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**The Effect of Birth Order on Personality Traits (Extroversion, Agreeableness and Openness to Experience).**

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Dissertation submitted as a requirement for the degree of BSc (Hons) Applied Psychology,  
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I declare that this submission is my own work. Where I have read, consulted, and used the work of others I have acknowledged it in the text.

6<sup>th</sup> April 2024

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Date

A handwritten signature in black ink, consisting of a large, stylized initial 'B' followed by a series of loops and a wavy line extending to the right.

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Signature

Word Count: 4864

## **Acknowledgements**

There are many individuals that I feel need to be mentioned for their unconditional support and help throughout the process of this major research project.

Firstly, I would like to take this opportunity to thank my supervisor, Dr. Eva Garcia-Albarran. Her support, kindness and conversations made this journey as enjoyable and smooth as possible. I feel grateful to have had you as my supervisor. Thank you for everything.

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## **Abstract**

Birth order is a term describing the order in which children are born into a family. Personality refers to the characteristics and behaviour of an individual. The present study aimed to investigate the effect of birth order on specific personality traits (agreeableness, openness and extroversion). A between-group, correlational design was employed. A population (N) of 120 participants were split equally into groups according to their birth order. A subpopulation (n) of 30 participants were placed into each of the four levels (oldest child, middle child, youngest child and only child). The gathered data was analysed by using the inferential test, multivariate analysis of variance (MANOVA). This study investigated three hypotheses that were supported by inferential statistics. The strengths of this study include that it was pilot-tested and contributes strongly to the knowledge surrounding this topic. The limitations of the present study include the number of participants which may hinder generalisation. Future research is suggested in the area of birth order and personality to deliver generalizable results regarding this topic.

# 1. Introduction

## 1.1 Background

Personality refers to a person's characteristics and behaviours including their unique adjustment to life, whilst also including their interests, and self-concept (APA Dictionary, 2015). One of the most studied and interesting fields in psychology is personality and the many factors that impact it (Marano, 2017). Birth order is a term in which the order of children of a family are born (Adler, 2013b). Birth order is one of the most prevalent human experiences. It is thought to influence many aspects of an individual, such as intelligence, responsibility, sociability and emotional stability. Alfred Adler developed a theory in 1918, that places particular importance on the position of a child's birth into a family and the psychological influences on their character. The rationale behind this current study relates to the cultural aspects in many previous studies concerning birth order and personality traits, whilst also considering the participant population to generalize to the wider population of academic college students in Ireland. This current study will examine the effects of birth order on specific personality traits (agreeableness, openness to experience and extroversion) of 4th-year third-level education students.

## 1.2 Theories on Birth Order and Personality Traits

Alfred Adler's (1918) birth order theory places particular importance on the order of birth in a group of siblings and how this would aid in determining their personalities. Adler also believed that the family structure matters, for example, families with all boys or all girls may see differences in the personality structures that are developed compared to a mix of genders. Freud, a first-born child himself, proposed that first-born children were the most well-adjusted of all siblings. Kevin Leman's (2000) birth order theory proposes that the oldest child tends to be goal-orientated, reliable and well-organized, while only children tend to be confident, ambitious and organized, although striving for perfectionism, middle children are contradictory in characteristics such as sociable/loner and impatient/laidback and youngest children tend to be charming, affectionate and attention-seeking and also tend to act without thinking.

Hans Eysenck (1952) proposed a theory of personality in relation to biological factors. He argued that individuals inherit a type of nervous system that affects their ability to learn and adapt to the environment. Cattell (1965) disagreed with Eysenck's theory. He argued the need to take into consideration a much larger number of traits. Cattell looked at L-data (life record e.g. grades, absence from work), Q-data (questionnaire known as 16PF) and T-data (an objective test to "tap" into a personality construct). Gordon Allport (1937) believed that personality is biologically determined at birth and then shaped by the environment. He categorized traits into three levels: cardinal (dominant traits), central (characteristics influencing behaviour) and secondary (specific traits that have minimal impact).

### **1.2.1 Theoretical Framework**

The present study is underpinned by Alfred Adler's (1918) birth order theory and Gordon Allport's (1937) personality theory. These theories, as explained in Section 1.2, support the hypothesis of the present study, as both deem order of birth as an event that shapes personality and characteristics. The hypothesis of this present study relates to the effect of birth order on personality traits (extraversion, agreeableness and openness to experience).

### **1.3 Birth Order**

First-born (oldest) children are considered the larger and stronger and may take on the role of a surrogate parental figure. First-borns may become overachievers to set an example for their younger siblings and meet their parents' expectations (Miller & Taylor, 2016). Dogru Cabuker, et al., (2020) described the middle child as success-orientated and that they set unrealistic expectations and goals that will ultimately result in failure. The last-born (youngest) is characterized as the spoilt and most rebellious of the siblings. They may also be accustomed to getting their way as a result of never being "dethroned" (Ooi et al., 2019). Stronge et al, (2019) reported only children as the center of attention, spoilt and they can be self-centred. They often lack social skills often learned through sibling interaction so sharing, or compromising may be difficult. Although these may be the accepted views for individuals concerning birth order, recent studies have shown a shift from these ideas and a difference of opinion. In a recent study, it was stated that birth order and its effect on personality appear to be culturally specific, meaning that culture may play a big role in how personality is

influenced in relation to birth order (Botzet et al., 2021). It cannot be said that first-born, last-born, middle-children and only-children will behave in any particular manner. Personality varies from individual to individual and can vary throughout one's life (Hopwood et al., 2021).

## **1.4 Personality Traits**

The father of personality, Gordon Willard Allport, defined personality as “the dynamic organization within the individual of those psychophysical systems that determine the characteristics behaviour and thoughts” (Allport, 1937). The most widely known and used system for personality traits is called the Five-Factor Model, which includes five broad traits: openness (creativity, curiosity and abstract thinkers), conscientiousness (thoughtful, goal-orientated and controlled), extroversion (talkative, sociable and warm), agreeableness (helpful, co-operative and kind) and neuroticism (uncontrollable, easily aroused and negative emotions). There are many factors which influence personality, such as cultural context, environment, gender, birth order and many more which have been researched for many previous years and will continue to be researched as personality and individuals will change over time (Salavera et al., 2017).

### **1.4.1 Agreeableness**

Agreeableness is the personality trait that is mostly concerned with building positive relationships with others and helping others. Agreeableness is also known as love, likability, and friendly compliance (Wilmot & Ones, 2022). Agreeableness tends to increase during the adolescence stage as building relationships may be more desirable (Tackett, 2020). High levels of agreeableness are associated with trust, altruism, compliance, tender-mindedness and modesty. Low levels of agreeableness are associated with less concern for social approval and less concern with protecting people, including themselves, from harm (Nguyen et al., 2013).

### **1.4.2 Openness to Experience**

Openness to experience is described as the extent to which individuals show self-awareness, intellectual curiosity, and non-conformity (Ali, 2019). It is uncertain when, or if, openness to experience increases during different stages in the lifespan, due to the differences in results in many studies. It is thought that due to these

inconsistencies, openness to experience is an individual process and may not be eligible for generalisation (Schwaba et al., 2017). High levels of openness to experience are associated with being independent-minded and willing to tolerate more uncertainty in their life. Low levels of openness to experience are associated with those who prefer routine, tradition, and generally have a narrower range of interests (Salmon, 2012).

### **1.4.3 Extraversion**

Smillie (2013) described extraversion as a broad part of personality categorized by the tendency to be outgoing, cheerful, and sociable. It is widely acknowledged that males have higher extroversion compared to females (Vianello et al., 2013). High levels of extraversion are associated with those who are talkative, are good in leadership roles and enjoy being sociable with others. Those with a low level of extraversion, known as introverts, are associated with those who typically like their alone time, are more reserved and enjoy solitary activities (Smillie, 2013).

### **1.5 Birth Order and Personality Traits**

The review of the literature outlined in this section relates to research published in the last eight years. The literature reviewed concerning birth order and personality traits has shown inconsistent and inconclusive results in a stream of articles and research studies, although many studies report slight differences in personality traits among birth order categories. Damian and Robert's (2015) research synthesis reported results of the debate on birth order affecting personality being inconclusive in a stream of articles and research studies, although found slight differences in the oldest child being less agreeable and higher in extraversion.

On the contrary, Pollett et al., (2010) studied a population (N) of approximately 15000 participants in the Netherlands, between the ages of 18 and 79, who were randomly drawn from a large Dutch address register. Their study employed a between-family design. The results of this study reported that the oldest children were significantly less extroverted than those born later. In a 2015 research synthesis, data was gathered from Germany (N=10,457), the United States (N=5,240) and Great Britain (N=4,489). It was concluded that birth order had no significant effect on extraversion and agreeableness outside the intellectual domain (Rohrer et al., 2015).

A study conducted by Keat et al., (2019) employed a correlational design with a population of 120 participants (30 oldest children, 30 middle children, 30 youngest children and 30 only children). They reported that the youngest children, only children and middle children had a higher level of extroversion compared to oldest children (Keat et al., 2019). In general, youngest child scores higher on agreeableness and openness to experience (Salmon, 2018). Botzet et al., (2021) gathered 11,188 participants in a study and employed a within-family design with mixed-effect models. No significant effects on openness to experience, extraversion and agreeableness were reported, although they did report that birth order effects appear to be culturally specific.

### **1.6 Rationale for the Current Study**

There has been extensive research into birth order and personality over many years, although there is a lack of consistency in the results surrounding the topic. Botzet et al., (2021) stated two limitations, which included the sample population age and culture. The age of the participants in this study was 15 years and younger, thus could not be generalized to a wider population in relation to adults. Culture was also mentioned as this study was undertaken in Indonesia and the personality differences vary to each individual. Another limitation that arose was unequal representation of gender and how difficult it may be to generalize to the wider population (Keat et al., 2019).

The present study aims to gain knowledge about the relationship between birth order and the three explained personality traits. This study takes into consideration gender, culture and age. In relation to age, the participants will be above the age of 18, in order to generalize to the adult population. Concerning the differences in culture, this research is performed with an Irish population. There is a lack of research assessing the influence of birth order on personality in an Irish context hence the reason for this research. Furthermore, this study aims to have an equal gender population to increase the generalization of this study to a wider population. This current study will examine the effects of birth order on specific personality traits (agreeableness, openness to experience and extroversion) of 4th-year third-level education students. The data will be retained by an adapted version of the Big Five

Inventory and analysed by a One-Way MANOVA between-groups method, completing an analysis of variance.

### **1.7 Research Question**

**RQ:** Does the birth order influence specific personality traits (agreeableness, openness to experience and extroversion)?

### **1.8 Hypotheses**

**H1:** There will be a difference, for the 4<sup>th</sup> year third-level education students, on their personality trait, agreeableness, based on their birth order (oldest, middle child, youngest or only child).

**H2:** There will be a difference, for the 4<sup>th</sup> year third-level education students, on their personality trait openness to experience, based on their birth order (oldest, middle child, youngest or only child).

**H3:** There will be a difference, for the 4<sup>th</sup> year third-level education students, on their personality trait extraversion, based on their birth order (oldest, middle child, youngest or only child).

## **2. Method**

### **2.1 Design**

This current study employed a between-group, correlational design. The dependent variables (DV) are agreeableness, extroversion and openness to experience (personality traits). The independent variable (IV) is birth order (k=4, oldest, middle child, youngest and only child).

### **2.2 Participants**

A total of 159 participants were recruited for the study. However, due to the lack of participants in the only-child and middle-child groups, over-recruitment was necessary to gain the most participants in those groups. The total of participants included in the data analysis was 120. The participants from the oldest and youngest child groups were chosen at random. It is understood that it is ideal not to include the full sample for ethical reasons however it was necessary to enable all variables in the study. The participants were students in 4<sup>th</sup> year third-level education, from the Institute of Art, Design and Technology (IADT) and were recruited via QR code, to gain access to the Microsoft form. The age ranged from 18-74 years of age, the standard deviation (SD)=1.084, and the mean age was 18-24 years. From the total sample, 35% of participants were male, 60.83% were female and 4.7% preferred not to say. The sample was distributed equally across the four groups in accordance with their birth order, the population of each group (n) was 30. Ethical approval was received from the Department of Technology and Psychology Ethics Committee (DTPEC) in IADT (Appendix A).

### **2.3 Materials**

A Microsoft form was created. This included an information sheet (Appendix B) which provided information about the study and how the data will be obtained and protected. It also included a consent form (Appendix C) for the participants to indicate their willingness to participate in the study, as well as a debriefing sheet (Appendix D) providing the participants with their right to remove their data and additional services if the study caused any harm or issues. The participants also filled out a demographic questionnaire (Appendix E) involving questions in regard to age, gender and birth order. Lastly, the participants filled in the big five inventory (BFI), only including

questions relating to agreeableness, openness to experience and extroversion (Appendix F) and an additional consent form (Appendix G) providing additional consent at the end of the Microsoft form.

### **2.3.1 Big Five Inventory (BFI)**

The big five inventory developed by John & Srivastava (1999) is a 44-item scale. For the purpose of this study, the questions on neuroticism (4, 9, 14, 19, 24, 29, 34 and 39) and conscientiousness (3, 8, 13, 18, 23, 28, 33, 28 and 43) were excluded, making this scale a 27-item scale. A Likert scale is used to answer the questions/statements in relation to the participants themselves. The Likert scale is selected by number (1, 2, 3, 4 and 5) which indicates strongly disagree (1), disagree a little (2), neither agree nor disagree (3), agree a little (4) and strongly agree (5). Cronbach's alpha reported by Ali (2019) for the BFI was 0.88. The present study reported a Cronbach's alpha of .701.

### **2.4 Pilot Study**

A pilot study was completed (n=4) to ensure there were no issues with the scales and interface that will be used to receive the data from the participants. The average time to complete the survey was 7 minutes. There were no reported issues with the method of collecting the data for this study, thus, the current study commenced.

### **2.5 Procedure**

Participants were invited to voluntarily take part in this study via classroom. Participants used a QR code to gain access to Microsoft Forms. The participants were directed to the information sheet when the QR code was accessed. After reading the information sheet, the participant completed a consent form before proceeding to the demographic questionnaire section, where they were asked to give an identified code (initials of their name and last 3 digits of the phone number) their age, gender and birth order. Each participant was inserted into one of four categories based on the participant's birth order: only child (no siblings), oldest child (having only younger siblings), middle child (having both older and younger siblings), and youngest child (having only older siblings). Then, the participants were asked to answer the adapted BFI. The participants were given a debriefing form, which included thanking the

participant for participating, additional resources, information on contacting the researcher and withdrawal information. The participants were asked to complete an additional consent sheet, ensuring their participation in the study.

## 3. Results

### 3.1 Overview

IBM SPSS, version 29, was used to analyse the data collected. A one-way between-groups multivariate analysis of variance (MANOVA) was conducted to investigate the effect of birth order on extroversion, agreeableness and openness to experience. Participants were divided into groups depending on their birth order (oldest child, middle child, youngest child and only child).

### 3.2 Reliability

This study reported a Cronbach's alpha of .701.

### 3.3 Descriptive Statistics

Participants were divided into four groups depending on birth order (see Table 1 below for group population (n) values). The independent variable (birth order) and dependent variable (agreeableness, openness and extroversion) mean, standard deviation and n values are displayed below (see Tables 2, 3 and 4).

**Table 1**

*Levels (k) of birth order and n population in each level.*

		n
Birth Order	Only Child	30
	Oldest Child	30
	Middle Child	30
	Youngest Child	30

**Table 2**

*Means, standard deviation and n value for personality trait agreeableness based on birth order.*

		Agreeableness		
		Mean	Standard Deviation	n
Birth Order	Only Child	31	4	30
	Oldest Child	32	6	30
	Middle Child	33	5	30
	Youngest Child	33	4	30

**Table 3**

*Means, standard deviation and n value for personality trait openness based on birth order.*

		Openness		
		Mean	Standard Deviation	n
Birth Order	Only Child	39	4	30
	Oldest Child	40	6	30
	Middle Child	36	8	30
	Youngest Child	37	5	30

**Table 4**

*Means, standard deviation and n value for personality trait extroversion based on birth order.*

		Extroversion		
		Mean	Standard Deviation	n
Birth Order	Only Child	24	7	30
	Oldest Child	25	6	30
	Middle Child	23	6	30
	Youngest Child	22	7	30

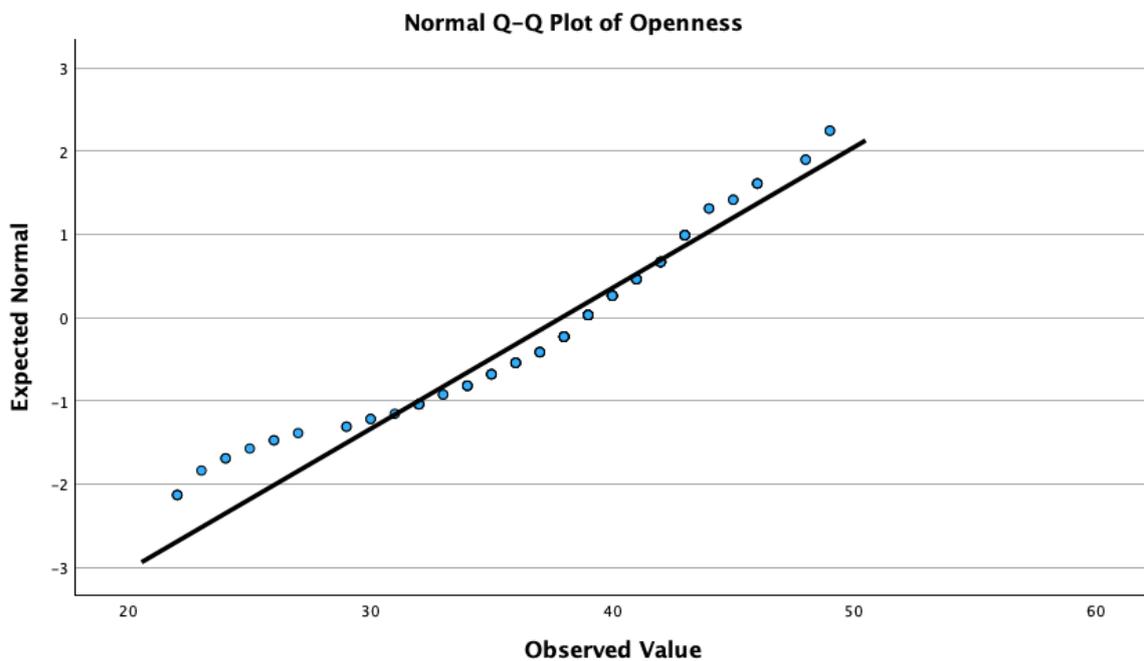
### 3.4 Inferential Statistics

Multivariate analysis of variance (MANOVA), was employed due to the study investigating the effect of one independent variable on three scale dependent variables.

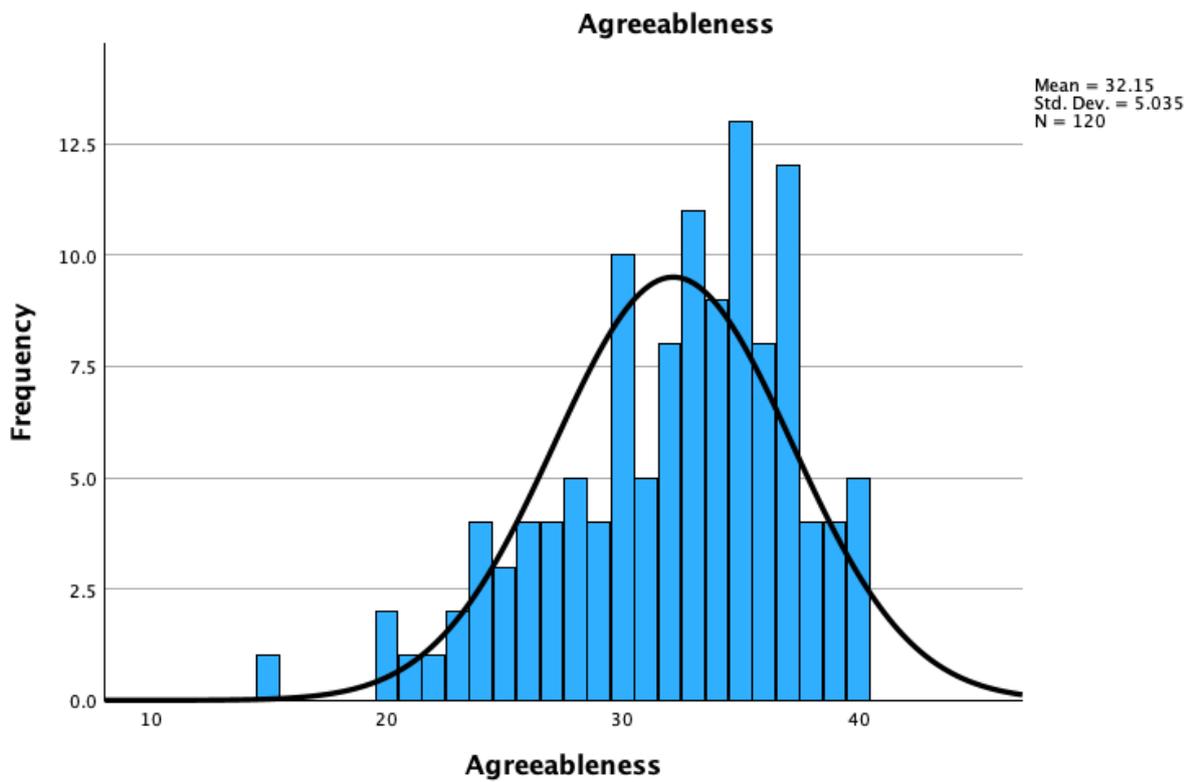
### 3.5 Assumptions

To ensure the appropriate analysis is used in the current study, the assumptions of multivariate analysis of variance were screened and tested. Firstly, the assumptions of normal distribution of the dependent variable with groups. The data approximately follows along the line of normality and also follows the normality curve indicating that normality assumptions were not violated (Vehkalahti & Everitt, 2018) (See Figures 1 through 6 below).

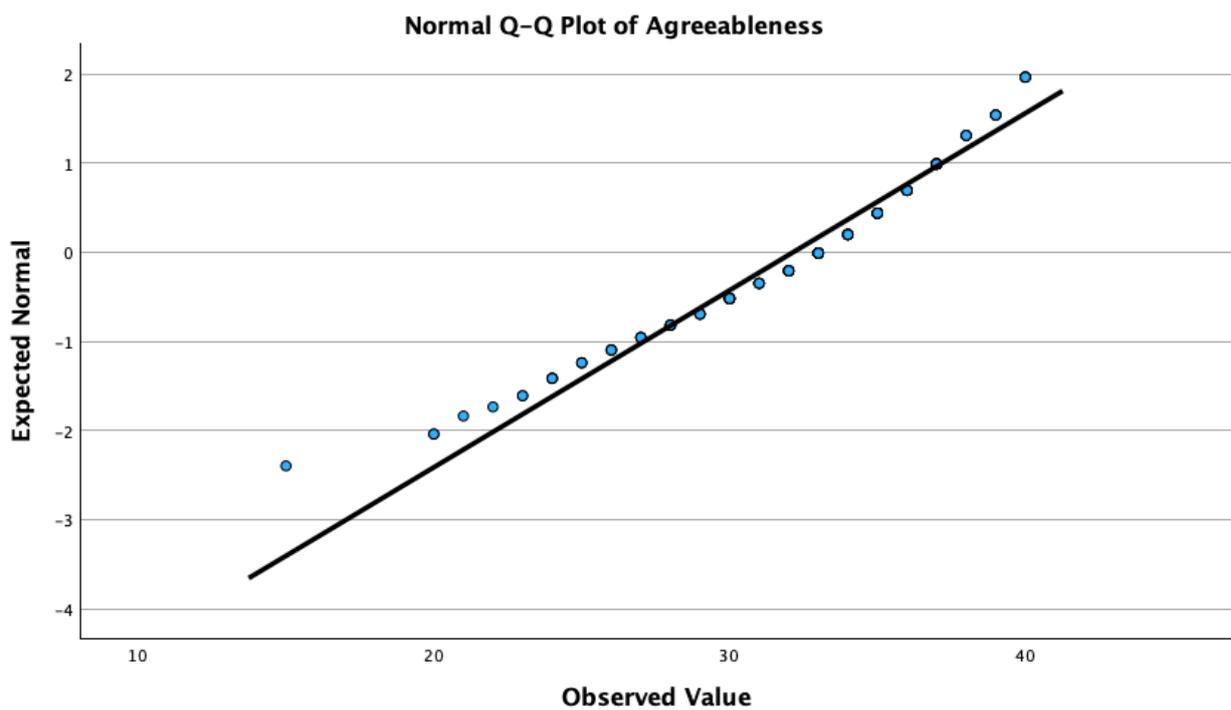
**Figure1**  
*Normality plots of openness*



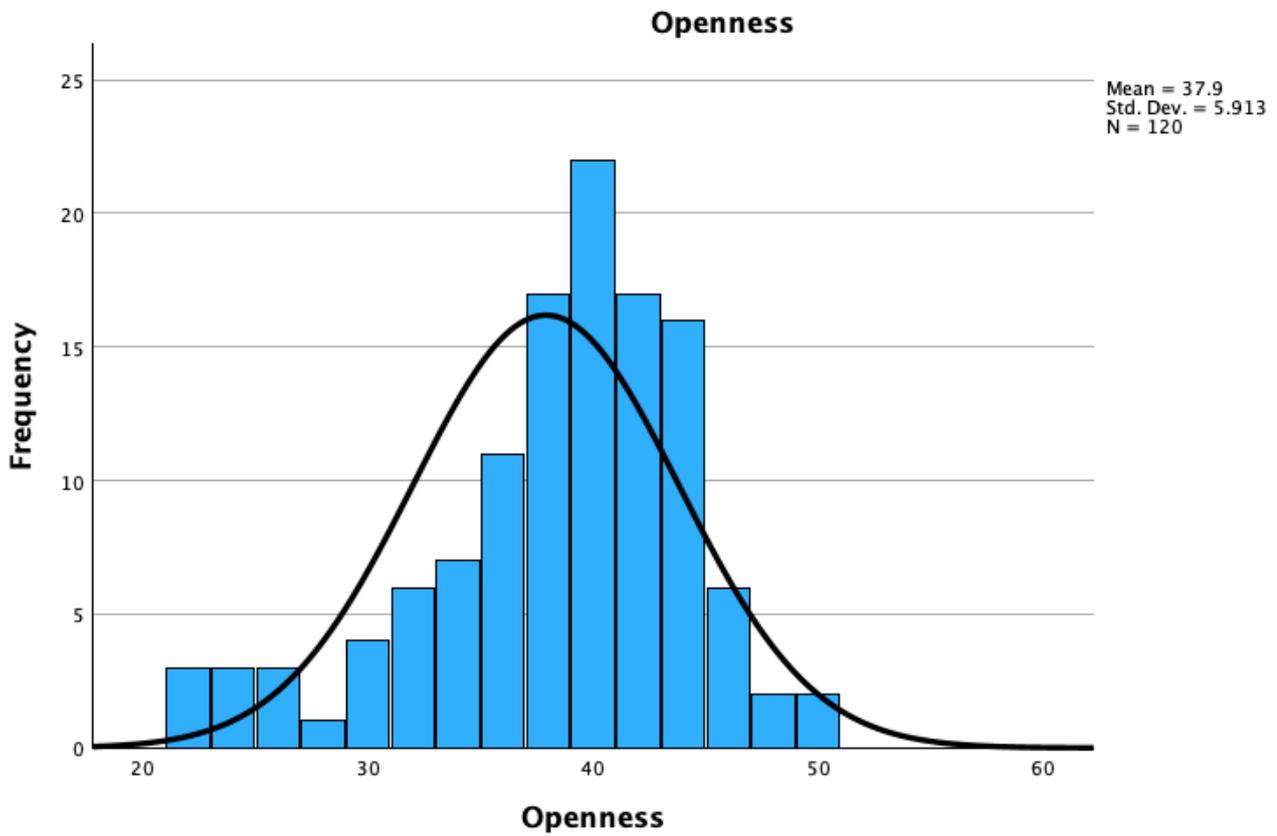
**Figure 2**  
*Normality curve of agreeableness*



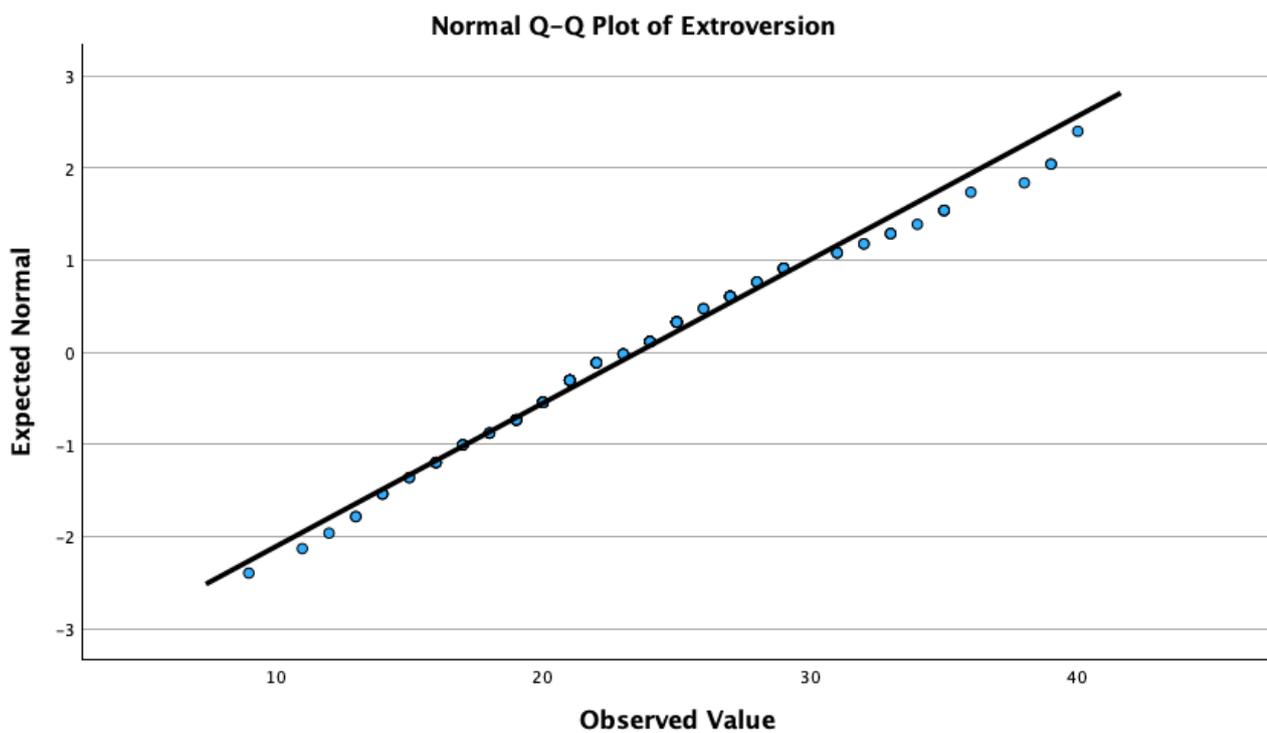
**Figure 3**  
*Normality plots of agreeableness*



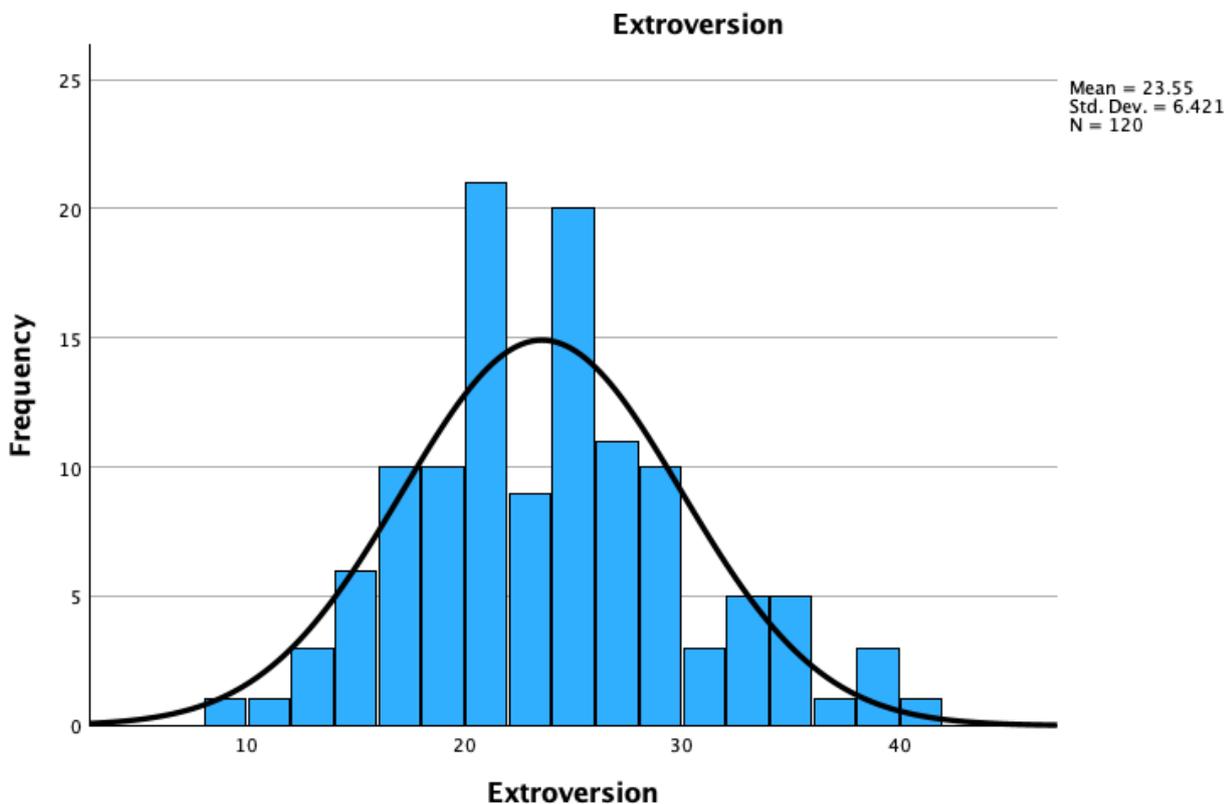
**Figure 4**  
*Normality curve of openness*



**Figure 5**  
*Normality plots of extroversion*



**Figure 6**  
*Normality curve of openness*



Multivariate linearity was then tested by malahombios. No data exceeded 18.37 due to the four levels in the independent variable. Linearity was then tested between the three dependent variables (agreeableness, openness and extroversion) using Pearson's correlation. The dependent variables were moderately correlated and did not indicate the need for combining variables (Sarma & Vardhan, 2018).

Agreeableness and Openness:  $r(120) = -.015$ ,  $p = .871$

Openness and Extroversion:  $r(120) = .075$ ,  $p = .417$

Agreeableness and Extroversion:  $r(120) = .119$ ,  $p = .197$

**Table 5**

*Pearson's correlation table indicating the relationship between agreeableness, openness and extroversion*

		<b>Correlations</b>		
		Agreeableness	Openness	Extroversion
Agreeableness	Pearson Correlation	1	-.015	.119
	Sig. (2-tailed)		.871	.197
	N	120	120	120
Openness	Pearson Correlation	-.015	1	.075
	Sig. (2-tailed)	.871		.417
	N	120	120	120
Extroversion	Pearson Correlation	.119	.075	1
	Sig. (2-tailed)	.197	.417	
	N	120	120	120

Levene's test of equality of variance indicated equality across the dependent groups and was supported by Box's test of equality of covariance matrices which also indicated equal dependent variable across all groups (Olejnik, 2010).

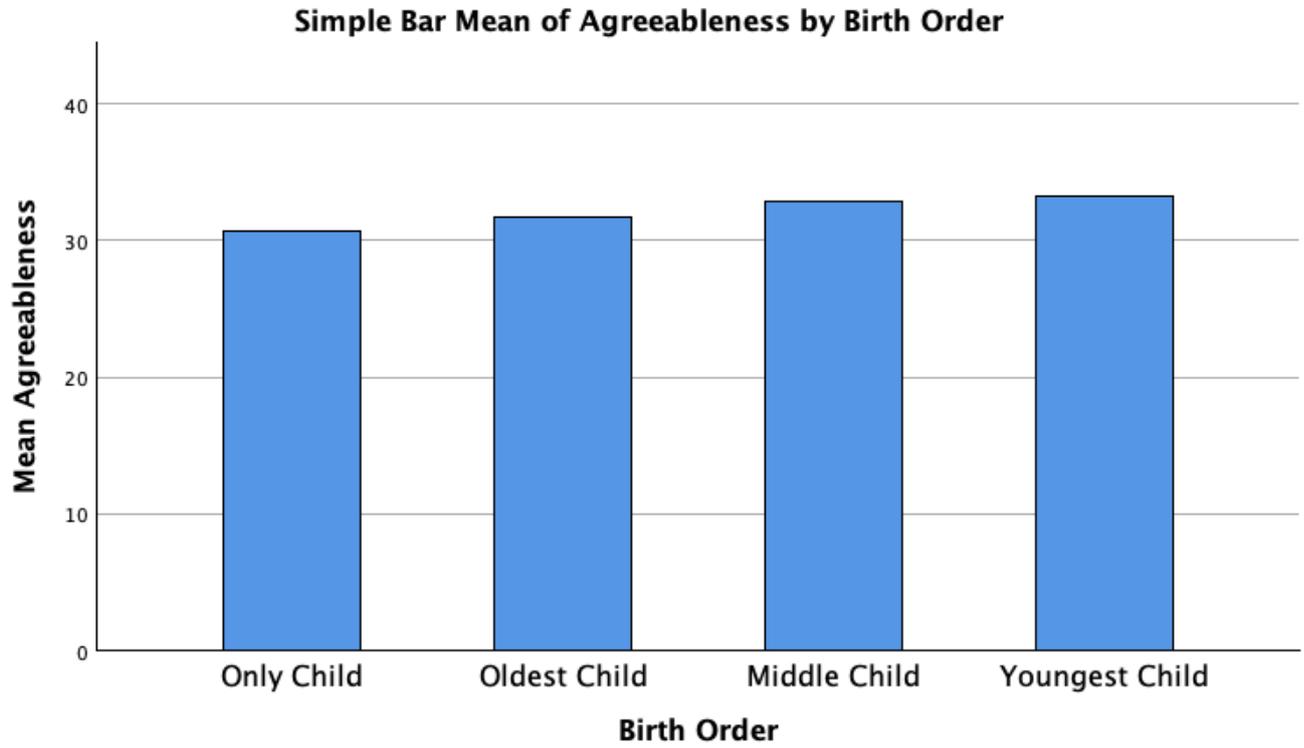
### 3.6 Hypotheses

Hypothesis one stated there would be a difference, for the 4<sup>th</sup> year students, on their agreeableness, based on their birth order. A one-way MANOVA was conducted to explore this hypothesis. Hypothesis one was supported:  $F(3, 116) = 1.589$ ,  $p = .196$ , partial eta squared = .039. (see Figures 7 and 8 below).

Post hoc analysis was conducted using a Tukey HSD Test. The test showed that the mean agreeableness scores for the youngest child group were significantly higher than the only child group ( $p = .198$ , 95% CI, [-0.8, 5.93]) and the oldest child group ( $p = .619$ , 95% CI, [-1.8, 4.93]). The oldest child group and the middle child group did not significantly differ from one another.

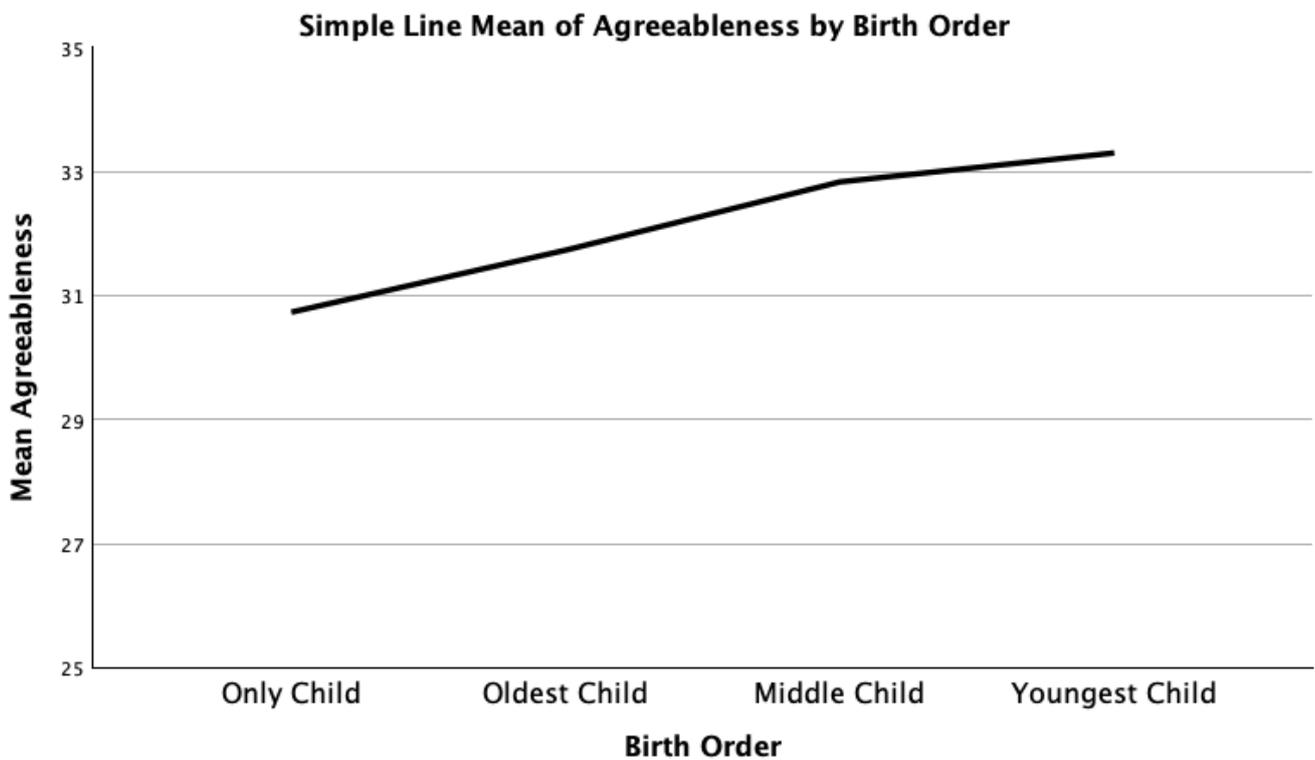
**Figure 7**

*Bar chart indicating the mean of agreeableness by birth order.*



**Figure 8**

*Line chart indicating the mean of agreeableness by birth order.*

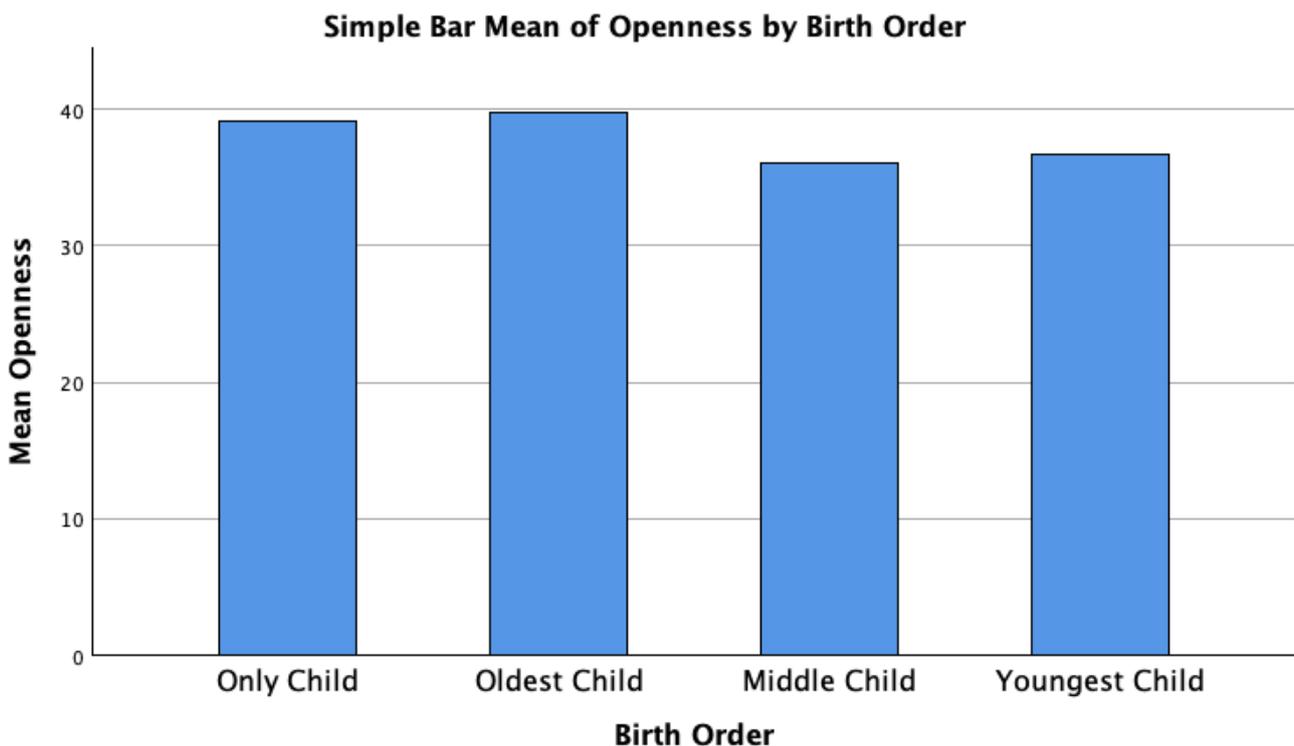


Hypothesis two stated there will be a difference, for the 4<sup>th</sup> year students, on their level of openness to experience, based on their birth order. A one-way MANOVA was conducted to explore this hypothesis. Hypothesis two was supported:  $F(3,116) = 2.916$ ,  $p = .037$ , partial eta squared = .070. (see Figures 9 and 10 below).

Post hoc analysis was conducted using a Tukey HSD Test. The test showed that the mean openness scores for the oldest child group were significantly higher than the middle child group ( $p = .076$ , 95% CI, [-0.25, 7.52]) and the youngest child group ( $p = .182$ , 95% CI, [-0.85,6.92]). The mean openness scores for the only child group were significantly higher than the middle child group ( $p = .166$ , 95% CI, [-0.79, 6.99]) and the youngest child group ( $p = .341$ , 95% CI, [-1.39, 6.39]). The only-child and the oldest-child groups did not significantly differ from one another. Similarly, the middle child and youngest child groups didn't show significant deviation from one another.

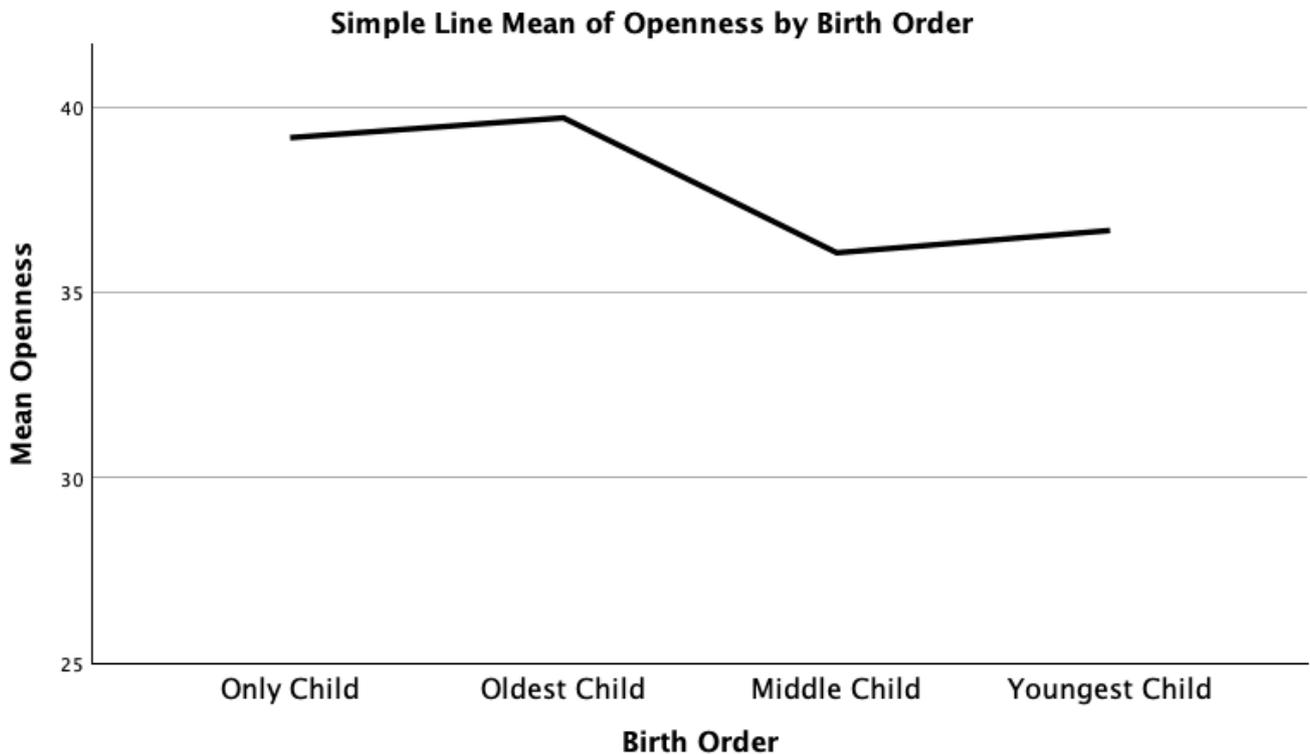
**Figure 9**

*Bar chart indicating the mean of openness by birth order*



**Figure 10**

*Line chart indicating the mean of openness by birth order*

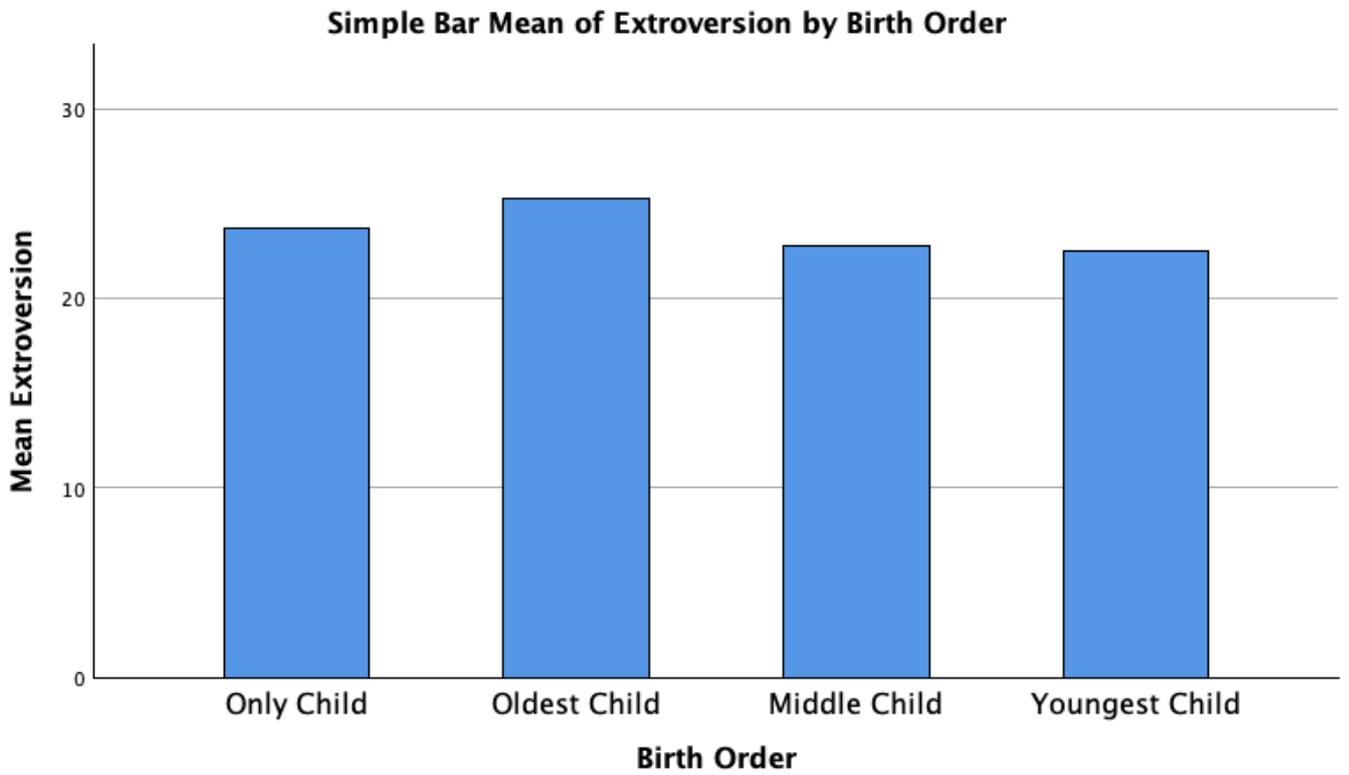


Hypothesis three stated there will be a difference, for the 4th-year students, on their level of extroversion, based on their birth order. A one-way MANOVA was conducted to explore this hypothesis. Hypothesis three was supported:  $F(3,116) = 1.138$ ,  $p = .337$ , partial eta squared = .029. (see Figures 11 and 12 below).

Post hoc analysis was conducted using a Tukey HSD Test. The test showed that the mean extroversion scores for the oldest child group were significantly higher than the middle child group ( $p = .434$ , 95% CI, [-1.81, 6.81]), the youngest child group ( $p = .343$ , 95% CI, [-1.55,7.08]) and the only child group ( $p = .769$ , 95% CI, [-2.71,5.91]). The middle child group and the youngest child group did not differ significantly from one another.

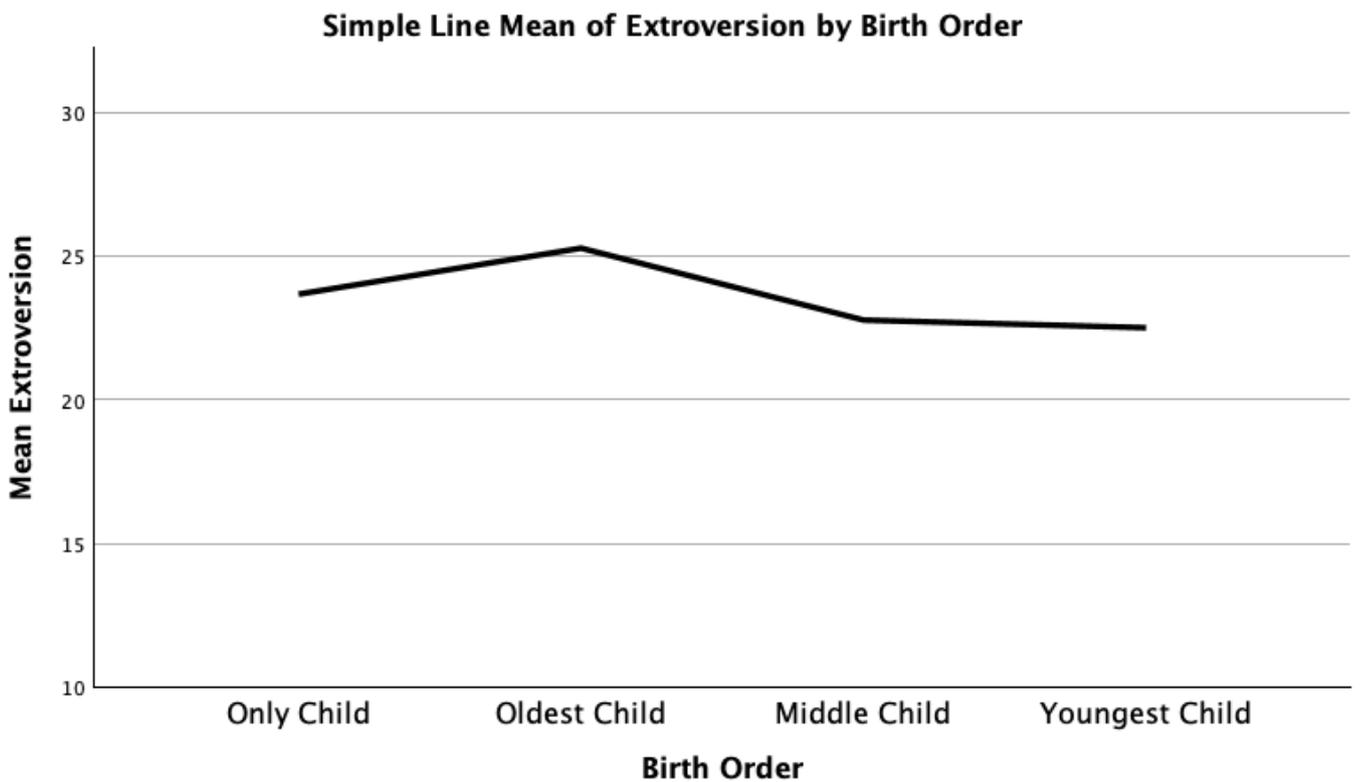
**Figure 11**

*Bar chart indicating the mean of extroversion by birth order*



**Figure 12**

*Line chart indicating the mean of extroversion by birth order*



## 4. Discussion

### 4.1 Overview of Findings

The purpose of this study was to investigate the effect of birth order on specific personality traits, agreeableness, openness and extroversion.

Hypothesis one stated there will be a difference for the 4<sup>th</sup> year students on their agreeableness based on their birth order. This hypothesis was supported by the inferential statistical analysis conducted and the post hoc analysis using Tukey HSD showed where the differences were found between the various levels in the variables. The present study found that the youngest child group had higher levels of agreeableness compared to the other groups. This result is supported by Salmon (2018). Their results indicated that youngest children generally have higher levels of agreeableness compared to older siblings. Despite the lack of consistency surrounding this topic, the results of this present study differ from other previous studies. On the contrary to the present study's results, Botzet et al., (2021) reported no significant effects on agreeableness in regard to birth order. Rohrer et al., (2015) also reported that birth order had no significant effect on agreeableness outside the intellectual domain.

Hypothesis two stated there will be a difference for the 4<sup>th</sup>-year students on their openness to experience based on their birth order. This hypothesis was supported by an inferential statistical analysis and a post hoc analysis using Tukey HSD showed where the differences in the various variables and levels occurred. The present study found that the oldest child group had significantly higher levels of openness to experience compared to the middle child group and the youngest child group. The only-child group also had significantly higher levels of openness compared to the middle-child group and the youngest-child group. The only child group and oldest child did not differ significantly from one another, this was also the case for the middle child group and the youngest child group. These results were also supported by Salmon (2018) where the results indicated that the youngest child generally has higher levels of openness to experience compared to the older child. Conversely, Botzet et al., (2021) reported no significant effect of birth order on openness. Rohrer et al., (2015) also reported that birth order had no significant effect on openness.

Hypothesis three stated there will be a difference for the 4<sup>th</sup>-year students on their extroversion based on their birth order. This hypothesis was supported by the inferential statistical analysis and a post hoc analysis using Tukey HSD showing where the differences in variables occurred. The present study found that the oldest child group had significantly higher levels of extroversion compared to the middle child group, the youngest child group and the only child group. The middle child group and the youngest child group did not differ from one another. Contrary to the finding of this study, Pollett et al., (2010) reported that the oldest child group were significantly less extroverted compared to those later born. Keal et al., (2019) also reported that youngest children, only children and middle children had higher levels of extroversion compared to the oldest children. Botzet et al., (2021) and Rohrer et al., (2015) reported that birth order has no significant effect on extroversion.

#### **4.2 Strengths and Limitations of the Current Study**

In the present study, many strengths were found. The questionnaire used was standardised ensuring an accurate comparison to other studies in this area. This also ensures a replicative method and results. The Big Five inventory has been used in many different studies and has reported high reliability and replicability. Another strength is the aspect of online distribution. The use of Microsoft Forms allowed for the distribution of the form very quickly and efficiently. This also allowed for the data to be safely stored and accessed by only the researcher and the supervisor for data protection purposes. Another strength found is the results of this present study due to the lack of consistency surrounding the topic of birth order and personality. The results of this study greatly contribute to the prior knowledge of this topic.

There were also limitations identified in this study. The enrolment of participants was a limitation as over-recruitment was necessary to ensure an equal population in the levels of birth order. Populating the only child group and middle child group was difficult. Data from the oldest child group and youngest child group was discarded randomly to meet the equal group requirement for analysis. The need for ethical consideration due to the discarding data when a participant has agreed to participate was discussed with the supervisor and due to the time constraint of this study, it was agreed that this was the best course of action to ensure equal groups for the analysis and in future, data collection would stop. Another limitation includes the

generalisability of the results. This is due to the small sample size (N=120) and the unequal aspect of gender (35% male, 60.83% female and 4.7% preferred not to say).

### **4.3 Theoretical Implications**

The current study contributes to the knowledge of birth order and personality. The results of this study support Adler's (1918) birth order theory. Adler believed that personality was determined by the order of birth in a group of siblings, which is the foundation of this present study. This study also supports Allport's (1937) personality theory. Allport believed that personality was determined at birth and shaped by the environment, which may be the reason for the inconsistency of results in this area.

### **4.4 Practical Implications**

The present study could benefit society's understanding of each other's personalities. It could also help with the aspect of employment in diverse jobs, showing where an individual may be best fit due to their personalities (Sackett & Walmsley, 2014; Chauhan & Chauhan, 2006). For example: An individual with an extroverted personality may be best suited to customer-facing roles. It may also benefit by showing areas individuals may want to improve on, such as becoming more open to experiences or more agreeable in situations. Berisha et al., (2022) researched birth order revelations about managers, it was reported that birth order affects managers' behaviours in decision-making and conflict situations.

### **4.5 Suggestions for Future Research**

In order to combat the inconsistency of this topic, more research is needed to require more comprehensive and generalizable results. As there is a lack of consistency in conclusive results, it is difficult to compare new findings to conclude reliability or replicability of results found. This could support theories or prior research, although it may provide a new perspective on the topic. An additional suggestion for future research that may be beneficial includes longitudinal research in this area. This type of research would show if, or when, personality changes in a lifetime of participants. This type of research may counteract the lack of consistency surrounding the topic in question. This may support Allport's theory of personality being shaped by the environment, creating consistency or inconsistency of the topic of personality and how it continuously develops and changes over time

## **4.6 Conclusion**

In conclusion, the present study highlights the inconsistency surrounding the topic of birth order's effect on personality. It also shows the need for more conclusive research in this area. The present study results showed the differences in personality traits (agreeableness, openness and extroversion) between the order in which people are born into a family (oldest child, middle child, youngest child and only child). In regards to agreeableness, the youngest child group had the highest level and the only child group had the lowest level of agreeableness. The oldest child group showed the highest level of openness to experience and the middle child group showed the lowest. The oldest child group also had the highest level of extroversion, whilst the middle child group and the youngest child group showed the least. Future research is needed into how the personality changes over time in relation to birth order. Furthermore, the need for more conclusive research into the effect of birth order on personality traits needs further and more empirical research.

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## Appendices

### Appendix A: Ethics Approval



**Eva Garcia-Albarran**

Yesterday

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## **Ethics Committee Approval**

Dear Students,

I am delighted to inform you the Ethics Committee has approved your MRP application. You can go ahead and begin with the data collection whenever all the documentation is ready.

Well Done!

Should you have any questions, please do not hesitate to contact me,

With kind regards,

Eva

## **Appendix B: Information Sheet**

**Title of project:** *The Effect of Birth Order on Personality Traits (Agreeableness, Openness to Experience & Extroversion).*

You are being invited to take part in the research '*The Effect of Birth Order on Personality Traits (Agreeableness, Openness to Experience and Extroversion)*'. This project is being undertaken by Bobbi Downer (researcher) and Eva Garcia-Albarran (supervisor) for our major research project as part of the BSc (Hons) in Applied Psychology, IADT. Before you decide whether you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully and discuss it with someone you trust. If there is anything that is unclear or if you would like more information please ask, our contact details are at the end of this information sheet. Thank you for reading this.

### **What is the purpose of the project?**

Most research in this area focuses on the interaction of birth order and personality of young children, in a population of non-Irish individuals. The aim of this study is to investigate if birth order has an effect on Personality (Agreeableness, Openness to Experience & Extroversion).

### **Who is/Why are you being invited to take part?**

This study is for 4th-year third-level education students. The reason for this population relates to the previous research with a younger population and the lack of research involving adults above the ages of 18-20 years old.

### **What is involved?**

If you choose to participate, you will be asked demographic questions about your age and gender, followed by one scale. The scale asks questions in relation to your personality traits, such as "Is outgoing, sociable" with an answering method of a Likert scale, E.g. Disagree strongly, Disagree a little, Neither agree nor disagree, Agree a little or Agree strongly. The study will take approximately 7 minutes.

### **Do I have to take part?**

You are free to decide whether you wish to take part or not. If you do decide to take part, you will be asked to sign a consent form that lets us know you have read this information sheet and understand what is involved in the research. You are free to withdraw from this study at any time and without giving reasons. Participating in this study will have no impact on your marks, assessments or future studies

### **What are the disadvantages and risks (if any) of taking part?**

The scale will be about the topics of personality traits and there is a possibility that there will be questions that may make you uncomfortable. You can decide not to answer these questions if you do not wish to.

### **What are the possible benefits of taking part?**

This study may not benefit you directly, although this study may increase the understanding of the different types of personality traits discussed in the academic field.

### **How will my information be used?**

Your responses to the questionnaire will be combined with all other participants data and statistically analysed. No individual's data will be identifiable in the final report. The results of

this analysis will be reported in the thesis for the BSc (Hons) in Applied Psychology in the Dun Laoghaire Institute of Art, Design & Technology. This can be requested through the library at IADT, or by emailing the researcher or supervisor at Eva.Garcia-Albarran@iadt.ie This study may also be published in an academic journal article and may be written about for blog posts or media articles and these can be requested from the researcher.

### **How will my data be protected?**

Under the EU General Data Protection Regulation (GDPR) the legal basis for collecting data for scholarly research is that of public interest. The regulations regarding the protection of your data will be followed. Only data which is needed for analysis will be collected. By giving your consent to take part in the study you are consenting to the use of your data as detailed in this information sheet.

The data will be retained by the researcher for at least one year, and may be retained for up to 7 years if the results of the study are published in certain capacities (e.g. in a journal article). There is also a possibility that the fully anonymised dataset may be submitted to a journal and made available to other researchers and academics worldwide for verification purposes, but if this occurs it will be ensured that you are not identifiable from the data.

As the supervisor on this project, I, Eva Garcia-Albarran, am responsible for ensuring that all datasets will be stored in accordance with GDPR regulations and those which are not submitted to a journal will be fully deleted on or before January 2030.

The researcher (Bobbi Downer), Supervisor (Eva Garcia-Albarran) and Statistics lecturer (Christine Horn). The data collected will be stored securely on a password-protected computer. If there is a breach in data the data protection officer in IADT will be informed immediately. The data will be identifiable by code e.g. initials of participants name and last 3 digits of participants phone number (BD765). The long-term arrangement for disposing of the data is that the data will be disposed of securely.

You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

### **Who has reviewed the study?**

This study has been approved by the IADT Psychology Ethics Committee.

### **What if you have any questions or there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher(s) who will do their best to answer your questions. You should contact Bobbi Downer N00200630@iadt.ie or their supervisor Eva Garcia-Albarran Eva.Garcia-Albarran@iadt.ie

### **Thank you**

Thank you for taking the time to read the information sheet.

### **Date**

11/01/24

## Appendix C: Consent From

### Consent Form

Title of Project: The effect of Birth order on Personality (Agreeableness, Openness to Experience and Extroversion).

Name of Researcher: Bobbi Downer

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. \*

2. I understand that my participation is voluntary and that I am free to withdraw at any time. \*

3. I understand that data collected about me during this study will not be identifiable when the research is published. \*

4. I am over 18 years of age \*

5. I agree to take part in this study. \*

6. I agree to take part in this study and for my answers to be used in this study. \*

## Appendix D: Debrief Form

**Title of Project:** The Effect of Birth Order on Personality (Agreeableness, Openness to Experience and Extroversion)

**Name of Researcher:** Bobbi Downer

### **Thank you very much for taking part in this research study.**

This study is designed to investigate '*The Effect of Birth Order on One's Personality (Agreeableness, Openness to Experience & Extroversion)*'. Most research in this area focuses on the interaction of birth order and personality of young children, in a population of non-Irish individuals.

### **Withdrawal information**

If you have any questions about this study, or if you would like to withdraw your data from the study, please contact the researcher or supervisor at N00200630@iadt.ie or Eva.Garcia-Albarran@iadt.ie In your email let them know your unique ID code, the first initials of your name and the last 3 digits of your phone number. If you submit a request for data removal, all data collected from you will be securely deleted. You will be able to remove your data from the study until February 28th 2024 when the data will be combined and analysed. Data removal will not be possible after that date. Please keep a copy of this information in case you wish to remove your data after leaving this screen.

### **Data protection**

Your data will be treated according to GDPR regulations. You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

### **Support resources**

If you have been affected by the content of this study in any way, the organizations below may be of assistance.

**Counselling services in IADT: [studentcounselling@iadt.ie](mailto:studentcounselling@iadt.ie)**

**<https://www.pieta.ie/>**

**<https://www.mentalhealthireland.ie/get-support/>**

**JIGSAW: Offer free online services in the form of one-to-one support and group support**

**PIETA: Operate 24/7 freephone support and text support services by calling 1800 247 247 or Texting HELP to 51444**

**AWARE: Operate a freephone support line 1800 804 848, an email support at [supportmail@aware.ie](mailto:supportmail@aware.ie) and online Life Skills programme**

**Thank you again for taking the time to participate in this research.**

If you have any questions about this study, please contact the researcher or supervisor at N00200630@iadt.ie Researcher or Eva.Garcia-Albarran@iadt.ie supervisor

## Appendix E: Additional Consent

### Confirmation of Consent for Data Use

38. Having completed the questionnaire: \*

- I consent to the researchers using my answers for their research
- I wish to have my answers removed from the research

## Appendix F: Big Five Inventory

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly 1	Disagree a little 2	Neither agree nor disagree 3	Agree a little 4	Agree Strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

### I see Myself as Someone Who...

- |   |  |
|---|--|
| <p>___ 1. Is talkative</p> <p>___ 2. Tends to find fault with others</p> <p>___ 3. Does a thorough job</p> <p>___ 4. Is depressed, blue</p> <p>___ 5. Is original, comes up with new ideas</p> <p>___ 6. Is reserved</p> <p>___ 7. Is helpful and unselfish with others</p> <p>___ 8. Can be somewhat careless</p> <p>___ 9. Is relaxed, handles stress well</p> <p>___ 10. Is curious about many different things</p> <p>___ 11. Is full of energy</p> <p>___ 12. Starts quarrels with others</p> <p>___ 13. Is a reliable worker</p> <p>___ 14. Can be tense</p> <p>___ 15. Is ingenious, a deep thinker</p> <p>___ 16. Generates a lot of enthusiasm</p> <p>___ 17. Has a forgiving nature</p> <p>___ 18. Tends to be disorganized</p> <p>___ 19. Worries a lot</p> <p>___ 20. Has an active imagination</p> <p>___ 21. Tends to be quiet</p> <p>___ 22. Is generally trusting</p> | <p>___ 23. Tends to be lazy</p> <p>___ 24. Is emotionally stable, not easily upset</p> <p>___ 25. Is inventive</p> <p>___ 26. Has an assertive personality</p> <p>___ 27. Can be cold and aloof</p> <p>___ 28. Perseveres until the task is finished</p> <p>___ 29. Can be moody</p> <p>___ 30. Values artistic, aesthetic experiences</p> <p>___ 31. Is sometimes shy, inhibited</p> <p>___ 32. Is considerate and kind to almost everyone</p> <p>___ 33. Does things efficiently</p> <p>___ 34. Remains calm in tense situations</p> <p>___ 35. Prefers work that is routine</p> <p>___ 36. Is outgoing, sociable</p> <p>___ 37. Is sometimes rude to others</p> <p>___ 38. Makes plans and follows through with them</p> <p>___ 39. Gets nervous easily</p> <p>___ 40. Likes to reflect, play with ideas</p> <p>___ 41. Has few artistic interests</p> <p>___ 42. Likes to cooperate with others</p> <p>___ 43. Is easily distracted</p> <p>___ 44. Is sophisticated in art, music, or literature</p> |
|---|--|

### **Scoring:**

BFI scale scoring ("R" denotes reverse-scored items):

Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36  
 Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42  
 Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R  
 Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39  
 Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

## Appendix G: Microsoft Forms

<https://forms.office.com/e/1Ner9XVada>

# Birth Order and Personality Traits (Agreeableness, Openness to Experience & Extroversion)

Section 1

...

## Information sheet

**Title of project:** *The Effect of Birth Order on Personality Traits (Agreeableness, Openness to Experience & Extroversion).*

You are being invited to take part in the research 'The Effect of Birth Order on Personality Traits (Agreeableness, Openness to Experience and Extroversion)'. This project is being undertaken by Bobbi Downer (researcher) and Eva Garcia-Albarran (supervisor) for our major research project as part of the BSc (Hons) in Applied Psychology, IADT. Before you decide whether you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully and discuss it with someone you trust. If there is anything that is unclear or if you would like more information please ask, our contact details are at the end of this information sheet. Thank you for reading this.

**What is the purpose of the project?**

Most research in this area focuses on the interaction of birth order and personality of young children, in a population of non-Irish individuals. The aim of this study is to investigate if birth order has an effect on Personality (Agreeableness, Openness to Experience & Extroversion).

**Who is/Why are you being invited to take part?**

This study is for 4th-year third-level education students. The reason for this population relates to the previous research with a younger population and the lack of research involving adults above the ages of 18-20 years old.

**What is involved?**

If you choose to participate, you will be asked demographic questions about your age and gender, followed by one scale. The scale asks questions in relation to your personality traits, such as "Is outgoing, sociable" with an answering method of a Likert scale, E.g. Disagree strongly, Disagree a little, Neither agree nor disagree, Agree a little or Agree strongly. The study will take approximately 7 minutes.

**Do I have to take part?**

You are free to decide whether you wish to take part or not. If you do decide to take part, you will be asked to sign a consent form that lets us know you have read this information sheet and understand what is involved in the research. You are free to withdraw from this study at any time and without giving reasons. Participating in this study will have no impact on your marks, assessments or future studies.

**What are the disadvantages and risks (if any) of taking part?**

The scale will be about the topics of personality traits and there is a possibility that there will be questions that may make you uncomfortable. You can decide not to answer these questions if you do not wish to.

**What are the possible benefits of taking part?**

This study may not benefit you directly, although this study may increase the understanding of the different types of personality traits discussed in the academic field.

## Information Sheet

### How will my information be used?

Your responses to the questionnaire will be combined with all other participants data and statistically analysed. No individual's data will be identifiable in the final report. The results of this analysis will be reported in the thesis for the BSc (Hons) in Applied Psychology in the Dun Laoghaire Institute of Art, Design & Technology. This can be requested through the library at IADT, or by emailing the researcher or supervisor at [Eva.Garcia-Albarran@iadt.ie](mailto:Eva.Garcia-Albarran@iadt.ie). This study may also be published in an academic journal article and may be written about for blog posts or media articles and these can be requested from the researcher.

### How will my data be protected?

Under the EU General Data Protection Regulation (GDPR) the legal basis for collecting data for scholarly research is that of public interest. The regulations regarding the protection of your data will be followed. Only data which is needed for analysis will be collected. By giving your consent to take part in the study you are consenting to the use of your data as detailed in this information sheet.

The data will be retained by the researcher for at least one year, and may be retained for up to 7 years if the results of the study are published in certain capacities (e.g. in a journal article). There is also a possibility that the fully anonymised dataset may be submitted to a journal and made available to other researchers and academics worldwide for verification purposes, but if this occurs it will be ensured that you are not identifiable from the data.

As the supervisor on this project, I, Eva Garcia-Albarran, am responsible for ensuring that all datasets will be stored in accordance with GDPR regulations and those which are not submitted to a journal will be fully deleted on or before January 2030.

The researcher (Bobbi Downer), Supervisor (Eva Garcia-Albarran) and Statistics lecturer (Christine Horn). The data collected will be stored securely on a password-protected computer. If there is a breach in data the data protection officer in IADT will be informed immediately. The data will be identifiable by code e.g. initials of participants name and last 3 digits of participants phone number (BD765). The long-term arrangement for disposing of the data is that the data will be disposed of securely.

You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

### Who has reviewed the study?

This study has been approved by the IADT Psychology Ethics Committee.

## Information Sheet

### What if you have any questions or there is a problem?

If you have a concern about any aspect of this study, you may wish to speak to the researcher(s) who will do their best to answer your questions. You should contact Bobbi Downer [N00200630@iadt.ie](mailto:N00200630@iadt.ie) or their supervisor Eva Garcia-Albarran [Eva.Garcia-Albarran@iadt.ie](mailto:Eva.Garcia-Albarran@iadt.ie)

### Thank you

Thank you for taking the time to read the information sheet.

### Date

11/01/24

## Demographic Information Form

7. Please provide us with an anonymised code which we can use to identify your data if you later wish to have it removed from our dataset. Please do so by answering the following two questions

- a) What are the first letters of your first and last name? (e.g. Jane Smith->JS)
- b) Followed by the last three digits of your telephone number (e.g. JS123) \*

Enter your answer

8. Gender: I identify as..... \*

- Male
- Female
- I prefer not to say

9. Age: I am..... \*

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75 years or older
- I prefer not to say

10. In regards to my siblings, I am.....

(oldest child = only having younger siblings), (middle child = having both older and younger siblings), (youngest child = only having older siblings) & (only child = have no siblings) \*

- the Oldest child
- the Middle child
- the Youngest child
- an Only child

## Big Five Inventory (Excluding Neuroticism and Conscientiousness)

Please answer these statements in relation to yourself.

This Questionnaire will take approx—3 minutes to complete.

11. Is talkative

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Tends to find fault with others

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Is original, comes up with new ideas

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Is reserved

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Is helpful and unselfish with others

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Is curious about many different things

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Is full of energy

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Is full of energy

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Starts quarrels with others

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Is ingenious, a deep thinker

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Generates a lot of enthusiasm

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Has a forgiving nature

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Has an active imagination

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Tends to be quiet

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Is generally trusting

24. Is generally trusting

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Is inventive

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Has an assertive personality

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. Can be cold and aloof

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Values artistic, aesthetic experiences

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Is sometimes shy, inhibited

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. Is considerate and kind to almost everyone

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Prefers work that is routine

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Prefers work that is routine

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

32. Is outgoing, sociable

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Is sometimes rude to others

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. Likes to reflect, play with ideas

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. Has few artistic interests

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. Likes to cooperate with others

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. Is sophisticated in art, music or literature

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Confirmation of Consent for Data Use

38. Having completed the questionnaire: \*

- I consent to the researchers using my answers for their research
- I wish to have my answers removed from the research

Section 8

...

## Debriefing Information Form

**Title of Project:** The Effect of Birth Order on Personality (Agreeableness, Openness to Experience and Extroversion)

**Name of Researcher:** Bobbi Downer

**Thank you very much for taking part in this research study.**

This study is designed to investigate 'The Effect of Birth Order on One's Personality (Agreeableness, Openness to Experience & Extroversion)'. Most research in this area focuses on the interaction of birth order and personality of young children, in a population of non-Irish individuals.

### Withdrawal information

If you have any questions about this study, or if you would like to withdraw your data from the study, please contact the researcher or supervisor at [N00200630@iadt.ie](mailto:N00200630@iadt.ie) or [Eva.Garcia-Albarran@iadt.ie](mailto:Eva.Garcia-Albarran@iadt.ie). In your email let them know your unique ID code, the first initials of your name and the last 3 digits of your phone number. If you submit a request for data removal, all data collected from you will be securely deleted. You will be able to remove your data from the study until February 28th 2024 when the data will be combined and analysed. Data removal will not be possible after that date. Please keep a copy of this information in case you wish to remove your data after leaving this screen.

### Data protection

Your data will be treated according to GDPR regulations. You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

### Support resources

If you have been affected by the content of this study in any way, the organizations below may be of assistance.

**Counselling services in IADT:** [studentcounselling@iadt.ie](mailto:studentcounselling@iadt.ie)

<https://www.pieta.ie/>

<https://www.mentalhealthireland.ie/get-support/>

**JIGSAW:** Offer free online services in the form of one-to-one support and group support

**PIETA:** Operate 24/7 freephone support and text support services by calling 1800 247 247 or Texting HELP to 51444

**AWARE:** Operate a freephone support line 1800 804 848, an email support at [supportmail@aware.ie](mailto:supportmail@aware.ie) and online Life Skills programme

**Thank you again for taking the time to participate in this research.**

If you have any questions about this study, please contact the researcher or supervisor at [N00200630@iadt.ie](mailto:N00200630@iadt.ie) Researcher or [Eva.Garcia-Albarran@iadt.ie](mailto:Eva.Garcia-Albarran@iadt.ie) supervisor

**Appendix H: Birth order n**

		n
Birth Order	Only Child	30
	Oldest Child	30
	Middle Child	30
	Youngest Child	30

**Appendix I: Agreeableness mean, SD and n based Birth order**

		Mean	Agreeableness Standard Deviation	n
Birth Order	Only Child	31	4	30
	Oldest Child	32	6	30
	Middle Child	33	5	30
	Youngest Child	33	4	30

**Appendix J:** Openness mean, SD and n based on Birth order

		Mean	Openness Standard Deviation	n
Birth Order	Only Child	39	4	30
	Oldest Child	40	6	30
	Middle Child	36	8	30
	Youngest Child	37	5	30

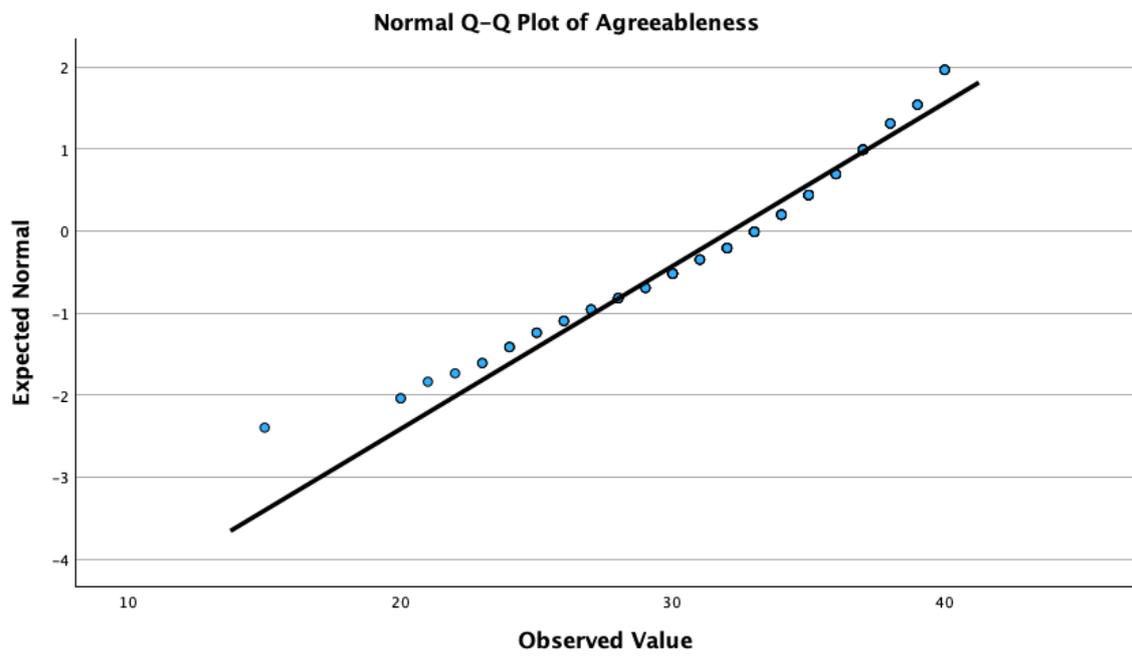
**Appendix K:** Extroversion mean, SD and n based on Birth order

		Mean	Extroversion Standard Deviation	n
Birth Order	Only Child	24	7	30
	Oldest Child	25	6	30
	Middle Child	23	6	30
	Youngest Child	22	7	30

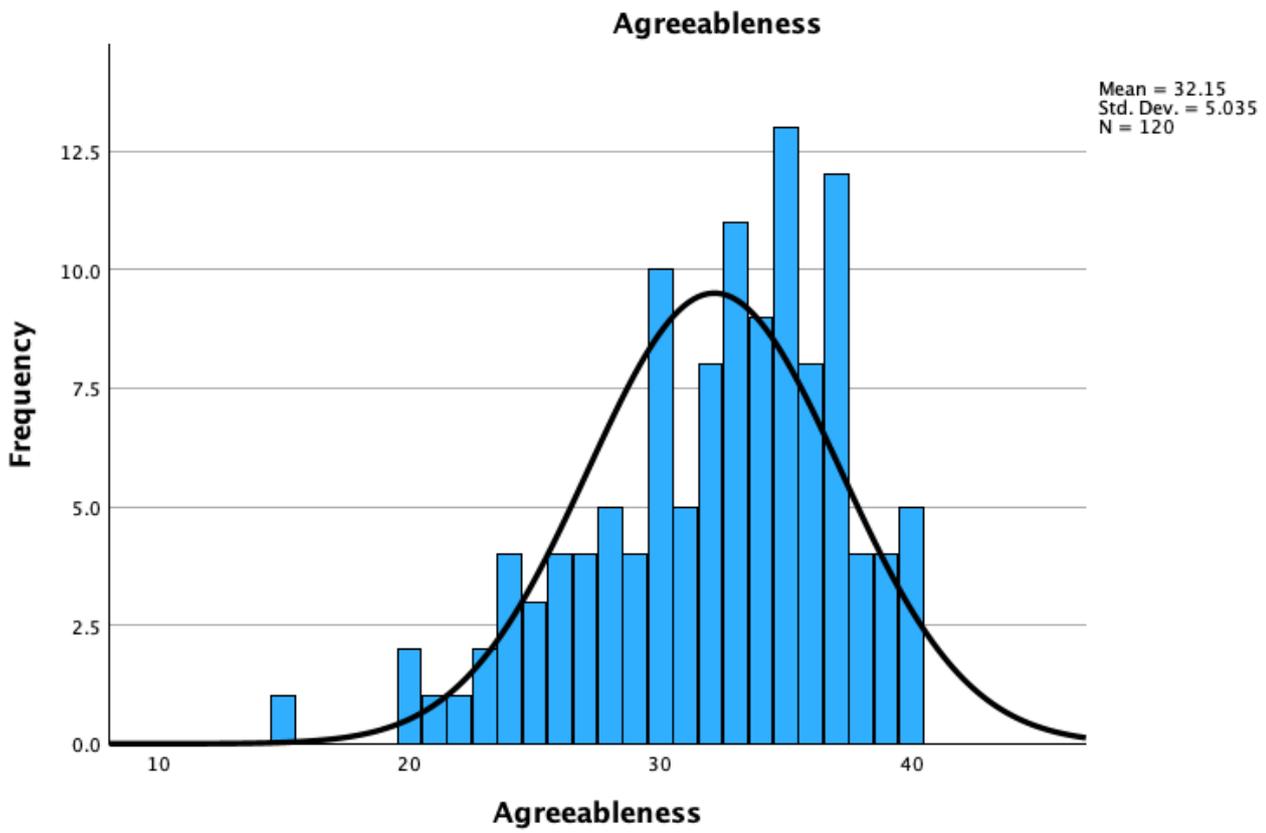
**Appendix L: Table 5 (Pearson's Correlation)**

		<b>Correlations</b>		
		Agreeableness	Openness	Extroversion
Agreeableness	Pearson Correlation	1	-.015	.119
	Sig. (2-tailed)		.871	.197
	N	120	120	120
Openness	Pearson Correlation	-.015	1	.075
	Sig. (2-tailed)	.871		.417
	N	120	120	120
Extroversion	Pearson Correlation	.119	.075	1
	Sig. (2-tailed)	.197	.417	
	N	120	120	120

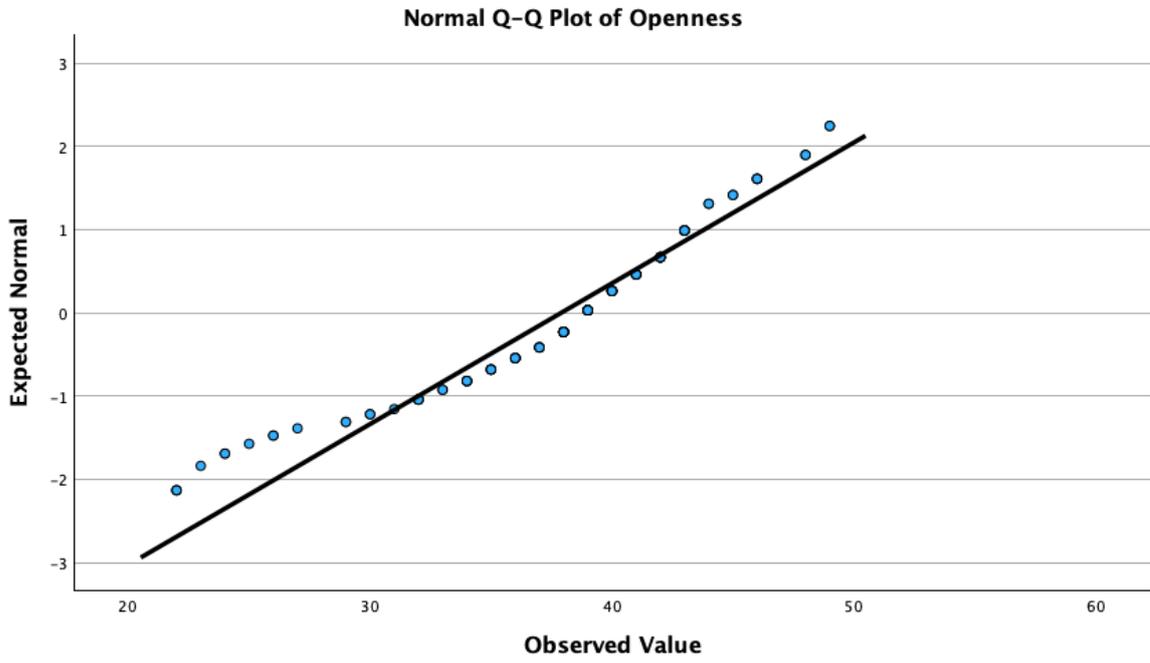
Appendix M: Figure 1 (Normal dist. Agreeableness)



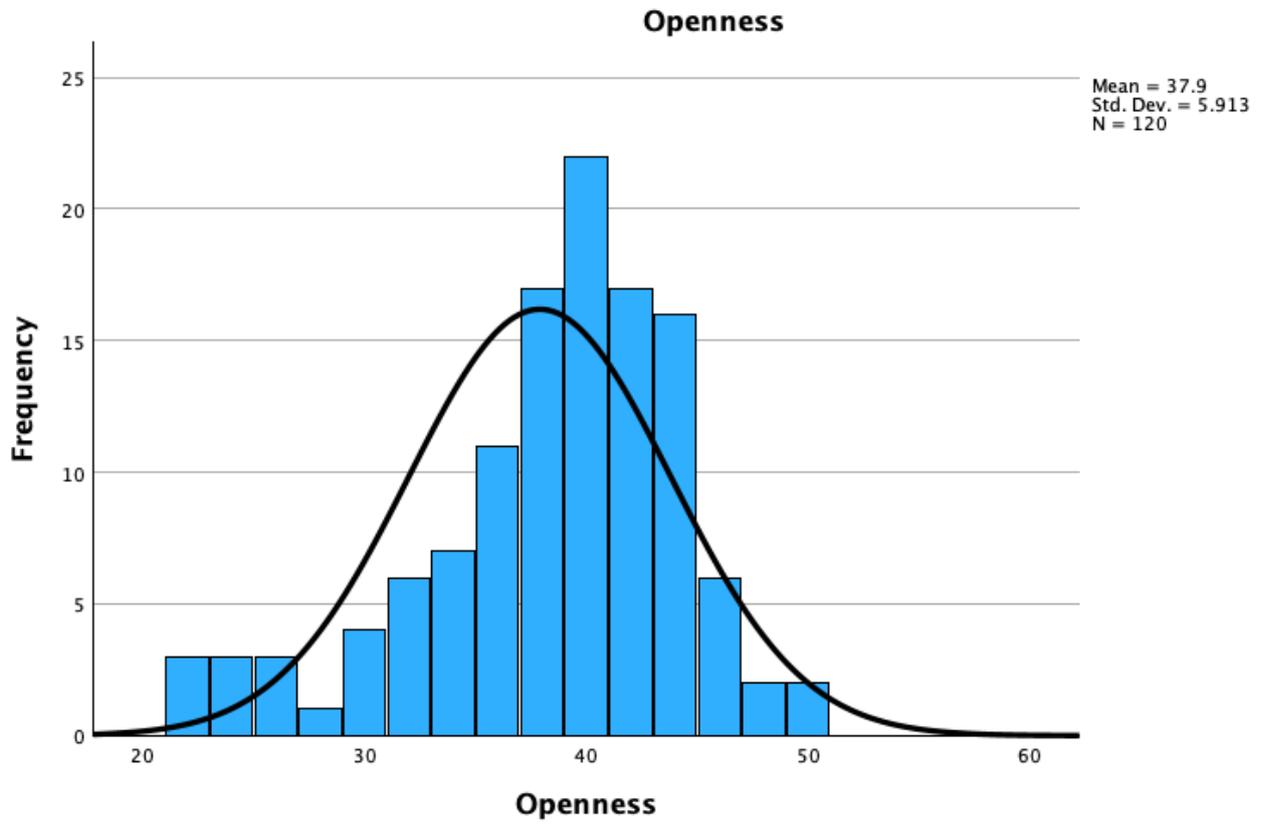
Appendix N: Figure 2 (Normal dist. Agreeableness)



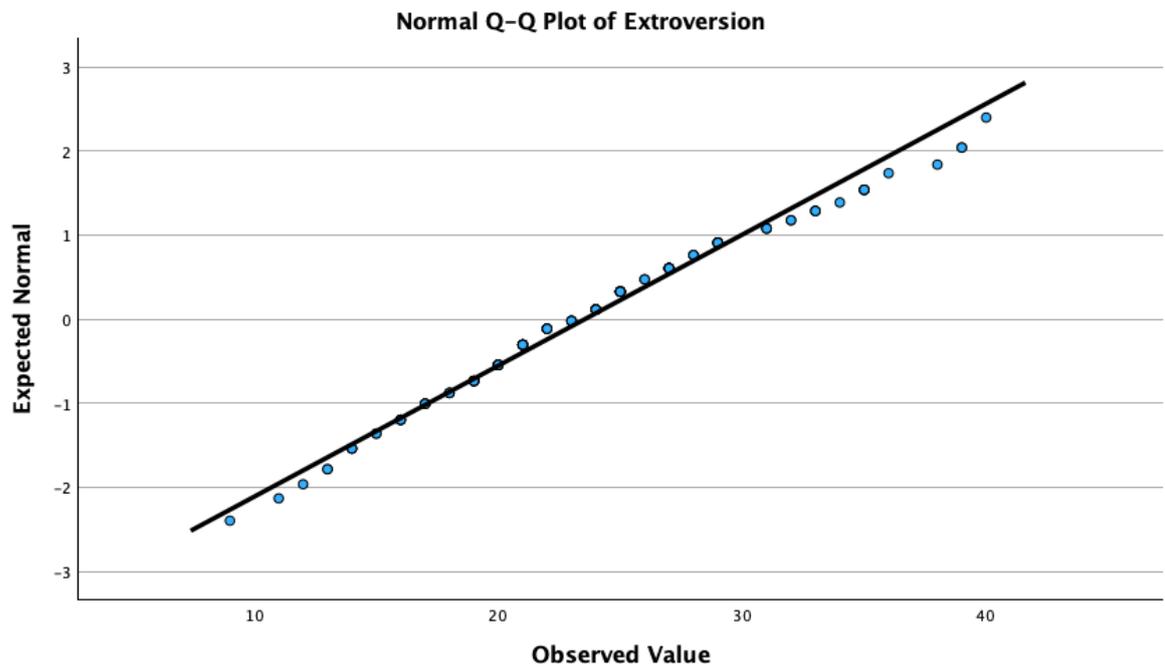
Appendix O: Figure 3 (Normal dist. Openness)



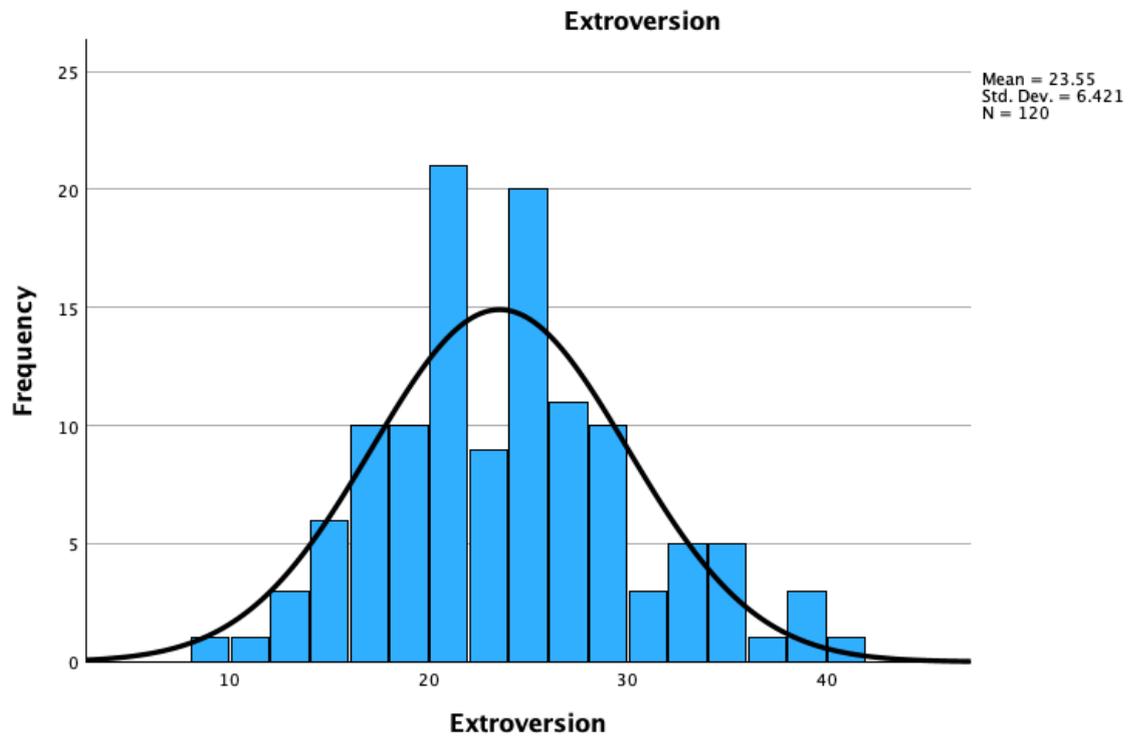
Appendix P: Figure 4 (Normal dist. Openness)



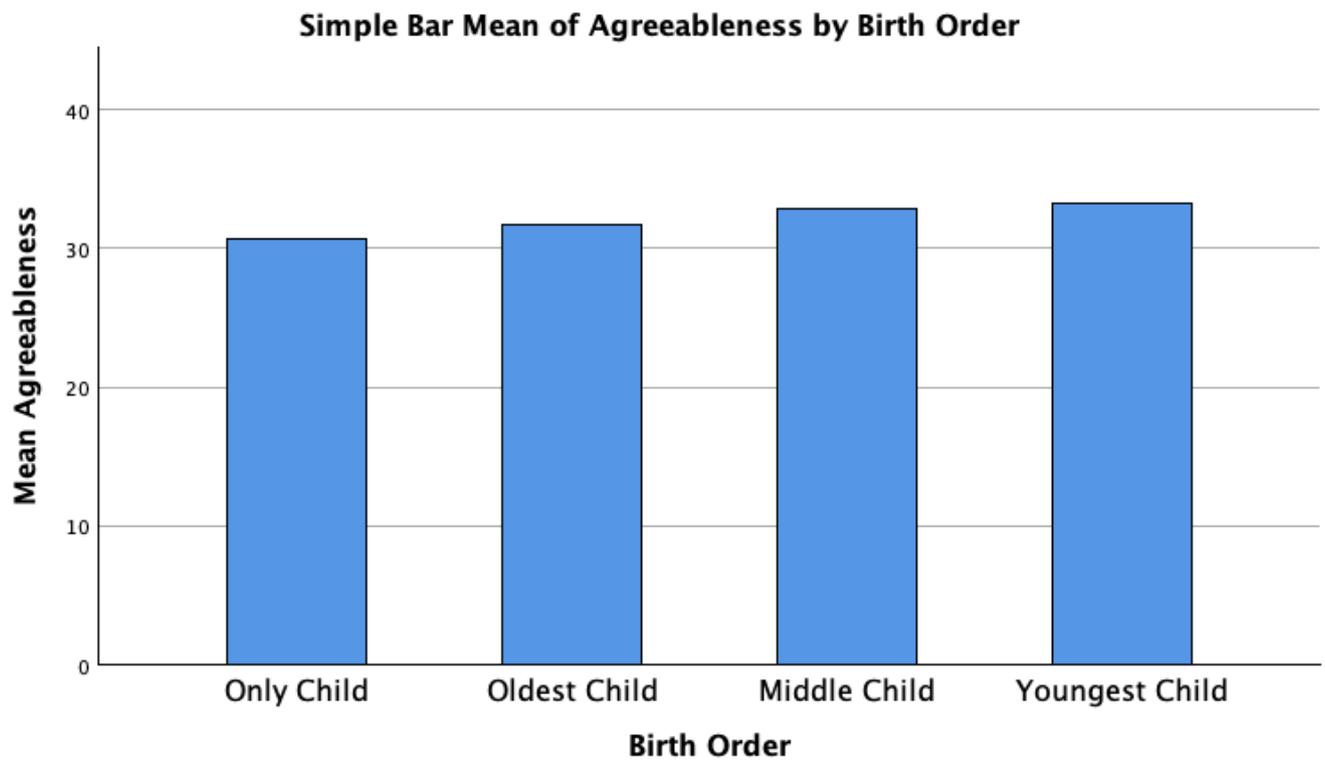
Appendix Q: Figure 5 (Normal dist. Extroversion)



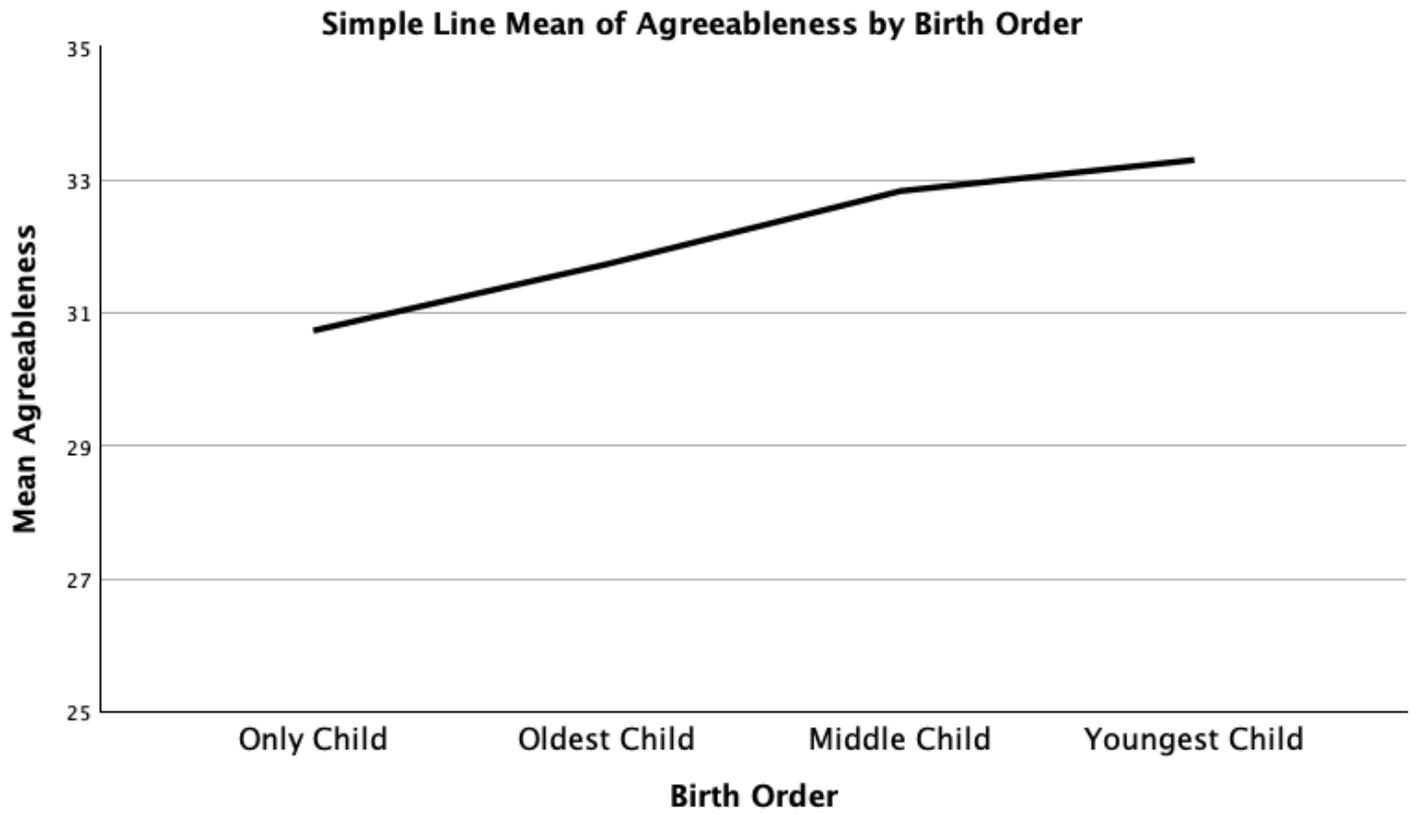
Appendix R: Figure 6 (Normal dist. Extroversion)



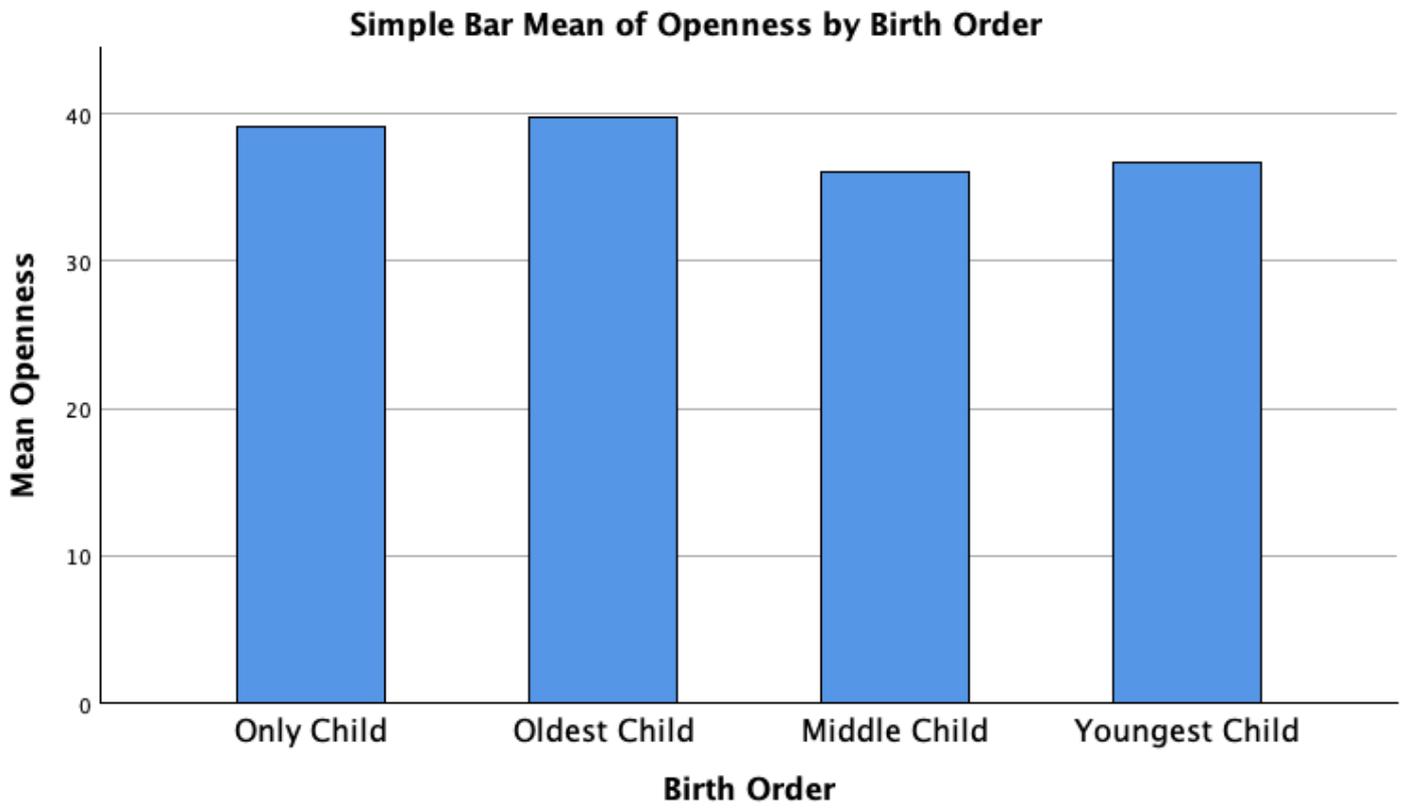
Appendix S: Figure 7 (Bar Chart: Agreeableness/Birth Order)



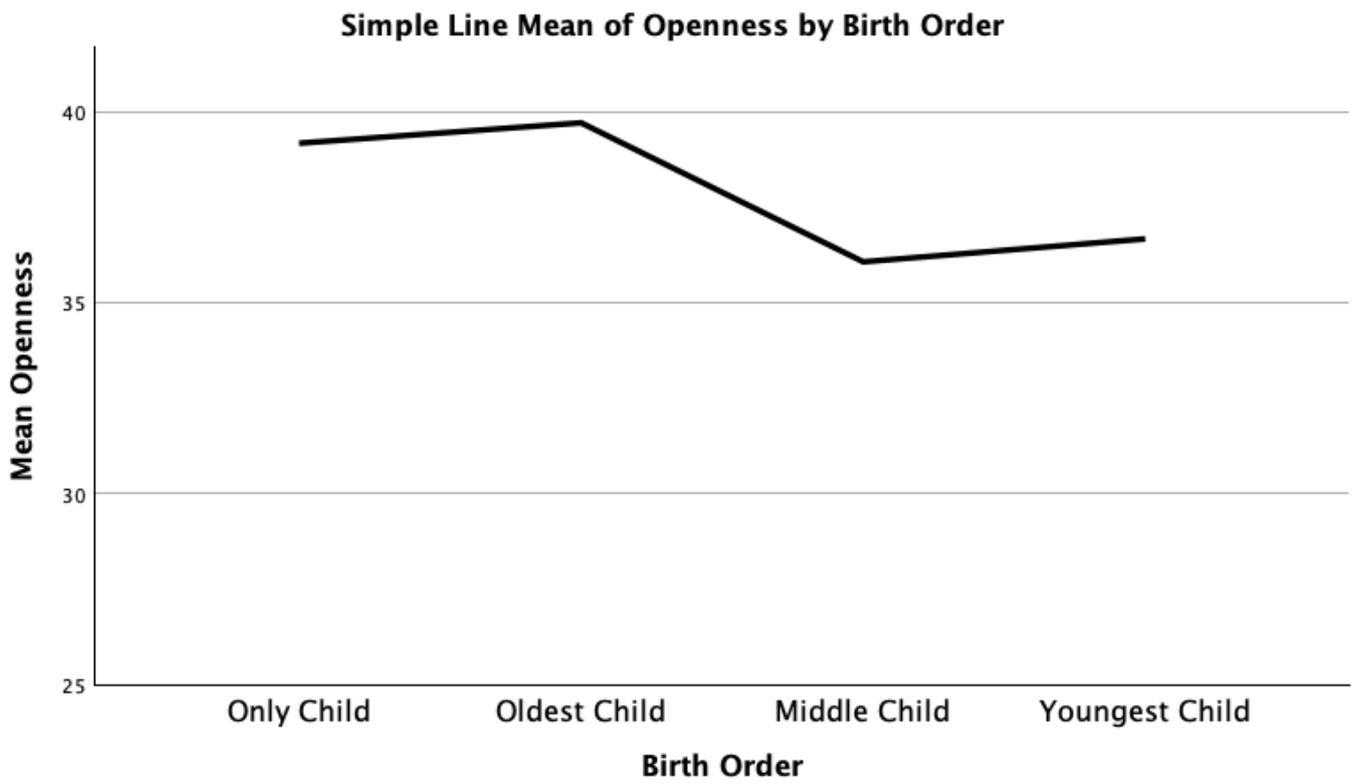
Appendix T: Figure 8 (Line Chart: Agreeableness/Birth Order)



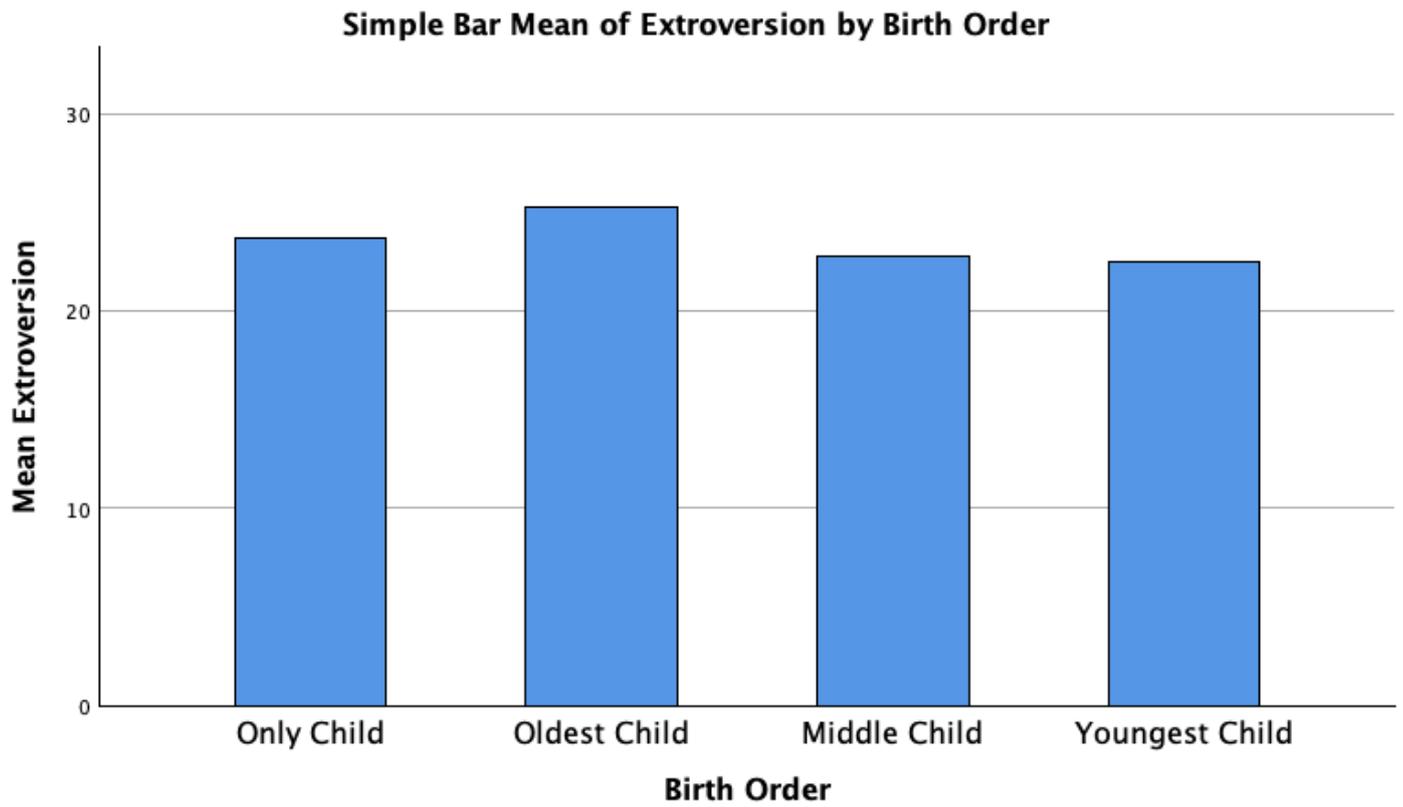
Appendix U: Figure 9 (Bar Chart: Openness/Birth Order)



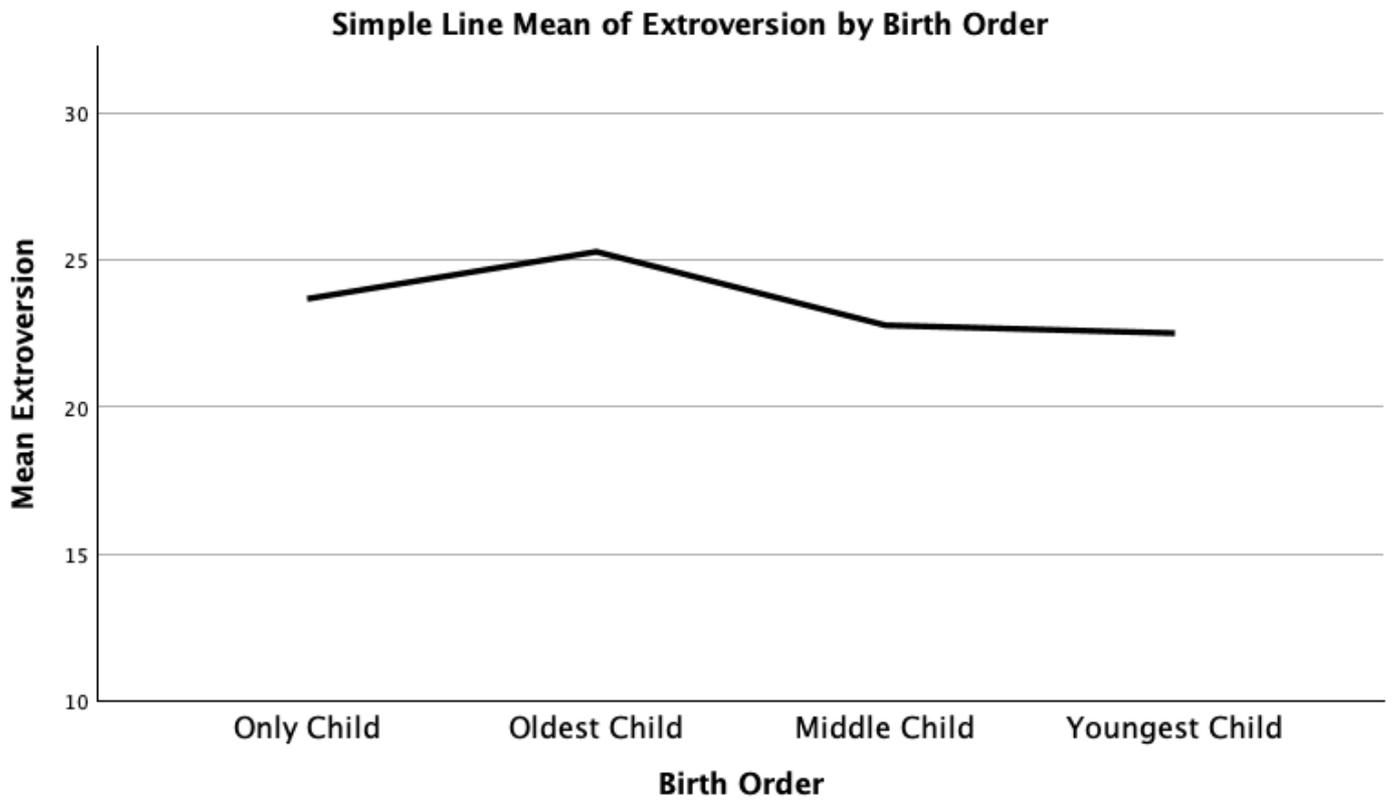
Appendix V: Figure 10 (Line Chart: Openness/Birth Order)



Appendix W: Figure 11 (Bar Chart: Extroversion/Birth Order)



Appendix X: Figure 12 (Line Chart: Extroversion/Birth Order)



## Appendix Y: MANOVA Table

Tests of Between-Subjects Effects									
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>d</sup>
Corrected Model	Agreeableness	119.100 <sup>a</sup>	3	39.700	1.589	.196	.039	4.767	.409
	Openness	291.800 <sup>b</sup>	3	97.267	2.916	.037	.070	8.749	.681
	Extroversion	140.300 <sup>c</sup>	3	46.767	1.138	.337	.029	3.415	.300
Intercept	Agreeableness	124034.700	1	124034.700	4964.469	<.001	.977	4964.469	1.000
	Openness	172369.200	1	172369.200	5167.957	<.001	.978	5167.957	1.000
	Extroversion	66552.300	1	66552.300	1620.025	<.001	.933	1620.025	1.000
BirthOrder	Agreeableness	119.100	3	39.700	1.589	.196	.039	4.767	.409
	Openness	291.800	3	97.267	2.916	.037	.070	8.749	.681
	Extroversion	140.300	3	46.767	1.138	.337	.029	3.415	.300
Error	Agreeableness	2898.200	116	24.984					
	Openness	3869.000	116	33.353					
	Extroversion	4765.400	116	41.081					
Total	Agreeableness	127052.000	120						
	Openness	176530.000	120						
	Extroversion	71458.000	120						
Corrected Total	Agreeableness	3017.300	119						
	Openness	4160.800	119						
	Extroversion	4905.700	119						

a. R Squared = .039 (Adjusted R Squared = .015)

b. R Squared = .070 (Adjusted R Squared = .046)

c. R Squared = .029 (Adjusted R Squared = .003)

d. Computed using alpha = .05

## Appendix Z: Tukey HSD Agreeableness

### Agreeableness

Tukey HSD<sup>a,b</sup>

Birth Order	N	Subset 1
Only Child	30	30.73
Oldest Child	30	31.73
Middle Child	30	32.83
Youngest Child	30	33.30
Sig.		.198

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error) = 24.984.

a. Uses Harmonic Mean Sample Size = 30.000.

b. Alpha = .05.

## Appendix A2: Tukey HSD Openness

### Openness

Tukey HSD<sup>a,b</sup>

Birth Order	N	Subset 1
Middle Child	30	36.07
Youngest Child	30	36.67
Only Child	30	39.17
Oldest Child	30	39.70
Sig.		.076

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error) = 33.353.

a. Uses Harmonic Mean Sample Size = 30.000.

b. Alpha = .05.

## Appendix B2: Tukey HSD Extroversion

**Extroversion**

Tukey HSD<sup>a,b</sup>

Birth Order	N	Subset 1
Youngest Child	30	22.50
Middle Child	30	22.77
Only Child	30	23.67
Oldest Child	30	25.27
Sig.		.343

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error) = 41.081.

a. Uses Harmonic Mean Sample Size = 30.000.

b. Alpha = .05.