stated that; There is no significant difference in mean scores between students from broken homes and those from intact homes. The results of this study again suggest that students from intact homes may have an advantage in academic achievement over students from broken homes. This significant difference in mean scores between students from broken homes and those from intact homes further suggested that, broken homes have a negative influence on students' academic attainment in mathematics. The low performances of students from broken homes as found in this study could be as a result of the fact that children from single-parent households often receive less parental involvement, limited resources and support in their education and sometimes experience more stress and trauma, which can interfere with their academic performance [13]. The findings of this study corroborate with the findings of Kasoma [16] and Ogbeide et al. [17] who also found that broken home students performed poorly compared to intact home students and that broken home is a contributory factor to pupils' poor performances. It again

validates the finding of Assimonye and Nneji [19] who found that students from intact homes outperformed their friends from broken homes in English Language.

The findings however disagree with the findings of Abrantes and Casinillo [18]. Abrantes and Casinillo in their study found that broken homes have no impact on students' performance. The mean scores of students from broken homes and those from intact homes did not differ significantly. What could have accounted for the difference in their study and the current study finding could be that, perhaps broken home students in their study location received some kind of guidance and counselling services which enabled them to adjust and concentrated on their studies just as those from intact homes. It is however worthy to note that the current study finding only paints a general picture of the average performances of students from the two home types and does not necessarily mean that every individual student from intact home performed or will perform better than those from broken homes.

4.1 Implication of the Study

The findings of this study presented some implications for practice by educational institutions, policymakers and parents. For instance, the findings suggest that to bridge the gap in performances between students from broken homes and those from intact homes, educational institutions can/should use the results obtained in this study to develop targeted interventions and support programs needed for students from broken homes to improve their mathematics performance. Also, policymakers may/should consider family support policies and programs to mitigate the negative impact of broken homes on students' academic achievements. Again, parents and guardians may/will gain insights into the importance of maintaining stable family structures for their children's educational success.

5. CONCLUSIONS

The study's finding led to the conclusion that, broken homes otherwise known as single-parenting has a detrimental or negative effect on basic school students' performances in mathematics. To reduce the negative influence of broken homes on students' academic performances, there is the need for every school to have a counselor who will be responsible for

providing the necessary guidance and counselling and if possible, seeking financial support from non-governmental organizations and other philanthropic organizations to support students from broken homes to enable them have full concentration in class just as their peers from the intact homes.

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This study may have limitations related to its correlational nature which makes it difficult to tell whether living in an intact home actually caused students to perform better academically. Additionally, the sample size is relatively small, and the study was conducted in a single municipality in the country. Future research should investigate the causal relationship between family structure and student achievement using longitudinal data and larger samples from diverse populations in order to make a broader and much more meaningful generalization. Additionally, the study did not control for other factors that may influence student achievement, such as socioeconomic status or parental education level. Future research should therefore control for other potential confounding variables. Also, the researchers suggest that future studies be conducted to compare the mathematics attainment of students from single-parent households and those who do not have even a single parent. Despite these limitations, the findings of this study suggest that family structure is an important factor to consider when studying academic achievement.

CONSENT

As per international standard or university standards, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standards written ethical approval has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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