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Sibsize, Birth Order and Children`s Educational Attainment in Maiduguri Metropolis, Borno State, Nigeria

YAGANA S. WALI, FATHI AHMAD ABULFATHI
ABUBAKAR HAMMAN, HAUWA MUSTAPHA MOHAMMED
University of Maiduguri, Nigeria

Abstract. The study used a correlational design to find out how children's educational attainment, birth order, and sibsize relate to each other in Maiduguri Metropolis, Borno State, Nigeria. The study focused on particular family configuration factors, such as birth order and sibling size, which are all related to childrens' educational attainment. The population consisted of households from 15 Maiduguri electoral wards. Five wards were selected using a simple random sampling technique, which selected 20% of the wards. In accordance with Smith's (1975) recommendation for small populations, purposive sampling was used to select 200 households. The instrument used to collect data was a self-developed questionnaire called Sib-Size, Birth Order, and Educational Attainment (SBEA). This questionnaire underwent validation by the experts focusing on face and content validity. Additionally, a pilot study was conducted for reliability testing in two wards not included in the main sample. The reliability of the instrument was obtained using Person Correlation coefficient at 0.05 level of significance. The Pearson moment correlation coefficient and multiple regression were used to analyze the data and assess the associations between the educational attainment and the family configuration variables (birth order and sib size). The results showed a significant correlation between the educational attainment of children and their sibsize. But there was no significance in regard to the birth order.

Keywords: *Sibsize,* Birth Order and Educational Attainment.

1. Introduction

The nature and quality of children`s educational experience and development are influenced by many factors such as government policy, neighborhood values, peer groups and school. But two institutions that observably impact most directly on the children`s educational experience and development are the family and school. Other factors influencing them from the wider society are mediated through the opportunities and experiences provided by these institutions.

The creation of a child's home or family environment is obviously an important and complex process which has been explored primarily in terms of parental influences with little attention to child influences. The family environment plays a significant role in child's educational attainment and school outcomes. It is widely believed to be a primary component that determines children`s development. The relationship between the family environment and child's educational outcomes is attributed to so many variables because the influence of the family is not a simple one (Walbarg & Marjoribanks, 1976). It is not only characterized by the child's relationship with other householders but is complicated by a wide range of outside influences. It is also believed to be a complex of social, cultural, economic and personal factors. As a primary agent of socialization, the family provides a network of physical, social and intellectual forces and factors which invariably affects the child's education and development.

To this point, it is important to look at the home configuration variables that create home environment. These are: sibsize, birth order and socioeconomic characteristics of the family. To begin with, the sibsize is the number of children in a family and is one of the determinants of children's educational attainment. The relationship between sibship size and the outcomes of children has long caught the attention of Economists, Sociologists and other social scientists and they all confirm that socialization, level of intimacy, and communication vary by family size (Marteleto, 2005). In industrialized nations family size generally depresses educational attainment; the larger the number of siblings, the lower the educational attainment, presumably because of the reduction of family resources (both material and intellectual) available

to each child (Arthur, 2005). However, this association is much less consistent in developing nations as the sibsize in Africa has been influenced and supported by various sociocultural factors and beliefs. Family size and birth order are strongly related although family size differs between children from different families, while birth order differs between children within a family. The first born or the oldest child is usually advantaged by a great deal of attention from parents but parental attention declines as the number of children increases (Acorou, 2001).

Educational attainment is the highest level of education an individual has successfully completed, or the highest educational qualification. Educational attainment among persons is an indicator of the person's exposure to schooling, as well as an indicator of a country's human resource base. The 2006 Population and Housing Census collected data on the highest level of schooling attended and the highest class completed among Nigerians age six and above. This information allowed for the calculation of educational attainment among Nigerian population. Although many Nigerians have attended school, yet there are sizeable differences by sex and region (National Population Commission, 2010). The Nigerian Education Data Survey`s (2015) report on Borno state shows that more than 61% of parents did not attend formal education. And for those who went to primary school, very negligible number (2-3%) were able to complete primary education. Therefore, the level of educational attainment among parents is very low. The NEDS`s (2015) report on schooling status for children ages 4-16 shows that 75% of the children have little or no access to education due to the socioeconomic and sociocultural characteristics of their home environments. Also, the report shows that only 13% attend primary school while 4% are in junior secondary schools. Unfortunately, these percentages of school age children who did not attend school in Borno State possibly are from low-income parents as well as parents with low educational status. When these children were not fully supported to attain the desired educational status in the society, they may pose challenges to the larger society. Even though every government in Nigeria emphasizes the policy for making education accessible and affordable for all Nigerian school age children, yet, most children are not fulfilling their educational dreams. In an ideal situation, children of all socioeconomic backgrounds, and family types would not only have the opportunity to receive education, but they would also take full advantage of these opportunities, the educational level of children would be equal to their counterparts, however, it is not a perfect world, and educational attainment of children and young adults from varying backgrounds differ greatly Seeborg (2012). Accordingly, it is against this background that this study determined the relationship amongst sibsize, birth orderand children`s educational attainment in Maiduguri Metropolis Borno State, Nigeria.

1.1 Statement of the Problem

The Nigerian goal of providing equal access to education to all children across the nation seems to be a daunting challenge in most part of the country especially in Northern Nigeria. Despite the proclaimed efforts of government and that of the other stakeholders to provide equal education to school-age children, the school attainment seems to be less achieved-mission. NEDS (2015) reported that forty percent (40%) of Nigerian children aged 6-11 do not attend any primary school with the Northern states recording the lowest school attendance rate in the country. Despite a significant increase in enrollment rates in recent years, it is estimated that about 4.7 million children of primary school age are still not in school. Even when children enroll in schools, many do not complete, 30% of pupils drop out of primary school and only 54% transit to Junior Secondary Schools. This has been a major concern undoubtedly and is a great hindrance to educational development of the nation. Nigeria is a country of diverse culture and tradition, there are different and complex family nature and systems this may affect the nature of socialization, the type of environment created and the availability of educational opportunities or otherwise in the family. There is a need therefore for a study like this to be carried out in Borno State where currently an average family can hardly afford three square meals, children not properly taken care of due to meagre income, some families sometimes use their school age children to earn money to supplement the family income through begging, hawking and some children are given out as house helps in some well to do families. This has created a wider gap amongst the children from the rich and educated family and children from indigent class. This trend appears to have caused a lot of socioeconomic problems such as high crime rate, prostitution, child trafficking and child labour. In the light of the above, the problem of this study therefore was to determine the relationship amongst sibsize, birth order and children`s educational attainment in Maiduguri Metropolis, Borno State, Nigeria.

1.2 Objectives of the Study

The Objective of the study are to examine:

- Relationship between sibsize and children`s educational attainment in Maiduguri Metropolis, Borno state, Nigeria

- Relationship between birth order and children`s educational attainment in Maiduguri Metropolis, Borno state, Nigeria

1.3 Hypothesis

The following null hypotheses were tested.

Ho1: there is no significant relationship between sibsize and children`s educational attainment in Maiduguri Metropolis, Borno state, Nigeria.
Ho2: there is no significant relationship between birth order of children and their educational attainment.

2. Literature Review

Numerous studies from developed nations illustrate a negative correlation between sibling size (sibsize) and children's educational attainment (Blake 1981; Black, Devereux, Salvanes 2004; Downey 2001). In contrast, research in developing countries presents a more ambiguous association, which can vary based on contextual factors (Maralani, 2008). As societies evolve, this relationship transforms, necessitating an exploration of the elements that influence sibsize within different cultural contexts. Research indicates notable differences in sibsize among Africans, Asians, and Black individuals living in Britain, with cultural backgrounds and demographics—such as age and sex distribution—playing significant roles in these variations (Arthur, 2005).

The negative impact of larger sibship sizes on educational achievement can be attributed to constraints on parental resources. Families with more children may struggle to allocate sufficient resources to each child, resulting in diminished investments in their education (Becker, 1981). Numerous empirical studies support this notion, consistently demonstrating a negative correlation between the number of siblings and subsequent educational and economic success.

While previous studies primarily acknowledged that in larger families, resources can become diluted, recent research has begun to question the extent of this negative relationship. For instance, Marteleto & Souza (2012) tracked the impact of family size on educational outcomes in Brazil over three decades of social and demographic changes, employing an innovative analytical approach. Their findings showed that the effects of family size on education are not uniform, emphasizing a range of outcomes that can fluctuate from positive to negative.

A critical issue in studying the impact of family size on educational performance is the possibility that parents who invest heavily in education may intentionally choose to have fewer children. This raises questions about causality, as it complicates the interpretation of observed associations (Arthur, 2005). In a study by Marjoribank (2012), relationships between sibling variables, parental educational resources, and children's cognitive abilities were analyzed among 900 eleven-year-olds in Australia. The findings suggest complexities in how sibling dynamics interact with educational investments.

In another comparative analysis, Monique (2005) examined the effects of sibsize and birth order on educational results in the U. S. and the Netherlands, utilizing an instrumental variables approach. The results revealed that while birth order significantly affects educational outcomes, sibsize does not appear to impact the educational attainment of the eldest child. Similar conclusions were drawn by Akpotu et al. (2007), who explored the predictive power of family size, parental income, and employment status on educational investments. Their findings underscored a significant relationship between family size and educational investment.

Maralani (2008) further examined cohorts in Indonesia, employing instrumental variable analysis to scrutinize family size and educational achievement across different groups. The study revealed contrasting results: large families positively impacted educational outcomes for older urban cohorts, while more recent urban populations showed poorer outcomes linked to larger sibsizes. In rural regions, however, family structure appeared to have minimal impact on educational attainment across cohorts. Anderson (2003) conducted a similar study in South Africa, discovering that family structure significantly affects educational outcomes, particularly for black and colored children, whereas white children showed minimal impact from family size.

Sibship size profoundly influences educational access and outcomes, and the ongoing scholarly interest surrounding this relationship dates back over a century. Studies by Downey (1995) have consistently suggested a negative association between sibsize and children's intellectual achievements. For example, research by Magdalena (2012) shed light on the frequency of mother-child interactions, revealing that as sibship size increases, the frequency of activities engages differentially with firstborn and subsequent children.

Moreover, studies have suggested that birth order may correlate negatively with educational achievements, as later-born children often face the challenge of sharing parental time and resources with siblings (Behrman, 1997). While some

empirical studies indicate this negative connection (Devereux & Salvanes, 2005), others have found no significant effects (Hauser & Sewell, 1985). Current literature also delves into how birth order and sibling gender composition can impact educational success, although results remain mixed (Dahl & Moretti, 2008).

Finally, research by Buckles & Munnich (2012) examined how the spacing between siblings influences educational outcomes, with findings indicating that greater spacing between births is positively correlated with older siblings' academic achievements, while less spacing negatively impacts their educational performance. This study utilized a robust instrumental variables approach to mitigate concerns about unobserved characteristics influencing results.

Overall, the interplay of sibship size, birth order, and spacing presents a complex landscape of factors affecting children's educational outcomes across different contexts, highlighting the need for continued investigation into these relationships.

3. Methodology

This research utilized a correlational design to determine the relationship amongst sibsize, birth order and children's educational attainment in Maiduguri Metropolis, Borno State, Nigeria. Correlational research involves examining two or more variables to assess the statistical relationship amongst them without controlling external factors. This approach allows researchers to predict scores and explain variable relationships using statistical tests to measure the degree of association. The study focused on specific family configuration variables, including sibling size and birth order all connected to children's educational attainment.

The population included households from 15 electoral wards in Maiduguri, with a simple random sampling technique used to select 20% of the wards, resulting in five chosen wards. Following Smith's (1975) guideline for small populations, 200 households were sampled using purposive sampling. A self-developed questionnaire titled Sib-Size, Birth Order and Educational Attainment (SBEA) served as the data collection instrument. This questionnaire underwent validation by the experts focusing on face and content validity. Additionally, a pilot study was conducted for reliability testing in two wards not included in the main sample. The reliability of the instrument was obtained using Person Correlation coefficient at 0.05 level of significance. The data collected were analysed using Pearson moment Correlation Coefficient and multiple regression to evaluate the relationships between family configuration variables (Sib-size & birth order) with children's educational outcomes. Pearson's correlation coefficient is noted for its efficacy in measuring the association between continuous variables, providing insight into both the magnitude and direction of relationships. This method is supported by Tracy (2017), highlighting its significance in understanding the underlying connections in the examined variables, paving the way for future educational interventions.

4. Results

The hypotheses were tested using two statistical tools. These are: Multiple regression and correlation coefficient. Each hypothesis was tested at the significant level 0.05.

Hypothesis One: There is no Significant Relationship between Sibship Size and Children's Educational Attainment

Table 1: Regression Analysis on Sib Size and Children`s School Attainment

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.408[a]	.167	.162	5.739	.167	39.556	1	198	.000

Table 1 presented model summary on the relationship between sibsize and the children`s educational attainment. The table showed sibsize accounted for 16% of the total variance in the children`s educational attainment. This shows that number of the children in the family is an important predictor of the school attainment among school age children. From the results, it is obvious that children`s educational attainment was determined by the number of the children in the family accounting for 16%. In another word, there is significant relationship between sibsize and the children educational attainment at <0.05 level of significance. Thus, the null hypothesis was rejected

Table 2: Pearson Correlation on Sibsize and Children`s Educational Attainment

		Sib Size	Children`s Educational Attainment
Sib Size	Pearson Correlation	1	.408**
	Sig. (2-tailed)		.000
	N	200	200
Children`s Educational Attainment	Pearson Correlation	.408**	1
	Sig. (2-tailed)	.000	
	N	200	200

Table 2 presented Pearson Correlation between sibsize and children`s educational attainment. The Pearson Correlation analysis indicated that the number of the children in the family determined the educational attainment at <0.05 level of significance. The p value obtained (0.001) was less than 0.05. Thus, confirming the rejection of the null hypothesis. The table 2 apparently showed that children from small size family tend to attain more educational attainment than their counterpart from large size family.

Hypothesis Two: There is no Significant Relationship between Birth Order and Children`s Educational Attainment

Table 3: Regression Analysis on Birth Order and Children Educational Attainment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.007[a]	.000	-.005-	6.286	.000	.008	1	198	.927

Table 3 showed model summary on birth order and educational attainment. The table revealed that zero percent of the educational attainment among school age children could be explained due to the birth order. This result indicated that there was no significant relationship between birth order and children educational attainment at >0.05 level of significance. The p value obtained (0.93) is greater than 0.05. Therefore, it is obvious that birth order didn't correlate to the educational attainment in the area under study. Hence, the null hypothesis was retained at >0.05 level of significance.

Table 4: Person Correlation on Birth Order and Children`s Educational Attainment

		Birth Order	Children`s Educational Attainment
Birth Order	Pearson Correlation	1	-.007-
	Sig. (2-tailed)		.927
	N	200	200
Children`s Educational Attainment	Pearson Correlation	-.007-	1
	Sig. (2-tailed)	.927	
	N	200	200

Table 4 presented Pearson Correlation on birth order and children`s educational attainment. The table showed that there was no significant relationship between birth order and children`s educational attainment at >0.05 level of significance. The p value 0.93 as presented in the table was greater than 0.05. Thus, the findings confirmed the retention of the null hypothesis.

5. Summary of Findings

The following are the key findings of the research:

- The findings revealed that there was significant relationship between sibsize and children`s educational attainment.
- There was no significant relationship between birth order and children`s educational attainment.

6. Discussion of the findings

The findings of this study revealed that there was significant relationship between sibsize and children`s educational attainment at <0.05 level of significance. The regression analysis showed that 16% of the total variance in the children`s educational attainment predicted by the sibsize. This is in line with the findings of Marteleto & Souza, (2012) who found that family size has significant effect on children`s educational attainment. Although the effect of family size on education is

not uniform throughout a period of significant social, economic, and demographic change. Rather, the causal effect of family size on adolescents' schooling resembles a gradient that ranges from positive to no effect, trending to negative. A key problem for research in both developing and developed contexts is that parents who highly value children's education may decide to have fewer children in the first place which could explain the association found in past studies. While long recognizing that parental predisposition shapes family size and children's schooling simultaneously.

With respect to birth order, the findings indicated birth order does not correlate to children`s educational attainment at >0.05 level significance. This confirmed the findings of Monique (2005) who reported that there was no significant effect of the number of children on educational attainment of the oldest child. Birth order has a significant negative effect. This negative effect does not differ between children from higher or lower educated parents. Also, the age gap between children does not affect the effect of birth order, or the educational attainments of the children. Contrarily, Akpotu, Omotor & Onoyase (2007) in their study examined the extent to which, family size, income and the employment status of parents could predict parents' investment in children's education. The findings generally pointed to statistically significant relationship between investment in children's education and the family size, and parents' income. The researchers (Akpotu, Omotor & Onoyase, 2007) considered the effects of birth order and they found that later-born children have lower educational attainment, receive less parental time investment, and in some cases have worse labor market outcomes. There is even evidence that the gender composition of one's siblings affects educational attainment, though results are mixed (Dahl & Moretti 2008). Buckles & Munnich (2012) found that greater spacing is positively associated with test scores for older siblings, but not for younger siblings. that a one-year increase in spacing increases test scores for older siblings by about 0.17 standard deviations—an effect comparable to estimates of the effect of birth order.

7. Conclusion

Based on the findings of the study, it was concluded that sibsize correlated to children`s educational attainment. On the other hand, birth order did not correlate to children`s educational attainment. This may not be unconnected to the fact that home environment variables varied from one nation or region to another.

8. Recommendations

Based on the findings of the study, the following recommendations were made:

- Government should encourage population education to allow parents understand the synergy between their family size and children`s educational attainment.
- Parents should be sensitized by National Orientation Agency to attend symposium and debates so as to acquire experience on home environment variables including birth order and child`s education. This will help in creating well informed citizens.
- Government should invest hugely on free education to school age children. This will enable economically disadvantaged children to acquire free education in spite of their socioeconomic background.

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