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(RESEARCH ARTICLE)

Birth order, achievement motivation, academic performance and locus of control in young adults

Marissa Ruth Furtado [1,*] and Soumya Simon [2]

[1] *Counselling Psychology, Kristu Jayanti College (Autonomous), Bengaluru, Karnataka, India.*
[2] *Department of Psychology, Kristu Jayanti College (Autonomous), Bengaluru, Karnataka, India.*

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Abstract

This study investigates the relationship between birth order, achievement motivation, academic performance, and locus of control among young adults. Drawing on Alfred Adler's theory of birth order and other motivational theories, the research aims to determine if birth order influences levels of achievement motivation, academic success, and locus of control among undergraduate and postgraduate students aged 18-25. Using a cross-sectional, quantitative research design, data were collected from 304 participants through structured questionnaires, including the Deo-Mohan Achievement Motivation Scale, the Academic Performance Scale, and Rotter's Locus of Control Scale. Statistical analyses revealed a significant positive relationship between achievement motivation and academic performance, while locus of control demonstrated a modest but significant negative correlation with both.

However, no direct relationship was identified between birth order and academic performance or locus of control, though firstborns exhibited marginally higher levels of achievement motivation. These findings underscore the importance of psychological factors, such as motivation and perceived control, in academic success while suggesting that birth order's impact is more nuanced and indirect.

Keywords: Birth Order; Achievement Motivation; Academic Performance; Locus of Control; Young Adults

1. Introduction

The theory of birth order, that was introduced by Alfred Adler (1927), suggests that a child's position within the family influences their overall personality and motivation [1]. Firstborns tend to be responsible, achievement-oriented, and conscientious due to early parental attention and expectations. However, the arrival of younger siblings may lead to feelings of displacement, driving them to seek validation through success [2]. Middle children, often caught between siblings, develop adaptability, independence, and strong social skills but may struggle with self-esteem [3]. Youngest children, typically indulged, tend to be more playful, extroverted, and creative but may develop risk-taking tendencies. Only children, lacking sibling competition, often display maturity and high achievement motivation but may experience heightened parental pressure [4]. While Adler's theory has influenced psychology, contemporary research offers mixed findings, with some studies suggesting that birth order effects are less significant than previously believed [2].

Achievement motivation, as proposed by McClelland (1961), refers to an individual's drive to succeed. It is influenced by upbringing, self-efficacy, and goal orientation [5]. Dweck's (1986) achievement goal theory distinguishes between mastery goals, where individuals seek personal improvement, and performance goals, which focus on outperforming others. A growth mindset fosters resilience, while a fixed mindset may hinder persistence [6]. Bandura's (1997) self-efficacy theory emphasizes the role of confidence in tackling challenges [7]. Cultural differences also shape motivation, with individualistic cultures prioritizing personal success and collectivist cultures emphasizing group achievement [8].

* Corresponding author: Marissa Ruth Furtado

Academic success is strongly linked to motivation, self-regulation, and external influences like family support and socioeconomic status [9].

Locus of control, introduced by Rotter (1966), refers to whether individuals attribute success to internal factors (effort, ability) or external forces (luck, fate) [10]. An internal locus fosters persistence and goal-setting, while an external locus may lead to passivity and learned helplessness. Research indicates that individuals with an internal locus of control are more likely to excel academically and professionally (Rotter, 1966). By fostering resilience and self-efficacy, individuals can enhance their motivation, academic performance, and overall success [10].

1.1. Review of Literature

Research on birth order and its impact on motivation and academic success has consistently shown a strong relationship between being a firstborn and exhibiting higher levels of achievement motivation, internal locus of control, and academic performance. Studies highlight that firstborns tend to have a more internal locus of control, which contributes to their academic success [11]. Additionally, research suggests that firstborns generally demonstrate higher achievement motivation, which enhances their educational outcomes [12], [13]. The long-term impact of birth order is also evident in intergenerational studies, which found that firstborns not only perform better academically but also pass on educational advantages to their children [14]. Furthermore, research indicates that cultural and familial expectations significantly contribute to firstborns' superior academic performance [15]. Additionally, research examines how family dynamics and psychological birth order shape self-efficacy and academic ambition, reinforcing the link between perceived birth order roles and academic success [16]. Several studies, further highlight that effective study habits and responsibility, often developed due to firstborns' familial roles, contribute to their higher academic achievement [17]. Overall, the literature strongly supports the idea that birth order, particularly being a firstborn, fosters motivation and academic success through psychological, familial, and sociocultural factors.

1.2. Aim, Objectives and Hypothesis of the Study

The aim of this study is to examine the influence of birth order on psychological traits that impact educational outcomes among young adults. Specifically, it focuses on the relationships between birth order, achievement motivation, academic success, and locus of control. Previous research suggests that birth order may shape personality traits and motivational factors. Therefore, this study seeks to fill the existing gap in empirical evidence by exploring how birth order affects achievement motivation and academic performance, with significant implications for educational practices and psychological support aimed at enhancing student success.

The study aims to understand the relationship between birth order and achievement motivation, academic performance, and locus of control. Additionally, it seeks to analyze how achievement motivation affects academic performance and to examine the differences in the influence of birth order on these factors across firstborns, middle-borns, the youngest children, and only children.

The study hypothesizes that there is no significant correlation between birth order and achievement motivation, academic performance, or locus of control. Additionally, it posits that achievement motivation does not significantly impact academic performance. Furthermore, it hypothesizes that there are no significant differences in academic performance, achievement motivation, or locus of control among firstborns, middle-borns, the youngest children, and only children.

2. Materials and Methods

2.1. Research Design

This study explores the role of Birth Order on Achievement Motivation, Academic Success and Locus of Control among adults with a sample of 304 participants using a cross- sectional research design. This approach will include a literature review using secondary data from online journals and research articles to build upon existing knowledge and identify areas for investigation. The primary data collection method will involve an online questionnaire, a widely accepted means of gathering data efficiently from a large participant pool. The study aims to study college students who are presently in college and not the students who have passed out or in the idea of joining college. So this study incorporates cross-sectional quantitative research design. This study will employ a cross-sectional quantitative research design, collecting data from a diverse cohort of individuals at a specific point in time.

2.2. Participant

The sample size taken for this study was 304 comprising young adults with the age ranging from 18 - 25 years. The inclusion criteria was that the participant has to be either pursuing their UG or PG from any public or private University or College.

2.3. Sample

The sample for the study would be the few colleges in Bengaluru which consist of both undergraduate and postgraduate psychology students. A total sample of 304 (N= 304) will be taken out of which there were 148 males (48.4%) and 156 females (51.3%). As the samples are going to be directly contacted this study will involve convenience sampling technique where the researcher will conveniently select students in the colleges.

2.4. Inclusion criteria

- The students should be presently studying in college.
- Between the age range of 18-25
- An undergraduate or postgraduate student.
- Opted programs on regular study basis (i.e. Full time)
- Consent to participate and publish the results/findings.

2.5. Exclusion criteria

- Students who study in college on a correspondence basis are not included.
- Passed out or not presently a college student.
- Outside India.
- Undergoing treatment for complicated health related concerns for more than 6 months

2.6. Tool Description

The Deo-Mohan Achievement Motivation Scale (DMAMS) is a self-report questionnaire designed to assess achievement motivation levels in individuals, particularly students. The DMAMS consists of a set of 50 items formatted as statements to which respondents respond based on their personal experience and beliefs. The DMAMS uses a 5-point Likert scale (ranging from "Strongly Disagree" to “Strongly Agree" or similar degrees of agreement). The DMAMS has been subjected to psychometric testing, establishing its reliability and validity for measuring achievement motivation in Indian educational contexts.

The Academic Performance Scale (APS) developed by Carson is a self-report tool designed to measure a student’s perceived academic performance and effectiveness in an educational setting. Typically, the APS includes a series of statements related to study habits, task management, and engagement with academic work, to which students respond on a Likert-type scale, indicating the extent to which each statement reflects their behaviors. The APS is commonly used in research to explore correlations between academic performance and other psychological constructs, such as motivation, stress, or self-efficacy, as well as in educational counseling to identify students who may benefit from interventions targeting study skills and time management. With an internal consistency of .89 and a test-retest reliability of 85. The APS consisted of (8) 5-point scale items. The APS promises to be a useful tool. Scale scores showed adequate internal consistency, 2-week test-retest reliability, and satisfactory concurrent validity.

Rotter's Locus of Control Scale. Rotter's LOC originally designed by Rotter in 1966. It consists of 29 pairs of statements. Participants indicate which statement of each pair they believe to be true. The lower the score, the more likely the participant is to possess internal locus of control. The higher the score, the more likely the participant is to possess external locus of control. Test-retest reliability ranged from .55 to .83 and internal consistency ranged from .65 to .79 (Rotter, 1966).

3. Results and Discussion

Table 1 Demographic Profile of The Respondents

Sample Characteristics	N	M/SD/%
GENDER		
Male	148	48.7%
Female	156	51.35
AGE (18-25 years)	304	1005

The above table 1 provides an overview of the socio demographic characteristics of the 304 young adult respondents. The demographic distribution of the participants is as follows: in terms of gender, there are 148 males (48.7%) and 156 females (51.3%), regarding age, it falls within the range of 18-25 totalling 304 participants.

Table 2 Correlation

Variable(s)	n	M	SD	1	2	3	4
1. Birth Order	304	2.50	1.12	-			
2. Achievement Motivation	304	118	19.4	0.907	-		
3. Academic Performance	304	11.8	2.77	0.346	<.001*	-	
4. Locus of Control	304	28.3	5.36	0.760	0.006	0.007	-

Note. * p < .05*

This table presents the results of a Pearson Correlation analysis examining the relationships among birth order, achievement motivation, academic performance, and locus of control.

- H1: There will be no significant correlationship beween birth order and achievement motivation.

In relation to birth order and achievement motivation, no significant relationship was found in the sample (r = -0.054, p = 0.346). Therefore, H1 is accepted, and these findings align with previous research by Sulloway, F. J.(1996) “Born to Rebel: Birth Order, Family Dynamics, and Creative Lives”. This study highlights how firstborns tend to have higher achievement motivation due to greater responsibility and parental expectations. It supports the strong positive correlation observed in the data.

- H2: There will be no significant correlationship between birth order and academic performance.

Similarly, there was no significant relationship between birth order and academic performance (r = 0.007, p = 0.907). Therefore, H2 is accepted, and these findings are consistent with previous research by Roberts, B. W. (2015) “The associations of birth order with personality and intelligence in a representative sample of U.S. high school students”. This study found that firstborns slightly outperform their siblings academically, consistent with the moderate positive correlation found in this analysis.

- H3: There will be no significant correlationship between birth order and locus of control.

Additionally, the analysis indicated no significant relationship between birth order and locus of control (r = -0.018, p = 0.760). Therefore, H3 is accepted, and these findings are supported through the research by Pintrich, P. R., & De Groot, E. V. (1990) “Motivational and self-regulated learning components of classroom academic performance”. This research emphasizes the critical role of achievement motivation in academic success, aligning with the strong positive correlation observed.

Also, in table 2, it can be observed that a strong positive significant relationship exists between achievement motivation and academic performance (r = 0.661, p<0.001). This is supported through the reaserch by McClelland (1961), which

highlighted the critical role of achievement motivation in academic success, suggesting that students with high motivation tend to set and achieve higher academic goals.

Table 3 Regression

	CI 95%				
Effect	**Estimate**	**SE**	**UL**	**LL**	***p***
Academic Performance	6.847	1.424	9.649	4.046	0.000*
Achievement Motivation	.182	0.12	0.206	0.159	0.000*

Note. Dependent variable: Academic Performance, *p<.05 .

- H4: There is no significant impact of achievement motivation on academic performance.

This table highlights the predictive relationship between academic performance (dependent variable) and other variables like achievement motivation and birth order. Achievement Motivation as a Predictor: The regression coefficient ($\beta = 6.847$, $p < 0.05$) shows that achievement motivation significantly predicts academic performance. This indicates that students with higher levels of motivation are more likely to succeed academically. For instance, motivated students might display better study habits, resilience, and goal setting, all of which contribute to higher grades and academic success. The confidence interval (CI = 4.046–9.649) reinforces this finding, highlighting that achievement motivation reliably contributes to explaining variations in academic performance. Based on these results, H4 is rejected as there is an impact. A study by Singh and Singh (2014) supports the finding that achievement motivation is a significant predictor of academic performance. Their research highlights that students with higher motivation tend to set and achieve academic goals more effectively, leading to better academic outcomes.

4. Discussion

The study examined the relationships between achievement motivation, locus of control, birth order, and academic performance. It found a strong link between achievement motivation and academic success, with higher levels of motivation associated with better performance. Additionally, locus of control played a significant role; individuals with an internal locus of control—those who believe they have control over their outcomes—demonstrated higher academic motivation and performance compared to those with an external locus of control, who tend to attribute their success or failure to external factors. While firstborns showed slightly higher achievement motivation compared to their siblings, these differences were not statistically significant. When academic outcomes and locus of control were compared across different birth order groups, no substantial differences were observed.

5. Conclusion

Overall, the study emphasized that psychological traits such as achievement motivation and an internal locus of control are stronger predictors of academic success than birth order. The impact of birth order appeared to be indirect, influenced more by family dynamics and cultural factors rather than inherent traits. The findings suggest that fostering motivation and self-regulation in students is a more effective approach to improving academic outcomes than focusing on birth order.

5.1. Implications

The findings of this study highlight the importance of fostering achievement motivation in young adults to enhance academic performance. Educational institutions and counselors can develop interventions that promote intrinsic motivation and resilience among students, regardless of their birth order. For instance, programs emphasizing goal setting, time management, and self-regulation could help students improve their academic outcomes. Additionally, while birth order may not directly affect academic performance, it could provide insights into family dynamics and individual personality traits, which educators and psychologists can consider when designing tailored support systems for students.

Limitations

This study has several limitations that should be acknowledged. The use of a convenience sampling method may limit the generalizability of the findings, as the sample was restricted to undergraduate and postgraduate students from

select colleges in Bengaluru. Additionally, the cross-sectional design provides only a snapshot of the relationships between variables, making it difficult to establish causality. Cultural and environmental factors unique to the study location may also influence the results, potentially limiting their applicability to other populations. Lastly, the reliance on self-reported measures introduces the possibility of response bias, as participants may have answered in socially desirable ways.

Future Recommendations

Future research could address these limitations by using longitudinal designs to explore changes in achievement motivation, academic performance, and locus of control over time. Expanding the sample to include students from diverse cultural, socioeconomic, and geographical backgrounds would enhance the generalizability of the findings. Additionally, incorporating qualitative methods, such as interviews or focus groups, could provide deeper insights into how birth order influences personality traits and motivation in different contexts. Researchers might also investigate the role of mediating factors, such as parental expectations or sibling relationships, to better understand the nuanced impact of birth order on academic and psychological outcomes.

Compliance with ethical standards

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Disclosure of conflict of interest

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