



Faculty of Cognitive Sciences and Human Development

**THE RELATIONSHIP BETWEEN BIRTH ORDER AND CAREER
READINESS: SELF-ESTEEM AS A MEDIATOR**

Safwah Bazla Binti Shamsudin

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**THE RELATIONSHIP BETWEEN BIRTH ORDER AND CAREER READINESS:
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SAFWAH BAZLA BINTI SHAMSUDIN

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The project entitled '**The Relationship between Birth Order and Career Readiness: Self-Esteem as a Mediator**' was prepared by **Safwah Bazla Binti Shamsudin (78506)** and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfillment of the requirements for a Bachelor in Psychology with Honours

Received for examination by:

Ida Juliana Binti Hutahut
Rafiah
Fakulti Sains Kognitif dan Pembangunan Manusia
UNIVERSITI MALAYSIA SARAWAK

(Dr Ida Juliana Binti Hutahut)

Date:

12 JULY 2024

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ABSTRACT

Previous research has explored the individual impacts of birth order on self-esteem and career readiness, but few studies have investigated these variables in combination, especially within the Malaysian context. This study aimed to examine the relationship between birth order and career readiness through the mediation of self-esteem. A survey was conducted among 160 UNIMAS students (first born, n=48; middle born, n=66; last born, n=46) and the data were collected using RSES and CFI, which distributed both online and physical means. The findings show that birth order does not influence their career readiness, even with the mediation of self-esteem ($p=0.102$) and self-esteem weakly correlates with career readiness ($p<0.001$). This study enriches the understanding of birth order effects on career readiness by integrating self-esteem as a potential mediator and providing insights within a Malaysian context. The results highlight the need for further research on additional mediating factors and suggest employing mixed method approaches to capture deeper insights into the participants' experiences.

Keywords: Birth order, self-esteem, career readiness, relationship

ABSTRAK

Kajian yang lepas telah mendapati kesan urutan kelahiran terhadap harga diri dan kesediaan kerjaya, tetapi kurang yang mengkaji ketiga-tiga pemboleh ubah ini Bersama, terutamanya di Malaysia. Kajian ini bertujuan untuk mengkaji hubungan antara urutan kelahiran dan kesediaan kerjaya melalui pengantaraan harga diri. Satu tinjauan telah dijalankan dalam kalangan 160 pelajar UNIMAS (anak sulung, $n=48$; anak tengah, $n=66$; anak bongsu, $n=46$) dan data dikumpul menggunakan RSES dan CFI, yang diedarkan secara dalam talian dan fizikal. Keputusan menunjukkan bahawa urutan kelahiran tidak mempengaruhi kesediaan kerjaya seseorang, walaupun harga diri menjadi pengantara ($p=0.102$) dan harga diri berkait dengan kesediaan kerjaya ($p<0.001$). Kajian ini memperkayakan pemahaman tentang kesan urutan kelahiran terhadap kesediaan kerjaya dengan mengintegrasikan harga diri sebagai perantara dan menyumbang maklumat dalam konteks Malaysia. Keputusan ini menekankan keperluan untuk penyelidikan pada masa akan datang mengenai perantara tambahan dan mencadangkan penggunaan pendekatan kaedah campuran untuk memahami dengan lebih mendalam tentang kesan urutan kelahiran terhadap kehidupan seseorang.

Kata kunci: Urutan kelahiran, harga diri, kesediaan kerjaya, hubungan

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The study's background, problem statement, aims, research questions, hypothesis, conceptual framework, definitions of words, and study significance are all included in this chapter.

1.1 Background of Study

The topic of birth order has gained attention from many researchers since its first theoretical introduction by Alfred Adler. It becomes an interesting topic to be studied as it can be related to various issues. For instance, there were studies that associated birth order with romantic relationships, substance use, and strategic risk-taking (Kalkan, 2006; Horner, 2012; Campbell et al., 2019). A person's ordinal position within their family can be determined by their birth order. Adler proposed that birth order influences someone's personality development and behaviour. Since the family environment changes over time, each child may experience different things in their life according to their birth order. Most children are treated differently in the family, especially by the parents, as parental favouritism exists and influences the children's well-being (Jensen et al., 2014). This could potentially alter the self-esteem of everyone, as self-esteem is crucial as it is how individuals evaluate their own qualities. A significant proportion of the world's population—85%—had low self-esteem, which has been associated with violent behaviour, high school dropout rates, and subpar academic achievement (Guttman, 2019). For a student, having high self-esteem can influence the student's academic achievement, motivation, and overall performance at the university (Arshad et al., 2015).

According to Bhatt and Bahadur (2017), students with higher self-esteem also perform better in academics and are capable of accomplishing any task. Due to their strong drive to get excellent employment and upbeat outlook on their careers, the likelihood of students being well-prepared for the workforce is also higher among those with strong self-esteem. (Kustati et al., 2017). The need to achieve a better future and a successful career would increase their career readiness, which contributes to a higher risk of long-term career success (Prinstin et al., 2022). Given its association with both variables, there is an indication that self-esteem may act as a mediator in the relationship between career readiness and birth order. This study will further discuss the possibilities of the influence of birth order on career readiness, which is mediated by self-esteem.

1.2 Problem Statement

To begin with, the correlation among birth order, self-esteem, and career readiness has not been extensively researched. The current body of research is deficient in its thorough analysis of the ways in which birth order dynamics within families might influence their readiness for fulfilling jobs through people's self-esteem. The influence of birth order on someone's career readiness has not been researched enough to give insights for new research. Nhandi (2017) emphasized the significance of acknowledging that a student's family environment plays a crucial role in supporting their career specializations based on their birth orders. By offering insightful information on career preparedness and birth order, which are mediated by self-esteem, this study aims to narrow the gap.

Other than that, due to the COVID-19 pandemic, there was also a decrease in the number of career-ready students (Alam & Parvin, 2021). This may have happened because of

the difference in exposure to the development of employability skills the students were getting before and after the pandemic. It was also noted that the online education affected the students' learning experiences in some ways, including their emotions and cognitive and behavioural engagements (Omar et al., 2021). Besides, career readiness is important for university students making the move from university to the industry (Magnano et al., 2021). If students are not ready to pursue their careers, it may become a problem for them after they graduate and fail to achieve the attributes expected by the organizations they work for. By studying the relationship between birth order and career readiness, the number of career-ready students at UNIMAS can also be explored, providing insight into whether they need help regarding their future careers or not.

Furthermore, there is a lack of recent studies regarding birth order topics in Malaysia. Due to this, the comparison of birth order effects in a Malaysian context cannot be done. The birth order may have impacted Malaysians differently compared to people from other countries. The study conducted by Ha and Tam (2011) on Malaysian students stated that there was no birth order effect on personality and academic achievement, while the research conducted in other countries, such as Latin America, India, and the Arab world, stated otherwise (Horner, 2012; Gupta, 2019; AlSaleh et al., 2021). Hence, this study can broaden the empirical findings regarding the topic of birth order and how it influences their self-esteem as well as their career readiness in a Malaysian context.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this research is to study the relationship between birth order and career readiness, which is mediated by self-esteem among the students at the University Malaysia Sarawak (UNIMAS).

1.3.2 Specific Objectives

1. To study the relationship between birth order and self-esteem among UNIMAS students.
2. To study the relationship between self-esteem and career readiness among UNIMAS students.
3. To study the relationship between birth order and career readiness among UNIMAS students.
4. To investigate the mediating role of self-esteem in the relationship between birth order and career readiness.

1.4 Research Questions

1. What is the relationship between birth order and self-esteem among UNIMAS students?
2. What is the relationship between self-esteem and career readiness among UNIMAS students?
3. What is the relationship between birth order and career readiness among UNIMAS students?
4. How does self-esteem mediate the influence of birth order on career readiness among UNIMAS students?

1.5 Research Hypothesis

Ha1: There is a significant difference between birth order and self-esteem.

Ha2: There is a significant relationship between self-esteem and career readiness.

Ha3: There is a significant difference between birth order and career readiness.

Ha4: Self-esteem significantly mediates the relationship between birth order and career readiness.

1.6 Conceptual Framework

The figure below shows the conceptual framework indicating the connection of variables for this study. The birth order which is the independent variable (IV) has an influence on career readiness, the dependent variable (DV), which mediates by self-esteem, the mediating variable.

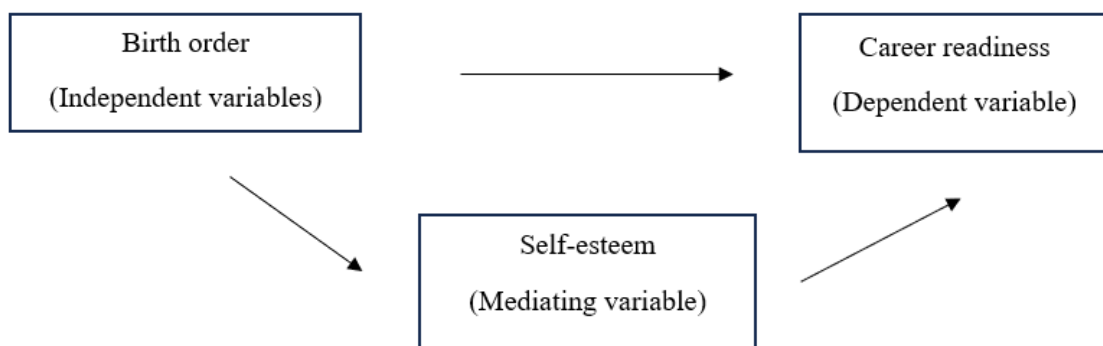


Figure 1: Conceptual Framework

1.7 Definition of Terms

Birth order, self-esteem, and career readiness are the three terms that will be used in this study.

Table 1 shows the conceptual and operational definitions for each term.

Terms	Conceptual Definition	Operational Definition
Birth order	The child's ordinal position in the family (<i>APA Dictionary of Psychology</i> , n.d.).	Biological birth order of the participants, not included step or adopted siblings.
Self-esteem	Self-esteem is someone's positive perception of their qualities and characteristics (<i>APA Dictionary of Psychology</i> , n.d.).	Self-esteem in this study will be measured by the score of the Rosenberg Self-Esteem Scale (RSES), a self-report instrument evaluating individual self-esteem.
Career readiness	Having the information and mindset necessary to prepare for a future career and the skills that enable graduates to contribute positively to the achievement of organizational objective (Prinstin et al., 2022).	The students' career readiness in this study will be measured using Career Readiness Factors Inventory (CFI).

Table 1: Definition of Terms

1.8 Significance of Study

The significance of this study is it will give new insights on the impact of birth order on an individual's life especially in Malaysian context. It will provide a more diverse sample regarding birth order, self-esteem, and career readiness topics in combination, as well as add more information for better future research. By acknowledging and understanding the birth order effect in life, people could find a better solution for problems regarding their self-esteem and future careers. Other than that, this study will highlight the importance of self-esteem and career readiness among students in University Malaysia Sarawak (UNIMAS) so that more students will value their qualities and have the confidence to face new challenges in their lives.

1.9 Summary

In summary, this research discussed the relationship between birth order and career readiness, which is mediated by self-esteem. The key concepts covered in this subject are summarised in this introductory chapter.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter consists of a literature review discussing the variables studied including birth order, self-esteem, and career readiness, as well as the association between these three variables in combination and the related theories.

2.1 Issues Related and Past Findings

2.1.1 Birth Order

Birth order is a famous subject of interest among researchers in the psychology field. Through the past studies' results, there is indeed a birth order effect in this life, affecting different types of people and certain aspects of life. A few aspects that have been related to birth order include personality, academic achievement, intelligence, cognitive abilities, social and interpersonal skills, and self-esteem. Horner (2012) has already conducted one of the birth order studies. It was shown that birth order does have an influence on academic performance and substance use among Latin Americans. Perhaps as a result of having more parental attention and financial support, the firstborn sibling outperforms the youngest sibling intellectually (Horner, 2012; Nhandi, 2017). Apart from that, the status of firstborn child serves as a deterrent to drug abuse. According to a more recent study by AlSaleh et al. (2021), even among gifted children, firstborns also outperform other siblings academically. It was also discussed that the reason was that firstborns receive different care and attention than other born children, and even with normal children, firstborns consistently perform better than others.

Moreover, birth order topics are often associated with personality. There is a correlation between birth order and personality, as demonstrated by Gupta's (2019) study using the Big Five personality domains. In terms of birth order, a middleborn is neither first nor last. Middleborns scored highly on extraversion sections, indicating that they are more outgoing and have no trouble interacting with people. Additionally, it was shown that the lastborn are more cooperative (agreeableness), open about their emotions (openness), and apprehensive (neuroticism). In contrast, Rohrer (2015), Ha and Tam (2011), and Chow and Amzat (2024), whose research is equally grounded in the Big Five personality domains, discovered no connection between personality and birth order. There are inconsistencies in the results regarding the correlation between birth order and personality.

Along with personality, Black et al. (2017) discussed birth order also has impacts on occupational choice. Early born children are more likely to be in top management positions, jobs that require leadership and social skills, while later-born children are more likely to be self-employed. According to Black et al. (2017), as self-employment is frequently associated with risk-taking actions, it is possible that later-born preferences towards self-employment are related to risk-taking behaviour. This study can be related to the study conducted by Campbell et al. (2019), discussing the effect of birth order on those who hold CEO titles, which is important in making decisions for the company. Campbell et al. (2019) mentioned that the later the ordinal position, the more strategic risk CEOs undertake.

For the birth order categories, it differs according to the researchers and their studies. In the study of birth order and its relationship with mental health conducted by Fukuya et al. (2021), there are four categories of birth order: firstborn, middleborn, lastborn, and the only child. There are also four categories in the study conducted by Sultan and Malik (2021) regarding birth order and someone's characteristics, but it slightly differs as the categories

included second born and did not study the only child. Contrastingly, a study done by Horner (2012) classifies birth order into seven different categories, as the study was considering the family size factor. The different categories of birth order that affect certain aspects of someone's life may lead to different life experiences since most past findings of birth order showed their effect on this life.

2.1.2 Self-Esteem

Self-esteem consists of components that contribute to an individual's overall sense of self-worth and self-perception (Moksnes & Reidunsdatter, 2019). People often confuse self-esteem with self-concept and narcissism. Self-concept is how someone describes themselves, while self-esteem is how someone evaluates, judges, and feels about the qualities they have (Bernacky, 2007). Additionally, narcissism and self-esteem are two different constructs (Hyatt et al., 2016; Orth & Robins, 2022). The more people know someone's narcissistic, the more they will encounter negative experiences, which is different from self-esteem that benefits people in their social relationship (Orth & Robins, 2022). Self-esteem has also been discussed with emotion-focused approaches and how the interpretation of mood can affect someone's perception (Hewitt, 2020). Even though self-esteem does not define someone's personality and character, it benefits someone's interpersonal relationship, academic, work, mental or physical health and antisocial behaviour (Orth & Robins, 2022).

Various issues revolve around the topic of self-esteem, such as body image issues, mental health challenges, social media usage, and pressure for perfection. Additionally, Vall-Roqué et al. (2021) found that the use of social media, such as Instagram and TikTok, increased during the COVID-19 lockdown, which also caused body dissatisfaction and inadequate self-esteem. The decrease in an individual's self-esteem is also due to the increased levels of social

comparison from the recurrent use of social media (Jiang & Ngien, 2020). Besides, low self-esteem has become a global issue as it is affecting individuals' well-being and is often linked to mental health issues like depression and anxiety (Moksnes & Reidunsdatter, 2019). The cross-sectional study Nguyen et al. (2019) conducted among 1149 students in Cantho City, Vietnam, also discussed that low self-esteem correlates with anxiety, depression, and suicidal ideation. Moreover, self-esteem becomes an important predictive factor for students' academic achievement, and high self-esteem contributes many positive outcomes, not necessarily for school performance alone (Nhandi, 2017; Nguyen et al., 2019).

2.1.3 Career Readiness

Although the term “career readiness” has many meanings, it is most commonly understood to mean having the information and mindset necessary to prepare for a future career and the skills that enable graduates to contribute positively to the achievement of organizational objectives for a lifelong career management (Prinstin et al., 2022). In the study conducted by Mahmud et al. (2019), the students with high career self-efficacy have the tendency to make positive decisions, which can influence their career readiness. Aside from that, career readiness is not the same as work readiness, even though sound almost the same. Career ready is more towards an individual being ready for a specific profession but work ready is generally ready to be in the working industry. Lau et al. (2018) explained work readiness as a work-related skill that people need to have in order to successfully be in any working sector. Furthermore, career readiness can also be influenced by many factors, such as learning and experiences (Mahmud et al., 2019). Some even debated gender can affect career readiness (Prinstin et al., 2022).

The study conducted by Rahmat et al. (2019) found that Malaysian university students acknowledge the critical skills that were expected for industry 4.0 job demands. They felt that

they possess high levels of five out of ten major skills in the skillset, which are cognitive flexibility, critical thinking skill, negotiation skill, decision-making skill, and service orientation skills. Despite all that, the number of career-ready students seems to decrease because of pandemic COVID-19. Alam and Parvin (2021) found that online education impacted the production of career-ready graduates in Bangladesh. The comparison between 120 students in the pre-COVID-19 cohort (face-to-face) and 120 students who used online mode during the pandemic was done, and it showed that the pre-COVID-19 cohort was more career-ready than those who studied online during the pandemic.

Since there is a lack of research done regarding the comparison of career-ready students before and after the pandemic in Malaysia, it is unsure whether the number of career-ready students in Malaysia will decrease or increase. Nevertheless, Salleh et al. (2017) did investigate undergraduate career readiness in Malaysia. Out of 362 Malaysian undergraduates, male undergraduates were found to be more career-ready than female undergraduates. This is partly due to the different roles played by both genders. Males tend to follow their fathers' path as the breadwinners of the family; hence, they will be more career-ready than females. Regardless, it is important for students to acquire skills so they can enhance their degree of professional preparedness as the next generation of workers (Rahmat et al., 2019).

2.2 Birth Order, Self-Esteem, and Career Readiness

Since there is a lack of research combining these three topics, it is unsure whether birth order influences career readiness or not. However, birth order may have an influence on career readiness through the mediation of self-esteem because self-esteem correlates with both terms. In the study conducted by Selvam and Gomathi (2022) among 300 art and science students in Coimbatore, birth order was stated to have a relationship with self-esteem, with the second born having a higher level of self-esteem compared to the firstborn. This is different from the research done by Nhandi (2017) in Tanzania, which demonstrated that birth order influences the development of self-esteem in the same way that Adler suggested; firstborns typically have higher self-esteem than other siblings in their families. Nhandi (2017) did not directly discuss career readiness, but the study highlighted the importance of understanding a student's family environment, which plays a crucial role in supporting their career specialisations based on their birth orders. The Tanzanians' tendency to pay little attention to birth order personalities leads to a general trend among the children to have similar occupations with their parents. Contrastingly, Fukuya et al. (2021) found that birth order does not influence someone's self-esteem. It was discussed that the inconsistency findings primarily due to its longitudinal study that was conducted three decades ago focusing on adolescents and young adults.

Furthermore, in order to be prepared to pursue their career, students should have a strong sense of self-esteem. Due to their strong drive to get excellent employment and upbeat outlook on their careers, students who have high self-esteem are also more likely to be highly prepared for the workforce (Kustati et al., 2017). From the literature, it can be indicated that birth order has an influence on career readiness through the mediation of self-esteem. Thus, this study would like to focus on these three variables to provide more insights and broaden the birth order study related to self-esteem and career readiness.

2.3 Theories Related

2.3.1 Birth Order Theory

Birth order theory was first introduced by Alfred Adler in the early 20th century. Various studies about birth order have emerged since then. His theory's main claim is that children of the same family encounter distinct life circumstances and are not raised in the same surroundings (Shulman & Mosak, 1977). There are two types of birth order debated, biological birth order and psychological birth order. Someone's biological birth order is their actual ordinal position, while psychological birth order is how someone perceived their positions in the family (Clarke, 2021). While Adler suggested that psychological birth order is important, but research has consistently shown that looking at the biological birth order offers useful insight (Horner, 2012). Birth order topic has already been a hard topic to study since it has many factors affecting it, the psychological variables will make it even more complex to study (Whitbourne, 2013). Thus, this research focuses on the influence of biological birth order on several variables. Not forgot to mention that birth order is often misinterpreted as it is only a probability and not a guarantee to have effects on someone's life (Shulman & Mosak, 1977; Eckstein et al., 2010).

2.3.2 Carl Roger's Self-Theory

This theory already emphasises the importance of the self-concept, which is closely related to self-esteem. Self-concept can be referred to as an individual's tendency to act in ways that actualize themselves, leading to self-differentiation and self-experiences, which collectively form their self-concept (Ismail & Tekke, 2015). Positive self-concept is likely to contribute to higher self-esteem. Three distinct but related components of self-concept include self-image, self-esteem, and the ideal self. This study will focus more on self-esteem and how much someone values themselves. Ismail and Tekke (2015) also stated that the influence of the

outside world on a child's sense of self-worth as they grow older was one of Rogers' main points about the importance of early experiences provided by parents in building good self-worth. This hinted at the effect of family dynamics on someone's self-esteem, as self-esteem and self-worth are closely linked.

2.3.3 Social Cognitive Career Theory

Social Cognitive Career Theory (SCCT) was derived from Bandura's social cognitive theory and general social cognitive theory (Lent et al., 2013 as cited in Wang et al., 2022). This theory constructs a three-factor interaction model of career, includes self-efficacy, outcome expectations, and personal goals to explain the factors affecting career decision-making. Wang et al. (2022) discussed three advantages of this theory. It offers a methodical explanation of career growth, is flexible enough to adjust with the times, and concentrates on particular career counselling groups. As it discusses self-efficacy as one of the factors in the model, it can be related to career readiness because career self-efficacy is a factor that affects career readiness (Mahmud, et al., 2020 as cited in Prinstin, 2022).

2.4 Summary

In conclusion, this chapter reviewed the past studies done on birth order, self-esteem, and career readiness, as well as the relationship between these three variables. This chapter also discussed three related theories, including birth order theory, Carl Rogers' self-theory, and social cognitive career theory.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the research methodology for this study. It gives an overall review on the research design, the sample and population detail, the instruments, pilot study, data collection and data analysis procedure.

3.1 Research Design

This study was conducted using the quantitative analysis research method, which focuses on collecting and analyzing numerical data. This study used a correlational research design to investigate the relationship between birth order and career readiness, which is mediated by self-esteem.

3.2 Population and Sample

The population for this study was UNIMAS students, with 13,286 students from 10 different faculties. The participants in this study were chosen via convenient sampling, which was primarily determined by convenience for the researcher. Krejcie and Morgan's (1970) table was used to determine the sample size for this population, and this study required 375 sample sizes, but 160 participants participated in this study.

3.3 Instruments

The instruments for this study consisted of three sections, including demographic questionnaires, the Rosenberg Self-Esteem Scale (RSES), and the Career Factors Inventory (CFI). The instrument was distributed to the sample via Google Form.

3.3.1 Section A: Demographic

Section A consisted of demographic questions, which required the participants to fill in their gender, age, faculty, race, CGPA and biological birth order.

3.3.2 Section B: Rosenberg Self-Esteem Scale (RSES)

To evaluate self-esteem scores, Section B employed the Rosenberg Self-Esteem Scale (Rosenberg, 1965). It consisted of 10 items related to one's overall feelings of self-esteem by measuring both positive and negative feelings about the self. The items are scored using a 4-point Likert scale, with items 2, 5, 6, 8, and 9 being reversed and scored from strongly disagree to strongly agree. From 0 to 30 is the range of the scale. The scores can be divided into; above 25 represents good self-esteem; between 15 and 25 represents the typical range; and below 15 indicates low self-esteem.

3.3.3 Section C: Career Factors Inventory (CFI)

The Career Factors Inventory (CFI), developed by Chartrand et al. (1990), is a 21-item instrument that evaluates a client's readiness for making career decisions by emphasising cognitive and emotional elements. A 5-point rating scale is used for each question, with the first 11 items using the semantic differential format and the next 10 items anchored by the options "strongly disagree" and "strongly agree."

3.4 Pilot Study

Reliability Statistics		
Cronbach's Alpha Based on Standardized Items		
Cronbach's Alpha		N of Items
.831	.835	21

Table 2: Reliability Statistics of CFI

Reliability Statistics		
Cronbach's Alpha Based on Standardized Items		
Cronbach's Alpha		N of Items
.844	.844	10

Table 3: Reliability Statistics of RSES

The pilot study was conducted among 30 students from another university before collecting data from the real sample to test the reliability of the instruments. The reliability analysis results for both instruments are shown in Tables 2 and 3. The Cronbach's alpha for CFI was $\alpha = 0.831$, and RSES was $\alpha = 0.844$. The Cronbach's alpha for both instruments shows high internal consistency and is highly reliable ($p > 0.7$).

3.5 Data Collection Procedures

The data was collected using the Google Form questionnaire, distributed online via social media platforms (Telegram, WhatsApp, and Instagram) and through physical means (posters with QR codes). The main criteria for this study were that the participants should have no twins and their siblings should not be more than seven. This was to avoid the family size effect and twin dynamics (AlSaleh et al., 2021).

3.6 Data Analysis Procedures

3.6.1 Descriptive Data Analysis

The demographic profile of the participants, including age, gender, age, faculty, race, CGPA, and biological birth order, was analyzed using SPSS 29 and presented using tables and charts.

3.6.2 Inferential Data Analysis

The data analysis used to test the hypothesis for the outcome of this study was a one-way ANOVA test, Pearson's correlation, and mediation analysis. The one-way ANOVA was used to test the relationship between birth order, self-esteem, and career readiness. Pearson's correlation was used to investigate the relationship between self-esteem and career readiness. While mediation analysis included simple linear regression and the Sobel Test (Sobel, 1982), which was used to examine the mediation effect of self-esteem between birth order and career readiness.

3.7 Summary

In summary, this chapter discusses the research design for this study, which will be conducted quantitatively, and the data will be collected from UNIMAS students.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.0 Introduction

This chapter discusses the data analysis and findings of this study, including participants' demographic data and the main findings about the variables. The summary of demographic data was presented in Table 2.

4.1 Demographic Data

4.1.1 Gender by Age of Participants

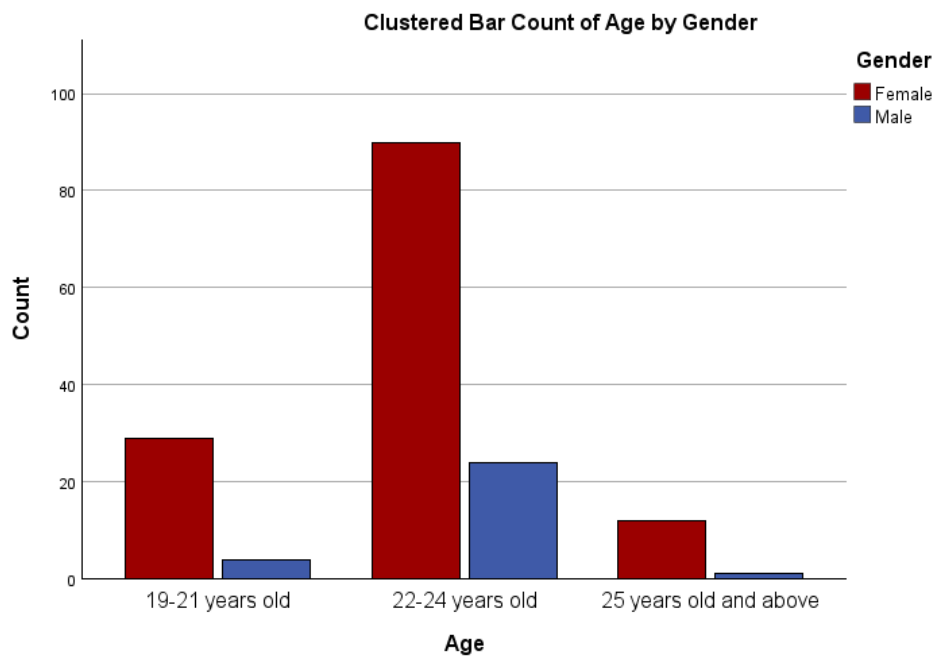


Figure 2: Gender by Age

The total of 160 participants (female: $n = 131$; male: $n = 29$) were categorized based on their age and gender in Figure 4. For the age group 19 – 21, more females ($n = 29$) than males ($n = 4$) answered the questionnaire. Most females ($n = 90$) and males ($n = 24$) in this study were in the age group 22 – 24. The age group 25 and above consisted of the least number of females ($n = 12$) and males ($n = 1$).

4.1.2 Faculty

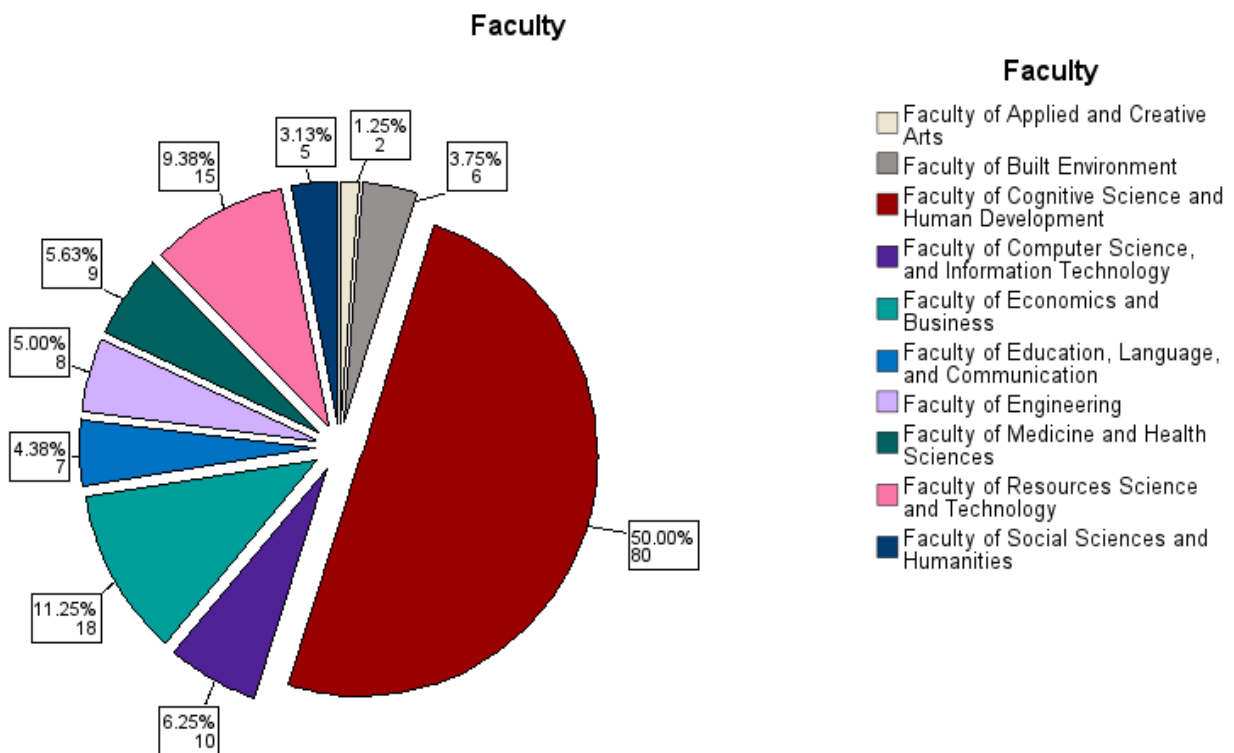


Figure 3: Faculty

Referring to Figure 3, 160 participants were from 10 different faculties, with 50% of the participants were from the Faculty of Cognitive Science and Human Development (FCSHD), while the least number of participants were from Faculty of Applied and Creative Arts (FACA), with only 2 participants (1.25%). The second highest number of participants was from the Faculty of Economics and Business (FEB), which involved 18 students (11.25%). The distribution of participants by faculties is shown in Figure 3.

4.1.3 Biological Birth Order

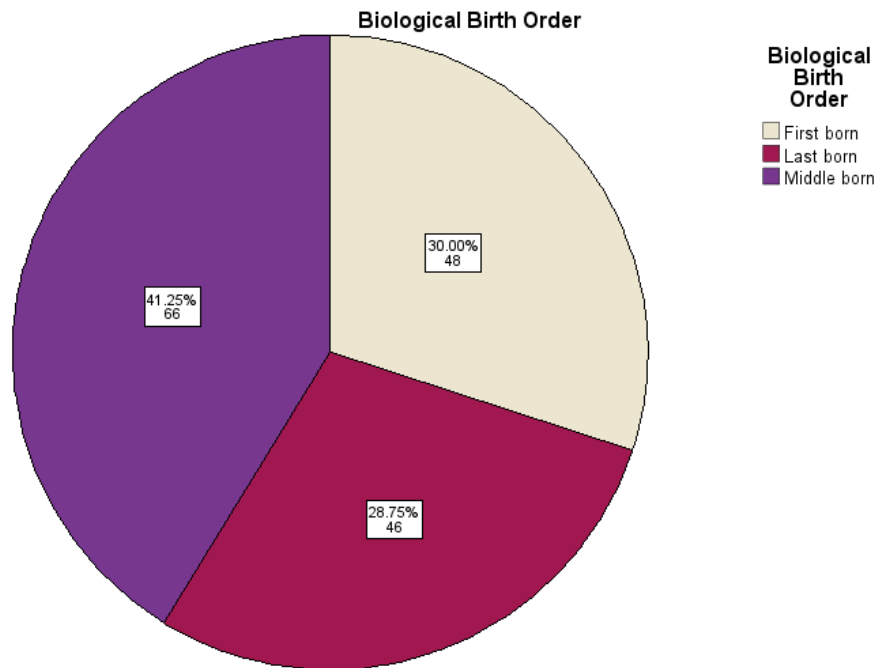


Figure 4: Biological Birth Order

Figure 5 shows the participants' biological birth order. The distribution of participants across birth order categories was nearly balanced, with middle-born participants comprising the largest group at 41.25% ($n = 66$). It was followed by 30% of the first born ($n = 48$) and 28.75% of the last born ($n = 46$). The race and CGPA of the participants were shown in Table 4, with Malay being the predominant race, and most of them got a 3.50–4.00 CGPA.

4.1.4 Summary of Demography

		Frequencies (n)	Percentage (%)
Gender	Male	29	18.1
	Female	131	81.9
Age	19 – 21	33	20.6
	22 – 24	114	71.3
	25 and above	13	8.1
Faculty	FACA	2	1.3
	FBE	6	3.8
	FCSHD	80	50.0
	FCSIT	10	6.3
	FEB	18	11.3
	FELC	7	4.4
	FENG	8	5.0
	FMHS	9	5.6
	FRST	15	9.4
	FSSH	5	3.1
Race	Bumiputera Sabah	8	5.0
	Bumiputera Sarawak	44	27.5
	Chinese	12	7.5
	Indian	1	0.6
	Malay	95	59.4
CGPA	2.49 and below	3	1.9
	2.50 – 2.99	22	13.8
	3.00 – 3.49	57	35.6
	3.50 – 4.00	78	48.8
Biological Birth Order	First Born	48	30
	Middle Born	66	41.3
	Last Born	46	28.7

Table 4: Summary of Demography

4.2 Inferential Data (Main Findings)

4.2.1 Birth Order Effect on Self-Esteem and Career Readiness

Ha1: There is a significant difference between birth order and self-esteem

Ha2: There is a significant difference between birth order and career readiness

Tests of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
SE	Based on Mean	.813	2	157	.445
CFI	Based on Mean	1.329	2	157	.268

Table 5: Test of Homogeneity of Variances

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
SE	Between Groups	1.090	2	.545	1.706	.185
	Within Groups	50.126	157	.319		
	Total	51.216	159			
CFI	Between Groups	.244	2	.122	.517	.598
	Within Groups	37.111	157	.236		
	Total	37.355	159			

Table 6: ANOVA Test

A one-way ANOVA was conducted to test the first hypothesis and the third hypothesis. It was conducted to examine the effect of birth order on self-esteem and career readiness. The birth order categories included first born, middle born, and last born. Table 5 shows the homogeneity of variances in the data set. The variances are homogenous since both variables have a p-value larger than the significant value. The analysis then proceeds to ANOVA table. Referring to Table 6, there was no significant difference of birth order on self-esteem at the $p > 0.05$ level for the three conditions [$F(2, 157) = 1.706, p = 0.185$]. There was also no significant difference of birth order on career readiness at the $p > 0.05$ level for the three conditions [$F(2, 157) = 0.517, p = 0.598$]. Thus, it failed to reject the null hypothesis.

4.2.2 Self-esteem and Career Readiness

Ha2: There is a significant relationship between self-esteem and career readiness

Correlations			
		CFI	SE
CFI	Pearson Correlation	1	-.268**
	Sig. (2-tailed)		<.001
	N	160	160
SE	Pearson Correlation	-.268**	1
	Sig. (2-tailed)	<.001	
	N	160	160

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7: Pearson's Correlation

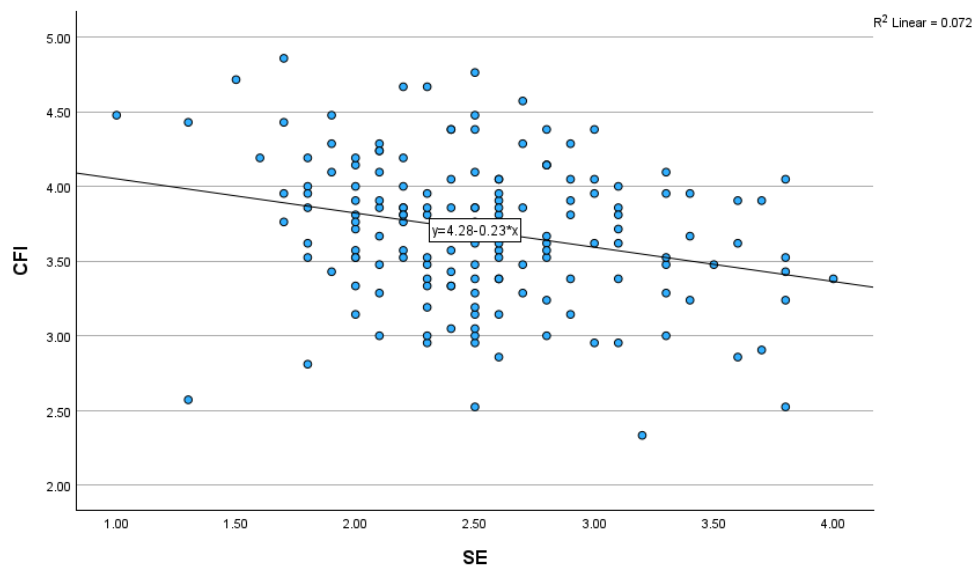


Figure 5: Scatterplot

A Pearson correlation was computed to assess the relationship between self-esteem and career readiness. Referring to Table 7, there was a weak, negative correlation between self-esteem and career indecision, which was statistically significant ($r = -0.268$, $n = 160$, $p < 0.05$). A scatterplot summarizes the results (Figure 5). Since $p < 0.05$, there is enough evidence to reject the null hypothesis. Hence, there is a significant relationship between self-esteem and career readiness since higher career indecision represents lower career readiness (Mansor & Tan, 2009).

4.2.3 The Mediation of Self-Esteem

Ha4: Self-esteem significantly mediates the relationship between birth order and career readiness.

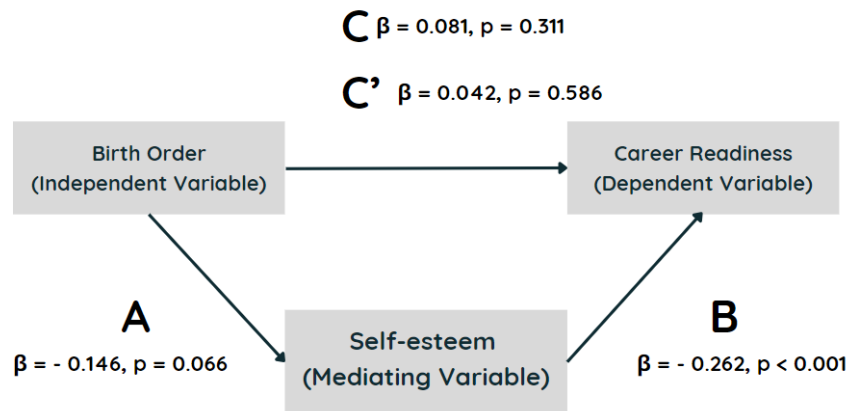


Figure 6: Multiple Regressions

The goal of mediation analysis is to test if there is any statistical significance for the indirect effect and estimate the point effect using the unstandardized coefficient beta and standard error for paths A and B. Figure 6 shows the summarization of the regressions, which tested the effect between the variables. The first simple linear regression was conducted to estimate the total effect between birth order and career readiness (Path C). The result in Table 8 showed there was no significant difference between both variables ($p = 0.311$).

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	3.602	.104		<.001
	Biological Birth Order	.047	.046	.081	.311

a. Dependent Variable: CFI

Table 8: Total Effect between Birth Order (IV) and Career Readiness (DV)

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	2.738	.121		22.641
	Biological Birth Order	-.099	.053	-.146	-1.852

a. Dependent Variable: SE

Table 9: Effect of Birth Order (IV) on Self-Esteem (Mediator)

The next test to estimate the direct effect of birth order on the mediator (Path A) yielded no significant difference either ($p = 0.066$). Again, the last step of regression was to estimate the effect of birth order (IV) on career readiness (DV) when self-esteem (mediator) was included. As shown in Table 10, only self-esteem and career readiness (Path B) showed a significant difference ($p = <.001$). All the regression coefficients were then used to test the indirect effect using the Sobel test (1982). Referring to Figure 7, there was no mediation effect as the p-value is more than significant ($p = 0.102$).

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	4.215	.208		20.294
	Biological Birth Order	.024	.045	.042	.545
	SE	-.224	.066	-.262	-3.375

a. Dependent Variable: CFI

Table 10: Effect C' (IV and DV) and Effect B (Mediator onto DV)

Input:		Test statistic:	Std. Error:	p-value:
a	-.099	Sobel test: 1.63644902	0.01355129	0.10174565
b	-.224	Aroian test: 1.58451123	0.01399548	0.11307743
s _a	.053	Goodman test: 1.69385355	0.01309204	0.09029312
s _b	.066	Reset all	Calculate	

Figure 7: Sobel Test Calculation

4.2.4 Summary of findings

Hypothesis	Result
Ha1: There is a significant difference between birth order and self-esteem	HA rejected
Ha2: There is a significant relationship between self-esteem and career readiness	HA accepted
Ha3: There is a significant difference between birth order and career readiness	HA rejected
Ha4: Self-esteem significantly mediates the relationship between birth order and career readiness	HA rejected

Table 11: Summary of the results

4.2.4 Discussion

From the results, there is no birth order effect on career readiness, even through the mediation of self-esteem among the selected sample of UNIMAS students. This birth order study yields different results from birth order studies conducted in other countries like Kuwait, South Korea, and India (AlSaleh et al., 2021; Campbell et al., 2019; Gupta, 2019), stating that there is indeed a birth order influence in a few aspects of life. Yet, the results in this study align with the birth order study conducted in Malaysia (Ha & Tam, 2011; Chow & Amzat, 2024), which discusses that there is no birth order effect among Malaysian students. Regardless of the topic studied, these studies supported the idea that Malaysians may not be easily affected by birth order. The different cultural contexts of Malaysia may differ from those in other countries and play a critical role in birth order studies. Fukuya (2021) also elaborated that birth order does not influence someone's self-esteem but rather the experience of stressful life events.

As for career readiness, other factors than birth order play a more significant role in influencing it. Although birth order does not influence either self-esteem or career readiness, this study finds that self-esteem weakly correlates with career readiness, which is consistent with Kustati (2017). Students with higher self-esteem are inclined to be more career-ready, as the desire to achieve a successful career would shape their career readiness and increase their risk of long-term success (Prinstin et al., 2022). With that being said, the relationship between birth order and career readiness may involve more complex interactions, including genetic, environmental, and psychological factors. Factors other than self-esteem may play a more critical role in mediating the relationship between both variables.

CHAPTER FIVE

LIMITATION, IMPLICATION, RECOMMENDATION AND CONCLUSION

5.0 Introduction

This chapter includes the limitations in this study, implications, as well as recommendations to improve future studies.

5.1 Limitations of Study

One of the limitations of this study is the time limit. Due to the short duration of collecting data, only 160 out of the 375 required participants could participate in this study. The number of participants did not meet the required sample size that was determined based on Krejcie and Morgan's (1970) table. Thus, the small sample sizes do not represent the whole population of UNIMAS students accurately and affect the generalizability of the findings. Furthermore, the use of self-reported assessments is also a limitation of this study. As it is self-reported, the participants may respond in a manner they perceive as socially desirable rather than their true feelings and behavior. Each person may have different interpretations of the questions or the scales, which leads to responses that do not accurately reflect their true opinions.

5.2 Implications

For its implications, this study enriched the body of knowledge regarding the birth order topic. Unlike past studies that primarily focused on the effects of birth order on personality traits or academic achievement, the current study investigates the relationship between birth order, career readiness, and self-esteem in combination.

Furthermore, this study offers insights into the birth order effect within the Malaysian context, addressing a gap in the literature where most studies have been conducted in Western settings. Thus, it contributes to a more globally diverse perspective on birth order effects. In addition to examining self-esteem as a mediator, this study can inspire future researchers to explore other interesting variables that may interact with birth order and career readiness. Potential areas for further investigation could include factors such as parental expectations, socio-economic status, peer influence, and educational opportunities.

5.3 Recommendations

It is recommended that future researchers investigate other potential mediators that may interact with birth order and career readiness. For instance, factors such as parental involvement and educational opportunities could provide valuable insights. By exploring these mediators, researchers can uncover additional pathways through which birth order influences career readiness, offering a more comprehensive understanding of this relationship.

Moreover, future research can apply a mixed methods approach to data collection. Combining quantitative and qualitative methods allows for a more detailed analysis, capturing both patterns and detailed personal experiences. Quantitative data can provide results about the relationships, while qualitative data can offer deeper insights into the participants' experiences and perspectives according to their birth order. This approach can help explain the complex interactions between birth order and career readiness, beyond what numerical data alone can reveal.

5.4 Conclusion

As a conclusion, the findings of this study contribute to the existing body of knowledge and future research can be improved by understanding the limitations and considering the recommendations.

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APPENDIX A

RAW SPSS OUTPUTS

Reliability

Scale: Career Factors Inventory

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.831	.835	21

Reliability

Scale: Rosenberg Self-Esteem Scale

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.844	.844	10

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
SE	First born	48	2.6417	.59281	.08556	2.4695	2.8138	1.30	4.00
	Last born	46	2.5370	.58171	.08577	2.3642	2.7097	1.50	3.80
	Middle born	66	2.4439	.53180	.06546	2.3132	2.5747	1.00	3.80
	Total	160	2.5300	.56755	.04487	2.4414	2.6186	1.00	4.00
CFI	First born	48	3.6508	.52783	.07619	3.4975	3.8041	2.52	4.76
	Last born	46	3.6894	.48414	.07138	3.5457	3.8332	2.33	4.71
	Middle born	66	3.7431	.45521	.05603	3.6312	3.8550	2.52	4.86
	Total	160	3.7000	.48470	.03832	3.6243	3.7757	2.33	4.86

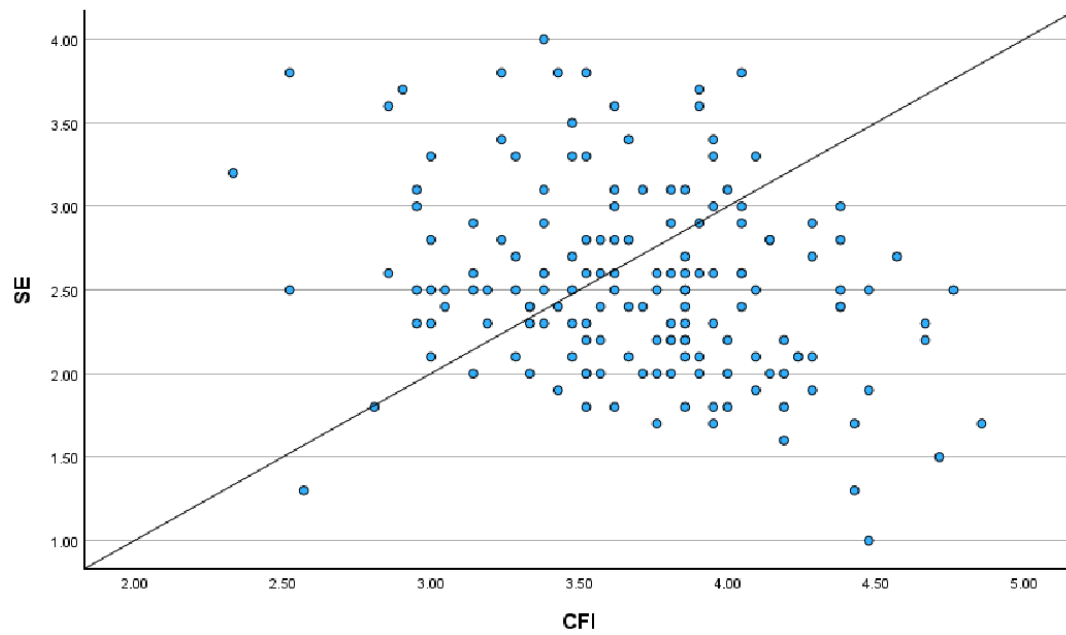
Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
SE	Based on Mean	.813	2	157	.445
CFI	Based on Mean	1.329	2	157	.268

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
SE	Between Groups	1.090	2	.545	1.706	.185
	Within Groups	50.126	157	.319		
	Total	51.216	159			
CFI	Between Groups	.244	2	.122	.517	.598
	Within Groups	37.111	157	.236		
	Total	37.355	159			

Graph



Correlations

Correlations

		CFI	SE
CFI	Pearson Correlation	1	-.268**
	Sig. (2-tailed)		<.001
	N	160	160
SE	Pearson Correlation	-.268**	1
	Sig. (2-tailed)	<.001	
	N	160	160

** . Correlation is significant at the 0.01 level (2-tailed).

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Biological Birth Order ^b	.	Enter

a. Dependent Variable: CFI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.081 ^a	.006	.000	.48466

a. Predictors: (Constant), Biological Birth Order

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.242	1	.242	1.032	.311 ^b
	Residual	37.113	158	.235		
	Total	37.355	159			

a. Dependent Variable: CFI

b. Predictors: (Constant), Biological Birth Order

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.602	.104		34.610	<.001
	Biological Birth Order	.047	.046	.081	1.016	.311

a. Dependent Variable: CFI

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Biological Birth Order ^b	.	Enter

a. Dependent Variable: SE

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146 ^a	.021	.015	.56326

a. Predictors: (Constant), Biological Birth Order

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.088	1	1.088	3.431	.066 ^b
	Residual	50.128	158	.317		
	Total	51.216	159			

a. Dependent Variable: SE

b. Predictors: (Constant), Biological Birth Order

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.738	.121		22.641	<.001
	Biological Birth Order	-.099	.053	-.146	-1.852	.066

a. Dependent Variable: SE

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	SE, Biological Birth Order ^b	.	Enter

a. Dependent Variable: CFI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271 ^a	.074	.062	.46946

a. Predictors: (Constant), SE, Biological Birth Order

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.753	2	1.376	6.245	.002 ^b
	Residual	34.602	157	.220		
	Total	37.355	159			

a. Dependent Variable: CFI

b. Predictors: (Constant), SE, Biological Birth Order

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.215	.208		20.294	<.001
	Biological Birth Order	.024	.045	.042	.545	.586
	SE	-.224	.066	-.262	-3.375	<.001

a. Dependent Variable: CFI

APPENDIX B

MATERIALS/INSTRUMENT

Informed Consent and Confidentiality

The Relationship Between Birth Order and Career Readiness: Self-esteem as a Mediator

B I U ↺ ↻

Assalamualaikum and greetings to all!

I am Safwah Bazla binti Shamsudin (78506), a Year 3 Psychology student from the Faculty of Cognitive Science and Human Development (FCSHD) of University Malaysia Sarawak (UNIMAS). I am currently conducting a Final Year Project investigating **The Relationship between Birth Order and Career Readiness: Self-Esteem Acts as a Mediator**.

Purpose of the study: To investigate the relationship between birth order and career readiness, which is mediated by self-esteem among the UNIMAS students.

Inclusion Criteria:

1. Able to understand English
2. Able to provide consent and willing to take part in this study
3. Siblings should not be more than 7 (non-applicable to the only child)
4. Have no twins

This questionnaire consists of three sections:

Section A: Demographic Questions

Section B: Career Factors Inventory (CFI)

Section C: Rosenberg Self-Esteem Inventory (RSES)

Please answer ALL the questions provided, which should take around 10-15 minutes to complete. All data collected will be kept strictly confidential, accessible only to the research team, and used for academic purposes only. Your cooperation and participation in completing this study are greatly appreciated. Thank you.

If you have any inquiries or need further information, please feel free to contact us through (**Email: 78506@siswa.unimas.my/ Contact No: 0198154055**)

Electronic Consent Form

By clicking on the "agree" button indicates that:

1. I have been read and understood the information for the above study.

(Saya telah membaca dan memahami segala maklumat tentang penyelidikan di atas).

2. I have sufficient time to consider participation in the study.

(Saya telah diberikan masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam penyelidikan ini).

3. Understand that my participation is voluntary, and I can freely withdraw my participation from the study without giving a reason. I understand the risks and benefits related to my participation in the study.

(Saya juga faham bahawa penyertaan saya adalah secara sukarela dan pada bila-bila masa saya bebas menarik diri daripada penyelidikan ini tanpa harus memberi sebarang alasan. Saya juga memahami tentang risiko dan manfaat penyelidikan ini).

4. While information gained in this study, it may be used in a conference presentation, and may also be published in a journal article, I will not be identified. Information concerning me will remain strictly confidential.

(Kajian ini boleh dibentangkan di persidangan dan kajian ini juga boleh diterbitkan didalam jurnal, dengan syarat diri saya tidak akan dikenal pasti. Maklumat mengenai diri saya akan disimpan secara sulit).

5. I understand that study investigators, qualified monitors and auditors, the sponsor or its affiliates, and governmental or regulatory authorities, have direct access to my record in order to make sure that the study is conducted correctly, and the data are recorded correctly. All personal details will be treated as STRICTLY CONFIDENTIAL.

(Saya faham bahawa penyelidik, pemantau dan juruaudit terlatih, pihak penaja atau gabungannya, dan pihak berkuasa kerajaan atau undang-undang, mempunyai akses langsung dan boleh menyemak laporan saya bagi memastikan penyelidikan ini dijalankan dengan betul dan data direkodkan dengan betul. Segala maklumat dan data peribadi akan dianggap sebagai SULIT.)

Demographic Section

Section A: Demographic Questions



The information collected is strictly confidential and will be used solely for research purposes.

Gender *

- ☐ Male
- ☐ Female

Age *

- ☐ 19-21 years old
- ☐ 22-24 years old
- ☐ 25 years old and above



Faculty *

- ☐ Faculty of Economics and Business
- ☐ Faculty of Social Sciences and Humanities
- ☐ Faculty of Engineering
- ☐ Faculty of Resources Science and Technology
- ☐ Faculty of Built Environment
- ☐ Faculty of Medicine and Health Sciences
- ☐ Faculty of Education, Language, and Communication
- ☐ Faculty of Applied and Creative Arts
- ☐ Faculty of Computer Science, and Information Technology
- ☐ Faculty of Cognitive Science and Human Development

Career Factors Inventory (Chartrand, Robbins, Morrill & Boggs, 1990)

This section consists of 21 items to measure career readiness. The first 11 items use the semantic differential format (exp: cold/hot), and the next 10 items are anchored by 1 (strongly disagree) and 5 (strongly agree).

Questions	Likert Scale
1-11. When I think about actually deciding for sure what I want my career to be, I feel:	Fearless/Frightened
	Dry/Wet
	Relaxed/Tense
	Loose/Tight
	Carefree/Worried
	Calm/Jittery
	Easy/Hard
	Clear/Hazy
	Fulfilling/Frustrating
	Quick/Slow
	Certain/Uncertain
12. Before choosing or entering a particular career area, I still need to talk to people in one or more various occupations	Strongly Disagree/Strongly Agree
13. Before choosing or entering a particular career area / still need to gain practical knowledge of different jobs through as much part-time and summer work as possible.	
14. Before choosing or entering a particular career area / <i>still</i> need to find out what present and predicted job opportunities are like for a certain career area or areas.	
15. Before choosing or entering a particular career area / <i>still</i> need to use my free time and school courses to help determine what type of career I might enjoy and do well in.	
16. Before choosing or entering a particular career area I <i>still</i> need to familiarize myself with one or a number of college majors and their requirements.	
17. Before choosing or entering a particular career area I still need to seek advice from others regarding my choice.	
18. Before choosing or entering a particular career area I still need to attempt to answer, "who am I?"	
19. Before choosing or entering a particular career area I <i>still</i> need to attempt to answer, "what are my personal values?"	
20. Before choosing or entering a particular career area I <i>still</i> need to attempt to answer, "what type of person would I like to be?"	

21. Before choosing or entering a particular career area I <i>still</i> need to attempt to answer, "what things are the most important to me?"	
--	--

Rosenberg Self-Esteem Inventory (RSES)

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1 – Strongly Disagree

2 – Disagree

3 – Agree

4 – Strongly Agree

1. On the whole, I am satisfied with myself.

2. At times I think I am no good at all.

3. I feel that I have a number of good qualities.

4. I am able to do things as well as most other people.

5. I feel I do not have much to be proud of.

6. I certainly feel useless at times.

7. I feel that I'm a person of worth, at least on an equal plane with others.

8. I wish I could have more respect for myself.

9. All in all, I am inclined to feel that I am a failure.

10. I take a positive attitude toward myself.