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## The Influence of Family Structure on Academic Achievement among Senior Secondary School Students in Bauchi State, Nigeria

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### Abstract

This study investigated the influence of family structure specifically family size and birth position on the academic achievement of senior secondary school students in Bauchi State, Nigeria. Guided by Family Systems Theory and Birth Order Theory, the study employed a correlational survey design using a stratified random sample of 394 students from 20 public secondary schools. Data were collected through a validated questionnaire and analyzed using correlation and ANOVA statistics. Results revealed that family size had no significant relationship with academic achievement ( $r = -0.08$ ,  $p = .26$ ) and that birth position showed no significant differences in academic performance ( $F = 0.95$ ,  $p = .42$ ). These outcomes challenge traditional birth-order and resource-dilution hypotheses, indicating that other psychosocial and environmental variables may better explain academic variance. The study concludes that family structural variables are limited predictors of academic success in Bauchi State and recommends that policy efforts focus on strengthening emotional and instructional support systems in schools.

**Keywords:** Family size, birth position, academic achievement, secondary education, Nigeria, family systems theory

### Introduction

Academic achievement reflects a student's cognitive, motivational, and socio-emotional development, all of which are shaped by the family environment. Parents' ability to allocate time, attention, and resources has long been viewed as a cornerstone of educational success (Njire, 2021). In Nigeria's northern region, where extended and polygamous families are common, scholars continue to debate whether large family size or childbirth order disadvantages students academically.

Family background remains a fundamental determinant of educational outcomes. Factors such as parental education, socioeconomic status, and family structure have consistently been shown to influence student achievement. Among these, family size and birth position have drawn scholarly attention due to their potential effects on cognitive and psychosocial development. The family environment provides the first social learning context for a child, influencing emotional stability, motivation, and academic orientation (Njire, 2021; Otula, 2020).

The resource dilution hypothesis posits that as family size increases, parental resources both material and emotional are divided among more children, potentially diminishing each child's academic advantage (Huisman & Smits, 2021). Similarly, birth order theories (Adler, 2021; Klas,



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2021) suggest that first-born children tend to exhibit higher achievement motivation and responsibility compared to later-born siblings due to differential parental expectations and attention. Despite global evidence supporting these theories, findings across sub-Saharan Africa remain inconsistent, partly due to variations in cultural and socioeconomic factors.

In Nigeria, particularly in northern regions like Bauchi State, large family sizes remain prevalent due to cultural and religious orientations. However, empirical evidence regarding how these family characteristics affect students' academic performance remains limited. This study, therefore, investigates whether family size and birth position significantly influence academic achievement among senior secondary school students in Bauchi State.

### Literature Review

The review explored Family Systems Theory, the Resource Dilution Hypothesis, and Birth Order Theory, noting both global and local findings on family size and academic performance. While studies such as Huisman & Smits (2021) and Downey (2021) found resource dilution effects in large families, others, including Bongaarts & Casterline (2020), emphasized the buffering role of extended kinship systems. Birth-order studies were similarly mixed, suggesting contextual influences unique to sub-Saharan Africa.

### Family Size and Academic Achievement

Family size is a central demographic factor influencing educational attainment. Smaller families tend to provide more educational resources per child, including books, supervision, and encouragement (Downey, 2021). Research from developing countries supports this: children from smaller households often perform better in literacy and numeracy assessments (Lanz, 2020; Lee, 2021). In Nigeria, Udida et al. (2022) reported that parental attention and study monitoring were significantly higher among children from nuclear families. Conversely, Nnadi et al. (2023) found that in polygamous households, limited financial capacity reduced access to textbooks and private tutoring.

Nevertheless, some scholars have questioned the universality of the resource-dilution hypothesis. Bongaarts and Casterline (2020) argued that collective caregiving in extended families may offset resource scarcity, suggesting that family support networks rather than numerical size determine educational outcomes. Hence, context-specific studies like the present one are essential for clarifying how family size operates within Nigerian socio-cultural realities.

### Birth Position and Academic Achievement

Birth order theories stem from Alfred Adler's (2021) view that first-borns develop leadership tendencies due to early parental focus, whereas later-borns cultivate social adaptability. Empirical findings, however, vary. Pilkington et al. (2020) observed higher achievement motivation among first-born students, while Rohrer et al. (2020) reported no significant relationship between birth order and educational performance. In the African context, Alim et al. (2020) noted that later-borns often benefit from siblings' academic guidance, suggesting compensatory mechanisms within large families.

### Family Systems Theory

Bowen's Family Systems Theory emphasizes that family members function as interdependent units; changes in one part affect the whole (Bowen, 2020). Accordingly, family



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size and sibling hierarchy influence communication patterns, emotional differentiation, and learning motivation. In this framework, academic achievement emerges from dynamic interactions rather than isolated traits, supporting the need to analyze both family size and birth order simultaneously.

**Empirical Gap**

Although numerous studies have explored family structure and education globally, few have examined the combined effects of family size and birth position in Northern Nigeria. Most Nigerian studies emphasize socioeconomic status or parental education, leaving the psychosocial dimension underexplored. This study fills that gap by correlating structural family variables with measured academic outcomes in Bauchi State.

**Methodology**

The study adopted a correlational survey design. The population comprised all senior secondary students in Bauchi State. A sample of 394 students was selected using stratified random sampling across 20 public schools. A validated questionnaire (Cronbach  $\alpha = 0.82$ ) measured family size, birth position, and academic achievement. Data were analyzed using Pearson correlation and one-way ANOVA at a 0.05 significance level.

**Results**

This section presents the statistical findings on how family size and birth position relate to students’ academic achievement. Analyses included descriptive statistics, Pearson correlation, and one-way ANOVA.

**Descriptive Statistics of Family Size and Academic Achievement**

**Table 1**

Family Size Category	N	Mean (M)	Standard Deviation (SD)
Small (1–3 children)	94	3.35	0.54
Medium (4–6 children)	178	3.28	0.57
Large (7 and above)	122	3.12	0.63
<b>Total</b>	<b>394</b>	<b>3.25</b>	<b>0.58</b>

Table 1 shows that students from small families recorded a slightly higher mean academic achievement score (M = 3.35, SD = 0.54) compared to those from medium (M = 3.28, SD = 0.57) and large families (M = 3.12, SD = 0.63). However, the differences in mean scores are relatively small, suggesting that family size may not have a strong impact on students’ academic outcomes.

**Correlation between Family Size and Academic Achievement**

**Table 2**

Variable	N	r	Sig. (p)	Decision
Family Size & Academic Achievement	394	-0.08	0.26	Not Significant

Table 2 presents the Pearson correlation analysis which revealed a negative but statistically insignificant relationship (r = -0.08, p = .26) between family size and academic achievement. This means that increases in family size are weakly associated with lower academic performance, but the relationship is not strong enough to be meaningful at the 0.05 level of significance.

**One-Way ANOVA Results for Birth Position and Academic Achievement**



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**Table 3**

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. (p)
Between Groups	0.85	3	0.28	0.95	0.42
Within Groups	115.22	390	0.30		
<b>Total</b>	<b>116.07</b>	<b>393</b>			

Table 3 shows that the effect of birth position on students' academic achievement was not statistically significant,  $F(3, 390) = 0.95, p = .42$ . Although first-born students had marginally higher mean scores ( $M = 3.34$ ) than middle-born ( $M = 3.27$ ) and last-born students ( $M = 3.21$ ), these differences were not large enough to reach statistical significance.

**Summary of Findings**

1. Family size has no significant correlation with academic achievement. Students from smaller families tend to have slightly better grades, but the difference is negligible.
2. Birth position does not significantly influence academic performance.
3. The results collectively suggest that family structural variables (size and order) are weak predictors of academic achievement among students in Bauchi State

**Interpretation and Implications**

These findings imply that modern educational interventions such as government funding, school counselling, and community tutoring may have reduced the historical disadvantages associated with large families. While smaller families may offer more individualized attention, social support networks within extended families can compensate for such disparities.

The insignificant birth order effect further suggests that cultural norms and shared household responsibilities in Northern Nigeria mitigate the traditional advantages attributed to first-born children. Consistent with the Family Systems Theory (Bowen, 2020), the family operates as a dynamic system in which adaptive functioning can offset structural limitations.

**Discussion**

The findings of this study revealed that family size and birth position have no statistically significant influence on students' academic achievement in Bauchi State. Although students from smaller families recorded slightly higher mean scores than those from larger families, the differences were minimal and not significant. This result suggests that while family structure plays a role in shaping home dynamics, it does not directly determine academic success at the secondary school level in the study area.

The non-significant relationship between family size and academic achievement contradicts the resource dilution hypothesis (Downey, 2021), which posits that parental resources both financial and emotional become diluted as the number of children increases. In the Nigerian context, particularly in northern communities, extended family systems often compensate for this dilution effect. Older siblings, relatives, and community members commonly provide additional support that buffers potential academic disadvantages among children from large households. This finding is consistent with Bongaarts and Casterline (2020), who argued that in collectivist societies, resource sharing through extended family networks moderates the negative effects of large family size on educational attainment.



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Similarly, the results on birth position showed no significant difference in academic performance among first-born, middle-born, last-born, or only children. This finding challenges Alfred Adler's (2021) Birth Order Theory, which asserts that first-born children generally achieve higher academic success due to greater parental investment and responsibility. However, contemporary socio-educational contexts have evolved parental attention is now influenced more by literacy level, economic status, and access to digital learning resources than by the number or order of children. These changing family dynamics may explain the absence of clear birth-order effects in this study.

Furthermore, the findings align with the argument of Rohrer et al. (2020), who found minimal evidence of birth order effects on intelligence or school achievement in modern populations. It appears that structural variables such as family size and order are less decisive than psychosocial factors (e.g., motivation, counselling access, and teacher support) in determining students' academic outcomes. Indeed, the study's results resonate with Bowen's (2020) Family Systems Theory, which emphasizes that family functioning and communication patterns not mere structure shape developmental outcomes.

Another plausible explanation for the weak statistical relationship lies in educational reforms and interventions implemented in Bauchi State. Government programs such as free education, scholarship initiatives, and the presence of school counselling units may have reduced the traditional disadvantages faced by students from larger or less privileged families. These institutional supports, coupled with communal learning culture, might have equalized academic opportunities across family categories.

In summary, the findings demonstrate that family structure alone cannot sufficiently predict academic performance among secondary school students in Bauchi State. Academic success appears to depend more on personal drive, access to educational support, and quality of teaching than on the number of siblings or childbirth order. This underscores the importance of strengthening psychosocial and instructional interventions that promote equitable learning outcomes for all students, regardless of family background

## Conclusion

This study investigated the influence of family structure variables namely family size and birth position on the academic achievement of senior secondary school students in Bauchi State, Nigeria. Using correlational and ANOVA analyses, the results showed that neither family size nor birth position had a statistically significant relationship with students' academic performance. Although students from smaller families and first-born children recorded slightly higher mean scores, these differences were not significant enough to suggest that family structure determines educational outcomes in this context.

The findings therefore underscore that academic success is a multifaceted construct shaped more by individual, psychological, and institutional factors than by demographic variables such as family size or sibling order. Students' intrinsic motivation, quality of instruction, parental involvement, and school-based support systems (such as counselling and mentorship) are likely stronger predictors of learning outcomes. This result supports Family Systems Theory, which posits that it is not the structure of a family but its internal dynamics communication, emotional balance, and adaptability that drive individual development and achievement.



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From a policy perspective, the study challenges the long-standing assumption that children from large or lower-order families are inherently disadvantaged in academic performance. In the Bauchi context, where extended family systems and community networks play vital roles in child development, family support quality outweighs family composition. These findings have implications for educational stakeholders seeking to improve student outcomes in similar socio-cultural settings.

Furthermore, the study provides a local empirical contribution to the global discourse on family effects and education. While studies in Western contexts have often highlighted the resource dilution and birth-order advantages, the present findings show that cultural context, family interdependence, and shared caregiving practices can neutralize these effects.

In conclusion, family structural factors, though relevant to social organization, are not strong predictors of academic success among Nigerian secondary school students. This indicates that interventions to improve student performance should move beyond demographic considerations and focus on enhancing the psychosocial environment through counselling, mentorship, emotional support, and teacher-student interaction to foster resilience and motivation among learners.

### **Recommendation**

#### **For Parents**

1. Focus on fostering a supportive home environment characterized by effective communication, encouragement, and emotional stability, irrespective of family size or birth order.
2. Promote equitable educational opportunities for all children by balancing attention and academic monitoring.

#### **For School Administrators and Teachers**

1. Strengthen guidance and counselling services to address students' academic, emotional, and social challenges.
2. Implement mentorship programs that provide individualized academic support, particularly for students from large families or challenging home backgrounds.

#### **For Policymakers**

1. Formulate policies that ensure equitable access to quality education for students across diverse family backgrounds.
2. Incorporate family education programs into community outreach initiatives to sensitize parents about the importance of non-structural factors such as motivation, emotional support, and communication in promoting academic achievement.

#### **For Future Researchers**

1. Future studies should incorporate qualitative approaches to explore how family interaction patterns, parenting styles, and socio-economic status interact with academic performance.
2. Comparative research across different states or cultural settings in Nigeria could deepen understanding of how contextual factors moderate the relationship between family structure and learning outcomes.



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