

Investigating Differences in Family Dynamics on Life Satisfaction, Self-Esteem, and
Resilience

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Abstract

Aims: The present study investigated differences in life satisfaction, self-esteem, and resilience depending on birth order and family size in a total of 211 participants from an Irish population. The individual effects of birth order and family size were examined for each variable along with their interaction effect. **Method:** Participants completed an online survey consisting of the Satisfaction with Life Scale (Diener et al., 1985), the Rosenberg Self-Esteem Scale (Rosenberg, 1979), and the Brief Resilience Scale (Smith et al., 2008). Three univariate factorial ANCOVA were run to highlight any significant results. **Results:** Results indicated no main effect for birth order and family size on each of the three scales. However, a significant interaction was found between family size and birth order for scores of life satisfaction. Further analysis using a Pearson's correlation indicated that this interaction occurred for middle children ($p = .032$) **Conclusion:** This research indicated that for middle children, as family size increases, so too does scores for life satisfaction. Implications of this study and recommendations for future research are discussed.

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Introduction

The longest lasting relationship in an individual's life is often that of a sibling, with many people spending a significant period with their siblings whilst growing up and on into adulthood (Orsmond & Long, 2021). Sibling relationships are diverse and can take roles of a playmate, companion, or rival. Siblings have beneficial, but occasionally harmful impacts on one another's social development. With almost 80% of the population having at least one sibling, it is beneficial to understand the effects of these family dynamics and particularly that of birth order (Fry et al., 2021). A plethora of research has been carried out examining birth order differences. The curiosity on this topic may stem from the fact that virtually everyone born into a typical family, falls under a birth order category (Mills & Mooney, 2013), resulting in birth order being essentially universally relevant. Meta analyses demonstrates a multitude of birth order studies which have found significant results (Eckstein, 2010; Sulloway, 1995) and in recent years, birth order research continues to be investigated (Fukuya et al., 2021).

Birth order can be defined as the position in a family to which a person is born (Steward, 2012). The basic premise is that people's experiences are influenced by their familial position (Mills & Mooney, 2013). Birth order effects can be considered an extension of the nature and nurture argument with even Charles Darwin acknowledging that birth order influences how organisms travelled through life (Govek, 2012). When researching the topic of birth order, Alfred Adler is the name that is most prominent. However, the relationship between birth order and its connection to the child's interaction with the world was introduced by Sir Francis Galton as early as 1874 (Lynch & Lynch, 1980). It was Alfred Adler who continued this research and has greatly influenced the area of birth order as we know it today. Adler was one of the first theorists that combined birth order with other data to measure people's lifestyles (Eckstein et al., 2010). and since the Sverse field of research on

birth order effects have been published, both confirming and contradicting Adler's conclusions (Delbianco, 2020). Birth order can be further categorised in two ways, ordinal and psychological. Ordinal position refers to the actual order in which a child is born, while psychological position refers to the role a child takes on in response to their environment. Adler stressed that it is the psychological position that determines aspects of a child's life (White & Campbell, 1997).

Researchers have investigated many topics in relation to birth order, some of the most popular include personality, intelligence and relationships (Black, 2017; Pollet & Nettle 2009; Rohrer et al., 2015). An area that has been studied in detail is how birth order can impact an individual's personality, with researchers investigating at length these differences between siblings in each psychological position (MacDonald, 1971; Michalski & Shackelford, 2002). Eldest children are found to have the highest self-esteem, responsibility, confidence and being goal orientated (Morales, 1994). These feelings of superiority are threatened by the birth of a second child which usually results in jealousy and anxiety. The middle child is typically more extroverted and relaxed and as they experience competition from both older and younger siblings, this can lead to feeling inferior and possibly having low self-esteem (Damian & Roberts, 2015; Paulhus et al., 1999; Saroglou & Fiasse, 2003). Youngest children are defined as being the most social, laid back, and having the least responsibility. This is typically a result of parents becoming less strict as time goes on and pampering their youngest child. Only-children typically have most of the same characteristics as eldest children in the areas of being goal orientated and confident. However, an only-child is usually selfish and shy around other individuals due to lack of social interactions with other children while growing up.

Another aspect of birth order studies has been the association with educational attainment. Research has shown that eldest children are most likely to have a higher level of

education compared to their later-born siblings (Fergusson et al., 2006; Härkönen, 2014). One study found robust and large effects of birth order on an individual's education, with the eldest child scoring significantly higher than other siblings in their educational achievement (Black et al., 2005). It was found that later-born men were more likely to have a lower income in full-time employment, and later-born women were more likely to have a lower earning, and experience teenage pregnancy, indicating just how vast the effects of birth order can be. In addition, this study highlighted that as family size increases, the level of education decreases which may be a contributing factor to the issues mentioned and life satisfaction overall.

Birth order and life satisfaction however have not been studied to as great an extent (Macri & Muller, 2003). Moyer (2006) found that eldest children have higher life satisfaction scores compared to later-born siblings. A similar study suggested that an only-child usually has higher life satisfaction compared to individuals with siblings and especially later-born siblings (Shao et al., 2013). However, as this study was completed in China, where national policy has seen an increase in one child families, results may have been impacted by this. As families with more than one child do not fit into the societal norms, this may lead to later-born siblings experiencing decreased life satisfaction, meaning these results may not be generalisable to other countries. It would be beneficial to carry out similar studies in an area such as Ireland where larger family sizes are not outside societal norms.

Differences in resilience scores have been observed for individuals from different birth orders, however most of this research is contradicting. Eldest children have been suggested as the most resilient. A reason for this may be that they typically have more responsibilities growing up and are more likely to have knowledge of problems in the household and in the personal lives of the family (Green & Griffiths, 2014). Contrastingly, more recent research has found higher resilience scores among youngest children (Erguner-

Tekinalp & Terzi, 2016; Fukuya et al., 2021). Contradictory results along with a lack of research, specifically in relation to birth order and resilience, makes it difficult to draw an accurate conclusion of its effects.

Similarly, resilience research into birth order and self-esteem does not allow for a definite conclusion to be drawn. Certain studies conclude that there is no sufficient evidence for any impact of birth order on self-esteem (Watkins & Astilla, 1980), while Nhandi (2017) found significant differences between levels of self-esteem depending on birth order, indicating that eldest children reported higher levels of self-esteem. A reason for this may be that the development of an individual's self-esteem is accelerated by parent-child relationships along with parental support and attention, and as eldest children are the first beneficiaries of these, this may explain the higher self-esteem scores. However, greater research is needed in this area in order to understand these differences in self-esteem.

Theories have been devised to give reasons for differences in birth order, and the model which has obtained most consistent support is the confluence model (Damian & Spengler, 2021). The confluence model devised by Zajonc and colleagues (1975; 1980) suggests that eldest children have greater levels of intelligence because as a family grows, and the ratio of adults to children decreases, the intellectual environment becomes more diluted, leaving the youngest children with the least amount of intellectual stimulation (Retherford & Sewell, 1991; Rodgers et al., 2000). This may suggest why eldest children are slightly more intelligent and achieve a higher level of education.

Some researcher's evaluations of birth order studies suggest that the results are often ambiguous and that few conclusions can be drawn from the research (Price, 2008). Two major critiques of work in this field are the disregard for family size which has been mentioned above, and the oversimplification of ordinal placements. Many studies from the

early days of birth order studies and right up to current research divide siblings into first born and later born (Blesje-Rechek & Kelley, 2014; Collard, 1968; Otterbring & Folwarczny 2022), meaning that middle and youngest children are categorised together. This may influence results as Adler emphasised that it was not the actual order in which an individual was born but the role taken on in response to one's environment that created these birth order differences (Watkins & Astilla, 1980), signifying the importance of creating separate groupings for middle and youngest children to account for the different psychological environments they experience.

Another aspect which can be overlooked in birth order studies is family size. Some researchers propose that birth order differences are often confounded by the effects of family size (Kristenden & Bjerkedal, 2007; Sulloway, 1999). Opposing views suggest that if family size is controlled for, the truer effects of birth order with more significant results can be seen (Schooler, 1972). Khodarahimi and Ogletree (2011) looked at birth order and family size and their effects on life satisfaction in 200 young people and found that as family size increased, a lower life satisfaction was recorded. An explanation for this may be that individuals from a larger family typically receive less time and emotional support from parents, compared to that of a smaller family, along with having fewer financial resources available. Other studies found similar results (Booth & Kee, 2009; Flake & Forste, 2006), indicating that family size alone impacts aspects of an individual's life, therefore when looking at a topic such as birth order, results may become more significant after a family size variable is considered.

Current Study

Birth order research is among the most well-studied areas of psychology (Manning, 2020), but although it has been studied in depth, research presents conflicting evidence for the effects (Delbianco et al., 2020; Kalliopuska, 1984; Rodgers et al., 2000; Zajonc & Mullally, 1997). Researchers argue that many birth order studies are confusing and poorly

performed which leads many academics to downplay the significance of birth order (Eckstein et al., 2010). The current study aims to overcome some of these downfalls by controlling for the variable of family size and ensuring exact breakdown of birth order. The current study will also have a straightforward approach by focusing on birth order and family size in relation to the three variables of life satisfaction, self-esteem, and resilience. As discussed, life satisfaction, self-esteem, and resilience are among the lesser tested areas of birth order, along with having a significant degree of conflicting previous research for each (Macri & Mullet, 2003). The lack of knowledge in this area, particularly in an Irish population, indicates that more research is needed to investigate these variables together. Further research would establish deeper understanding of the lasting impacts that these family dynamics can have on an individual's life.

Hypotheses

Research Question 1 (RQ1): Are there birth order differences for scores of life satisfaction, self-esteem, and resilience? If so, where are these differences? The first hypothesis (H1) is that there will be differences in variables of life satisfaction, self-esteem, and resilience for each birth order. Previous research shows contradicting evidence for which birth order typically has highest or lowest levels of each variable, so this hypothesis is not directional.

Research Question 2 (RQ2): Are there family size differences for scores of life satisfaction, self-esteem, and resilience? If so, where are these differences? The second hypothesis (H2) is that there will be differences in variables of self-esteem and resilience depending on family size. As family size increases it is expected that life satisfaction will decrease. Previous research is limited in this area, with only a small number of studies conducted on family size and life satisfaction, and to the best of my knowledge none found on family size and its impact on self-esteem and resilience.

Research Question 3 (RQ3): If family size is controlled for, is there birth order differences for scores on life satisfaction, self-esteem, and resilience? If so, where are these differences? The third hypothesis (H3) is that controlling for family size will reveal more significant differences in scores of life satisfaction, self-esteem, and resilience.

Methods

Participants

Snowball sampling was the strategy used for collection of participants in this research. The target research sample for this study were members of the Irish population over the age of eighteen, who grew up living in Ireland. The study link was then shared, along with a brief description of the survey through the social media platforms Whatsapp, Facebook and Snapchat. Participants who took part in the survey were also invited to share the study link with anyone whom that they thought would participate.

A total of 211 participants agreed to take part in the current study, with 123 (58.3%) of these being female and 88 (41.7%) being male. The mean age of participants was 38.91 years (SD = 14.26) ranging from age 18 to 83. The estimated sample size required for this research is approximately 150 participants, and this figure was attained using g*power (GPower 3.1 App).

Measures/ Materials

When taking part in this research, participants were given a survey consisting of twenty-nine questions in total. Eight of these were demographic questions with the rest of the study comprising of three scales. The Satisfaction with Life Scale (SWLS; Diener et al, 1985) made up five of the questions, the Brief Resilience Scale (BRS; Smith et al., 2008) made up of six questions, and the final ten questions made up the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979).

Demographics

The survey consists of eight demographic questions (see Appendix C) which will be answered by participants ticking the box which applies to them. These questions ask participants to indicate their gender, age and questions relating to the number and gender of

any siblings they have. An example of a question is as follows: “*How many older sisters do you have.*” Questions relating to number of siblings allowed for the creation of the two variables of birth order and life satisfaction. These demographics paired with the SWLS, BRS, and the RSE ratings will yield the data required to answer all research questions.

Satisfaction With Life Scale

For the SWLS (see Appendix D), participants rated on a scale of one to seven, how much they agree with a list of statements. A score of one indicates that the participant strongly disagrees, while a score of seven indicates that they strongly agree (Diener et al., 1985). A sample item includes “*The conditions of my life are excellent.*” None of the items on this scale needed to be reverse scored. When participants answered all five of the questions, these scores were added together to give an overall satisfaction with life score which can range from 5 to 35, with a higher score indicating higher satisfaction with life.

Pavot and Diener (2013) go into detail on how the scores from the SWLS should be interpreted and this is broken down into six sections (5-9 extremely dissatisfied, 10-14 dissatisfied, 15-19 slightly below average life satisfaction, 20-24 average score, 25-29 high score, 30-35 very high satisfaction score). This scale is a tried and tested measure of life satisfaction in many different cultures, and it correlates well with other valid measures. It has proven itself to have good validity and test-retest reliability, with a Cronbach’s alpha of .78 for the current sample and 95% confidence intervals from .77 to .81, along with high internal consistency (Corrigan et al., 2013; Diener et al., 1985).

Rosenberg Self-Esteem Scale

The RSE (see Appendix E) was used to measure participants self-esteem and consists of ten questions on a four-point Likert Scale ranging from 1 (strongly agree) to 4 (strongly disagree). A sample item included “*I take a positive attitude towards myself*”. However, in

this study, the Likert Scale ranged from strongly disagree (1) to strongly agree (4), with the aim of lessening confusion for participants when completing the survey, as the other two measures followed the same range of strongly disagree to strongly agree. Therefore, items 1, 3, 4, 7, and 10 were reverse scored. The total for this scale is made up by adding the score for each of the ten items. Scores were kept on a continuous scale, with lower scores indicating lower self-esteem (Rosenberg, 1965; Rosenberg, 1979). This scale has good test-retest reliability (.85 and .88) alongside accomplished construct validity with correlations in the anticipated direction of other measures such as the Coopersmith Self-Esteem Inventory. Cronbach's alphas for similar samples are between .84 and .95 (Sinclair et al., 2010).

Brief Resilience Scale

The BRS (see Appendix F) consists of six questions answered on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items 2, 4, and 6 were reverse scored, then the totals for each question were added and divided by six to get final score ranging from 6-30. Higher scores indicated higher levels of resilience (Smith et al., 2008). The BRS has good internal consistency, with Cronbach's alpha for the current sample ranging from .80 to .91, along with good test-retest reliability (.62 and .69). There is no gold-standard test for resilience, but the BRS is among those with the best psychometric ratings (Windle et al., 2011).

Design and analyses

The current study was quantitative in approach with a correlational and within participant's design. The design was also cross-sectional in nature as data was obtained at a single time period. Analyses included independent variables (IV) of birth order and total number of siblings, and dependent variables (DV) of life satisfaction, self-esteem, and resilience. Three univariate factorial ANCOVA were carried out to investigate the three

research questions (RQ1) are there birth order differences for scores of life satisfaction, self-esteem, and resilience, (RQ2) are there family size differences of scores for life satisfaction, self-esteem, and resilience, (RQ3) if family size is controlled for, are there birth order differences for scores of life satisfaction, self-esteem, and resilience. A Pearson product correlation coefficient was then utilised to examine where these differences occurred.

Procedure

The survey used was generated using Google Forms. A pilot study was conducted on two individuals to ensure there were no issues with the survey and to determine a time guideline for participation. No issues were identified during the pilot study, with participants completing the study in an average of 6 minutes. The approximate time specified on the information sheet (see Appendix A) was 5-10 minutes to enable ample time to read and understand all sections, ensuring all participants had an accurate perspective of what participation entailed.

A link to complete the survey was shared online and in group chats on social media sites (e.g., Facebook, Snapchat, and WhatsApp). Upon clicking the link, participants were directed to an information sheet (see Appendix A) with details regarding engagement in the study. Possible risk and benefits were outlined in the information sheet, and participants were made aware of their right to withdraw at any time during participation. Participants were then asked to provide informed consent by ticking a box stating that they agree to participate at the end of the consent form (see Appendix B). Following this, participants were directed to the survey which consisted of 29 questions broken down into four sections. The first section assessed participants demographics (see Appendix C), with the following three sections measuring life satisfaction, self-esteem, and resilience using Satisfaction with Life Scale (see Appendix D; Diener et al., 1985), the Rosenberg Self-Esteem Scale (see Appendix E; Rosenberg, 1965), and the Brief Resilience Scale (see Appendix F; Smith et al., 2008).

Upon completion of the survey, participants were given a debriefing sheet (see Appendix G), thanking them for their time. Relevant contact information for the student researcher and study supervisor were also provided. Although the current study was approved by the National College of Ireland's Ethics Committee with no apparent risk anticipated for participants, relevant helplines and websites were provided if any distress was caused during or following the completion of the survey.

Results

Descriptive Statistics

Descriptive statistics for categorical variables of gender and birth order are provided in Table 1. Females made up 58.3% (N = 123) of the overall participants, while males accounted for the remaining 41.7% (N = 88). For birth order, only children made up 5.7%, eldest children made up 33.5%, middle children made up 36.4%, with the remaining 24.4% being youngest children. Two participants did not fit into any of the birth order groupings as they were both the youngest and a twin, therefore their data was excluded for birth order analyses.

Table 1

Table outlining descriptive statistics for relevant categorical variables (N = 211)

Variable	Frequency	Valid %
Gender		
Female	123	58.3
Male	88	41.7
Birth Order		
Only Child	12	5.7
Eldest Child	70	33.5
Middle Child	76	36.4
Youngest Child	51	24.4

Descriptive statistics for continuous variables are provided in Table 2, with mean (M) and standard deviation (SD) presented for each variable. A more thorough analysis of continuous variables of life satisfaction, self-esteem, and resilience for each birth order is

detailed in Appendix I. Two participants did not fit into a birth order category therefore their data was not part of this analyses (N = 209). The resilience variable indicated a non-significant effect for the Kolmogorov-Smirnov test, demonstrating that the data was normally distributed. A significant effect for the Kolmogorov-Smirnov test was found for the variables of age, total siblings, life satisfaction, and self-esteem, demonstrating that the data was not normally distributed. However, the present sample size is high enough, in accordance with the central limit theorem, to infer that the sample means are adequately approximated by normal distribution, therefore the score distribution can be considered normal.

Table 2

Table outlining descriptive statistics for relevant continuous variables (N = 211)

Variable	M [95% CI]	SD	Range [Min – Max]
Age	39.81 [37.87-41.75]	14.26	65 [18-83]
Total Siblings	2.86 [2.61-3.12]	1.88	10 [0-10]
Satisfaction with Life Score	25.94 [25.22-26.66]	5.29	28 [7-35]
Self-Esteem Score	19.19 [18.41-19.98]	5.77	27 [10-37]
Resilience Score	20.63 [19.98-21.27]	4.77	23 [7-30]

Inferential Statistics

The impact of birth order, family size, and their interaction on each of the three outcomes was assessed using three univariate factorial ANCOVA. Table 3 demonstrates results of a univariate factorial ANCOVA which was utilised to investigate the impact of birth order, family size, and their interaction on the variable of self-esteem. Standardised residuals for the scales of life satisfaction, self-esteem, and resilience were assessed for distribution of normality (see Appendix H). All variables approximated relatively normally,

with normal scores for skewness and kurtosis. The Kolmogorov-Smirnov test showed a significant result for the self-esteem scale however this is quite common in larger samples.

Table 3

Table outlining ANCOVA results for Self-Esteem relating to Birth Order, Total Siblings, and the interaction between both

Effect	Type III Sum of Squares	df	Mean Square	F	Sig.
Birth Order	69.31	3	23.11	.70	.556
Total Siblings	1.24	1	1.24	.04	.847
Birth Order*Total Siblings	110.88	2	55.44	1.67	.191
Error	6714.11	202	33.24		

Results in Table 3 show that there was no main effect of birth order on self-esteem ($F(3,202) = 0.7, p = .556$), likewise there was no main effect of family size on self-esteem ($F(1, 202) = 0.04, p = .847$). There was also no significant interaction between birth order and number of siblings for the variable of self-esteem ($F(2, 202) = 1.67, p = .191$).

Table 4 demonstrates results of a univariate factorial ANCOVA which was utilised to investigate the impact of birth order, family size, and their interaction on the variable of resilience.

Table 4

Table outlining ANCOVA results for Resilience relating to Birth Order, Total Siblings, and the interaction between both

Effect	Type III Sum of Squares	df	Mean Square	F	Sig.
Birth Order	68.27	3	22.76	1.01	.391
Total Siblings	2.36	1	2.36	.10	.747
Birth Order*Total Siblings	41.18	2	20.59	.91	.404
Error	4556.71	202	22.61		

Results from table 4 show no main effect for birth order on resilience ($F(3, 202) = 1.01, p = .391$) along with no main effect of family size on resilience ($F(1, 202) = 0.1, p = .747$) and resilience ($F(2, 202) = 0.91, p = .404$). Similarly, no significant interaction between birth order and total siblings was observed for the variable of resilience.

Table 5 demonstrates results of a univariate factorial ANCOVA which was utilised to investigate the impact of birth order, family size, and their interaction on the variable of life satisfaction.

Table 5

Table outlining ANCOVA results for Life Satisfaction relating to Birth Order, Total Siblings, and the interaction between both

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Birth Order	65.59	3	21.86	.80	.493
Total Siblings	15.63	1	15.63	.58	.449
Birth Order*Total Siblings	189.25	2	94.63	3.48	.033
Error	5492.58	202	27.19		

Results from Table 5 show that there was no main effect of birth order on life satisfaction ($F(3, 202) = 0.8, p = .493$), Likewise, there was no main effect of family size on life satisfaction ($F(1, 202) = 0.58, p = .449$), However, a significant interaction was found between birth order and total siblings for satisfaction with life ($F(2,202) = 3.48, p = .033$).

Following the discovery of a significant interaction for birth order and total siblings for the variable of life satisfaction, further analysis was carried out to investigate this significant effect (see Table 6). A Pearson product correlation coefficient was run between total siblings and life satisfaction for each birth order (only child, eldest child, middle child, and youngest child).

Table 6

Correlation results examining interaction effects between Total Siblings and Life Satisfaction based on Birth Order

Birth Order	Interaction	<i>N</i>	<i>r</i>	Sig.
Only Child				
	Total Siblings*Life Satisfaction	12		
Eldest Child				
	Total Siblings*Life Satisfaction	70	-.109	.367
Middle Child				
	Total Siblings*Life Satisfaction	76	.246*	.032
Youngest Child				
	Total Siblings*Life Satisfaction	51	-.197	.165

Note. Statistical significance: * $p < .05$; ** $p < .01$; *** $p < .001$

Preliminary analyses were performed to ensure no violation of the assumptions of normality linearity, and homoscedasticity. There is missing data in the only child row as these participants did not have any siblings, therefore there is no interaction between total siblings and life satisfaction for the only child variable. No significant results were found for only children ($n = 12$), eldest children ($r = -.11$, $n = 70$, $p = .367$), or youngest children ($r = -.197$, $n = 51$, $p = .165$). However, there was a small positive correlation found between life satisfaction and total siblings for middle children ($r = .25$, $n = 76$, $p = .032$). This indicates that the two variables share approximately 6.5% of the variance in common, demonstrating that for middle children, higher number of siblings is associated with higher levels of life satisfaction.

Discussion

The purpose of the current study was to investigate differences in scores of life satisfaction, self-esteem, and resilience for participants based on birth order and family size, along with examining where, if any, differences occur. Prior to the commencement of this study, it was hypothesised (H1) that there would be differences in scores on SWLS, RSE, and BRS depending on birth order. H2 proposed there would be differences in scores on SWLS, RSE, and BRS for participants depending on their family size. The final hypothesis (H3) proposed that if family size was controlled for there would be more significant differences in scores of life satisfaction, self-esteem, and resilience depending on a participant's birth order. Three univariate factorial analyses of covariance (ANCOVA) were run to investigate the main and interaction effects of birth order and family size on life satisfaction, self-esteem, and resilience, along with a Pearson's correlation to further analyse where differences occurred.

Results from these tests indicated that there were no significant effects found for differences in life satisfaction, self-esteem, and resilience for either birth order or family size, therefore H1 and H2 are not supported. For H3, no significant effect was found for the interaction between birth order and family size for the variables of self-esteem and resilience. However, a significant interaction was found for the variable of life satisfaction in support of H3. To further investigate where this interaction occurred, a Pearson's correlation was run. A small positive correlation was found indicating that for middle children as family size increases, so too does scores for life satisfaction.

A non-significant result for H1 and H2 signifies that there were no differences in life satisfaction, self-esteem, and resilience depending on either birth order or family size. This was inconsistent with prior research in the area (Khodarahimi & Ogletree, 2011; Green & Griffiths, 2014; Nhandi, 2017). Reason for this may be the breakdown of birth order used in

this study. The current study separated participants into groups of only children, eldest children, middle children, and youngest children. Although this was an improvement on studies which only categorised siblings into firstborns and laterborns (Otterbring & Folwarczny, 2022; Saroglou & Fiasse, 2003), further research indicated that this breakdown may disregard dynamics which occur in larger families (Horner et al., 2012). For example, with many siblings in a family, the two firstborn children may take on the responsibility and share the role of an eldest sibling. This may also occur in larger families for the two youngest children, who may together experience the aloneness or freedom which is typically only experienced by the youngest child in a smaller family (Dixon et al., 2008; Nyman, 1995). Future research should take this into consideration.

The main finding for the current study was for the third hypothesis, where a significant interaction was found when analysing differences between birth order and life satisfaction with family size as a covariate. A Pearson's correlation coefficient indicated a small positive correlation between life satisfaction and total siblings for middle children, indicating that the two variables share approximately 6.5% of the variance in common. The conclusion that can be drawn from this result is that for middle children, as family size increases, so too does the score for life satisfaction. No previous research could be found with similar results for increased life satisfaction for middle children from larger families indicating that this may be a novel finding. It could be said that individuals who experience being a middle child alone may feel the effects of not receiving all their parents' attention due to the presence of an older sibling, but also not feeling the freedom of a youngest sibling. As family size increases and middle children have more siblings to experience the middle child role with, and this may lessen the burden and therefore increase life satisfaction. However, this can only be speculated upon, and future research would be needed to investigate the interaction effect which was found for middle children. Returning to Alfred Adler's (1931)

earlier work on birth order, according to him middle children had the optimal family position and therefore were known for their emotional stability (Delbianco et al., 2020). This may account for the increased life satisfaction recorded for middle children from larger families.

As discussed, birth order research has been a long-studied area in psychology, with recent research aiming to discount previous birth order findings (Ernst & Angst, 2012). These suggest that it is not birth order which effects certain aspects of individuals' lives and if other variables such as family size are statistically controlled for, birth order will not have a causal effect on the outcome (Kanazawa, 2012). This is not the case in the current study finding. It is when these variables are controlled for, that the true effects of birth order can be seen.

Study Strengths and Limitations

The current study had many strengths which will be discussed; however, it was not without limitations, some of which may have contributed to results of non-significance. As the current research used snowball sampling to recruit participants, this most likely resulted in participants being from the same region in Ireland which may put question to the generalisability of the results. Similarly, as participants were asked to share the survey, it is reasonable to suggest that multiple participants who completed the survey were from the same family meaning that the information on family size may have been duplicated or even tripled. The technique used to collect participants lead to many participants knowing the student researcher personally and from feedback following completion of the survey it was evident that multiple participants thought that their data would be identifiable which may have led to participants not being completely honest answering the self-report scales. Even though participants were made aware in the information sheet (see Appendix A) that all data would be completely anonymous.

Criticism of older research of birth order highlighted in the literature review stated that many studies split siblings into firstborns and laterborns (Stotland & Cotrell, 1962; Watkins & Astilla, 1980). The current study aimed to overcome this by dividing participants into four categories (only children, eldest children, middle children, and youngest children). However, future studies may want to look at improving this division even further as discussed above. When interpreting results, it should be noted that this study was cross sectional in nature with data collected at one point in time which may not be representative of participants life satisfaction, self-esteem, and resilience across time.

The survey design can be noted as a strength as the straightforward nature resulted in no missing data during analysis. All questionnaires utilised in the current study are tried and tested measures of their intended outcome, with each reporting good validity and reliability. The use of these scales is not without limitation, as self-report measures are a concern for possible self-report bias. SWLS, RSE, and BRS are all self-report questionnaires therefore one may argue that these lack strong validity as there is a risk of not capturing participants' genuine responses.

A final strength of this study was the diversity of participants. Previous research often looks at certain age groups or categories in the population when researching birth order. However, the current study had a wide variety of ages, the youngest being 18 and the oldest being 83. Along with a diverse number of family sizes and individuals in each birth order groups displayed in Table 1 and 2 (see Appendix I for more in-depth breakdown).

Future Research

The findings of birth order research have been varied, some supporting birth order theory and others finding no correlation at all. To genuinely use birth order as an independent variable with an experimental design, future research needs to aim to exclude all confounding

variables. An example of this going back to Adler's description of psychological birth order, if the first-born child is "feeble minded", the second born child may take on the role of the eldest (Shulman & Mosak, 1977). This is just an example of the type of confounding variables which if controlled for may yield more significant results. The genuine impacts of birth order on important aspects of life might be highly revealing for the field of psychology if elimination of these confounding variables can be done more successfully than has been in the past (Govek, 2012), and this would require a more detailed and sophisticated methodology.

Furthermore, the current research did not investigate whether the gender of siblings, along with the presence or absence of a certain gender of sibling, impacted on these measures (SWLS, RSE, BRS). Previous research indicates that gender of siblings can impact certain aspects of an individual's life (Dirks et al., 2015; Solomkwaski et al., 2001). This was beyond the scope of the current final year project yet may be an area of interest for future research. Lastly, future studies should recognise limitations discussed previously when carrying out similar research.

In conclusion, the seemingly novel finding that middle children from larger families reported higher levels of life satisfaction indicated that despite the contradictory evidence, if confounding variables are controlled for correctly, the true effects can be seen. This research has a broader range of implications for the field of psychology, particularly for teachers, parents, and therapists as a deeper understanding of the psychological environment which an individual is born into can be advantageous when trying to understand behaviour. Recent research has found that children as young as nine and ten are found to experience birth order differences in their mental health (Fukuya et al., 2021). This is just one example of the real-life implications of birth order research. Both professionals and the wider community could

greatly benefit in understanding the universally relevant and lasting effects that birth order has on an individual's life.

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Appendices

Appendix A

Information Sheet

You are being invited to take part in this research study. Before deciding whether to take part, please take time to read this document, which explains why this research is being carried out and what it would involve for you. If you have any questions relating to the information provided, do not hesitate to contact me using the details at the end of this document.

I am a final year student in the BA in Psychology programme at National College of Ireland. As part of our degree, we must carry out an independent research project. My project aims to investigate the relationship between an individual's birth order, family size, satisfaction with life, self-esteem, and resilience. It hopes to gain a deeper understanding of the lasting impact that family environment can have on an individual's life. The results of this study will be presented in my final dissertation, which will be submitted to the National College of Ireland. This project will be supervised by Dr Fearghal O'Brien.

Participation in this research will take approximately 10 minutes. The survey consists of questions relating to participants demographics for example age, gender, and birth order, along with scales to measure Satisfaction with Life, Self-esteem, and Resilience. Participation will be completely anonymous. Data collected from this survey will be non-identifiable instantly after submission, meaning that once participants submit their responses, their data cannot be removed. However, if at any stage during completion of the survey, a participant no longer wants to take part, they can exit out of the survey window on their smartphone or computer and their data will not be saved.

This study is aimed at individuals over the age of 18, who grew up living in Ireland. Participation in this study is completely voluntary and there will be no compensation for taking part. By selecting agree at the end of the consent form, you are indicating that you are over the age of 18 and that you have read the information sheet and agree with the terms of participation.

There are no direct benefits to you taking part in this research, however the information gathered will contribute to helping us understand the lasting impact that family dynamics have on life satisfaction, self-esteem, and resilience. The risks for taking part in this study are minimal. However, in the unlikely event that questions cause distress to a participant, websites and helplines will be outlined on the debriefing sheet.

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Project Supervisor:

Dr. Fearghal O'Brien

fearghal.obrien@ncirl.ie

Appendix B

Consent Form

- I agree that I am over the age of 18 and grew up in Ireland
- I agree that all required information to take part in this study was explained to me in the information sheet
- I understand that I will not directly benefit from taking part in this research
- I understand that participation in this research will be completely confidential and that once I submit the survey questions, my data cannot be removed as it will be automatically anonymised

I would not like to take part in this research

I agree to take part in this research

Appendix C

Demographic Questions

Age _____

Gender:

Male Female Prefer not to say

How many older brothers do you have? _____

How many younger brothers do you have? _____

How many twin brothers do you have? _____

How many older sisters do you have? _____

How many younger sisters do you have? _____

How many twin sisters do you have? _____

Appendix D

Satisfaction with Life Scale

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

1 - In most ways my life is close to ideal

Strongly disagree Strongly agree

2 - The conditions of my life are excellent

Strongly disagree Strongly agree

3 - I am satisfied with my life

Strongly disagree Strongly agree

4 - So far, I have gotten the important things I want in life

Strongly disagree Strongly agree

5 - If I could live my life over, I would change almost nothing

Appendix E**Self-Esteem Scale**

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 - On the whole, I am satisfied with myself

Strongly disagree Strongly agree

2 - At times I think that I am no good at all

Strongly disagree Strongly agree

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

Strongly disagree Strongly agree

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

Strongly disagree Strongly agree

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

Strongly disagree Strongly agree

6 - I certainly feel useless at times

Strongly disagree Strongly agree

7 - I feel that I am a person of worth, at least on an equal plane with others

Strongly disagree Strongly agree

8 - I wish I could have more respect for myself

Strongly disagree Strongly agree

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

Strongly disagree Strongly agree

10 - I take a positive attitude towards myself

Strongly disagree Strongly agree

Appendix F**Brief Resilience Scale**

Use the following scale and select one option for each statement to indicate how much you disagree or agree with each of the statements.

I tend to bounce back quickly after hard times

1 - I have a hard time making it through stressful events

Strongly disagree Strongly agree

2 - It does not take me long to recover from a stressful event

Strongly disagree Strongly agree

3 - It is hard for me to snap back when something bad happens

Strongly disagree Strongly agree

4 - I usually come through difficult times with little trouble

Strongly disagree Strongly agree

5 - I tend to take a long time to get over setbacks in my life

Strongly disagree Strongly agree

Appendix G

Debriefing Sheet

Your response has been recorded. Thank you for giving your time to participate in this research. If any distress was experienced during participation or following the completion of this survey, please visit www.tackleyourfeelings.com or contact the Samaritans helpline: 116123.

If you have any further questions relating to this research study, you can contact my supervisor or myself through email:

Student email: x19519909@student.ncirl.ie

Supervisor email: fearghal.obrien@ncirl.ie

Appendix H

Test of Assumptions of Residuals for Each Scale Used

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Res_swls	209	99.1%	2	0.9%	211	100.0%
Res_rse	209	99.1%	2	0.9%	211	100.0%
Res_brs	209	99.1%	2	0.9%	211	100.0%

Descriptives

		Statistic	Std. Error	
Res_swls	Mean	.0000	.06817	
	95% Confidence Interval for Mean	Lower Bound	-.1344	
		Upper Bound	.1344	
	5% Trimmed Mean	.0391		
	Median	.0199		
	Variance	.971		
	Std. Deviation	.98547		
	Minimum	-3.62		
	Maximum	1.84		
	Range	5.46		
	Interquartile Range	1.26		
	Skewness	-.588	.168	
	Kurtosis	.416	.335	
Res_rse	Mean	.0000	.06817	
	95% Confidence Interval for Mean	Lower Bound	-.1344	
		Upper Bound	.1344	
	5% Trimmed Mean	-.0301		
	Median	-.1342		

	Variance		.971	
	Std. Deviation		.98547	
	Minimum		-1.83	
	Maximum		2.94	
	Range		4.77	
	Interquartile Range		1.50	
	Skewness		.419	.168
	Kurtosis		-.445	.335
Res_brs	Mean		.0000	.06817
	95% Confidence Interval for Mean	Lower Bound	-.1344	
		Upper Bound	.1344	
	5% Trimmed Mean		.0094	
	Median		-.0262	
	Variance		.971	
	Std. Deviation		.98547	
	Minimum		-2.67	
	Maximum		2.12	
	Range		4.79	
	Interquartile Range		1.37	
	Skewness		-.057	.168
	Kurtosis		-.192	.335

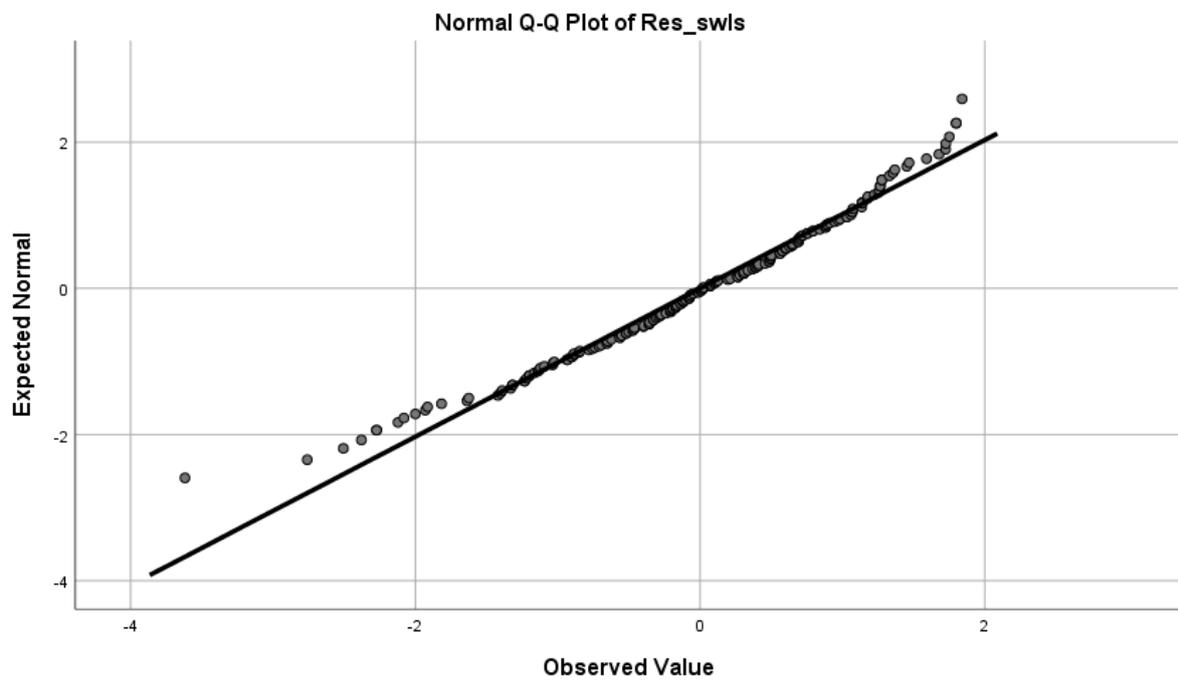
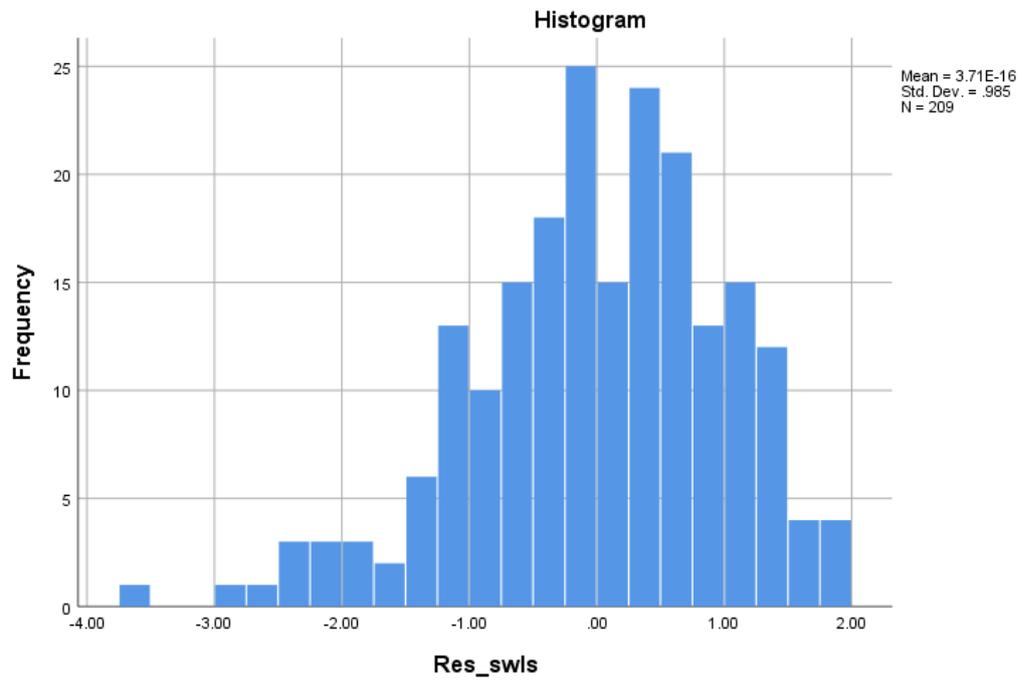
Tests of Normality

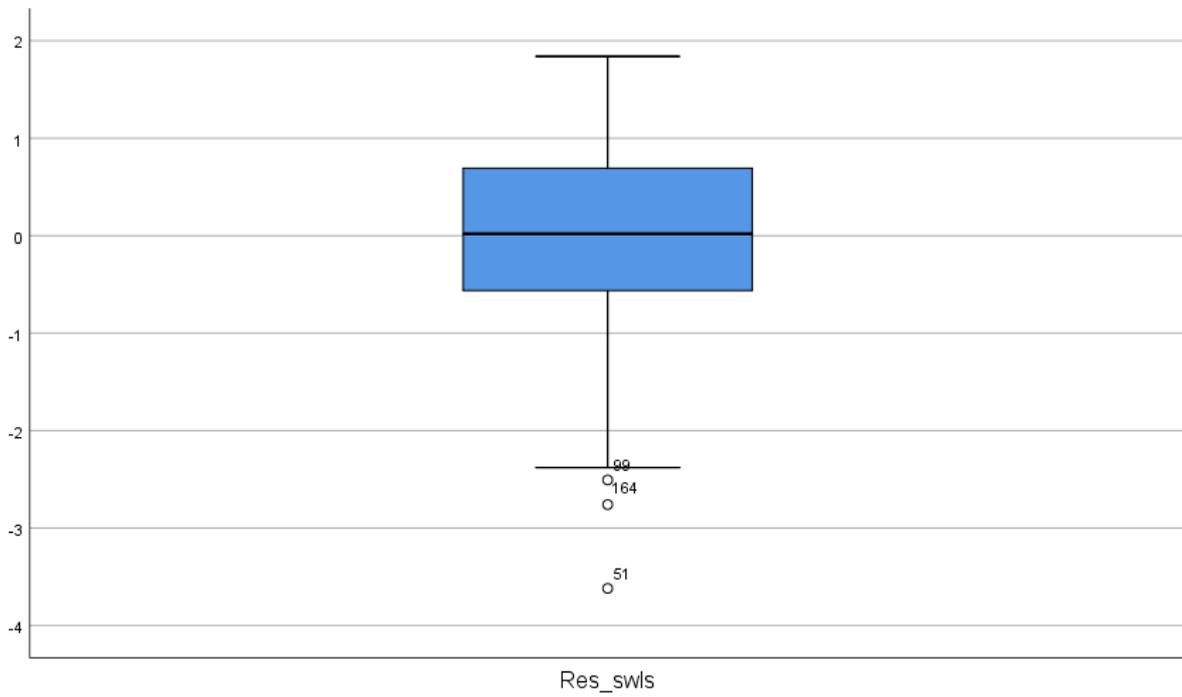
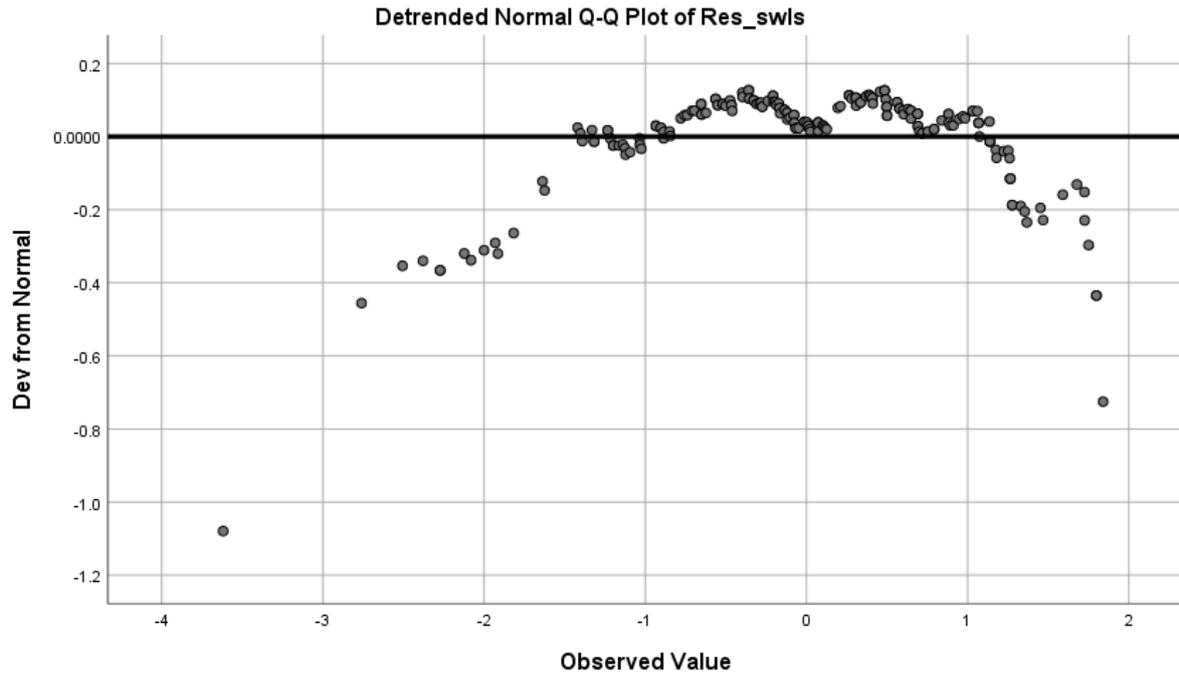
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Res_swls	.052	209	.200*	.977	209	.002
Res_rse	.086	209	.001	.975	209	.001
Res_brs	.034	209	.200*	.991	209	.214

*. This is a lower bound of the true significance.

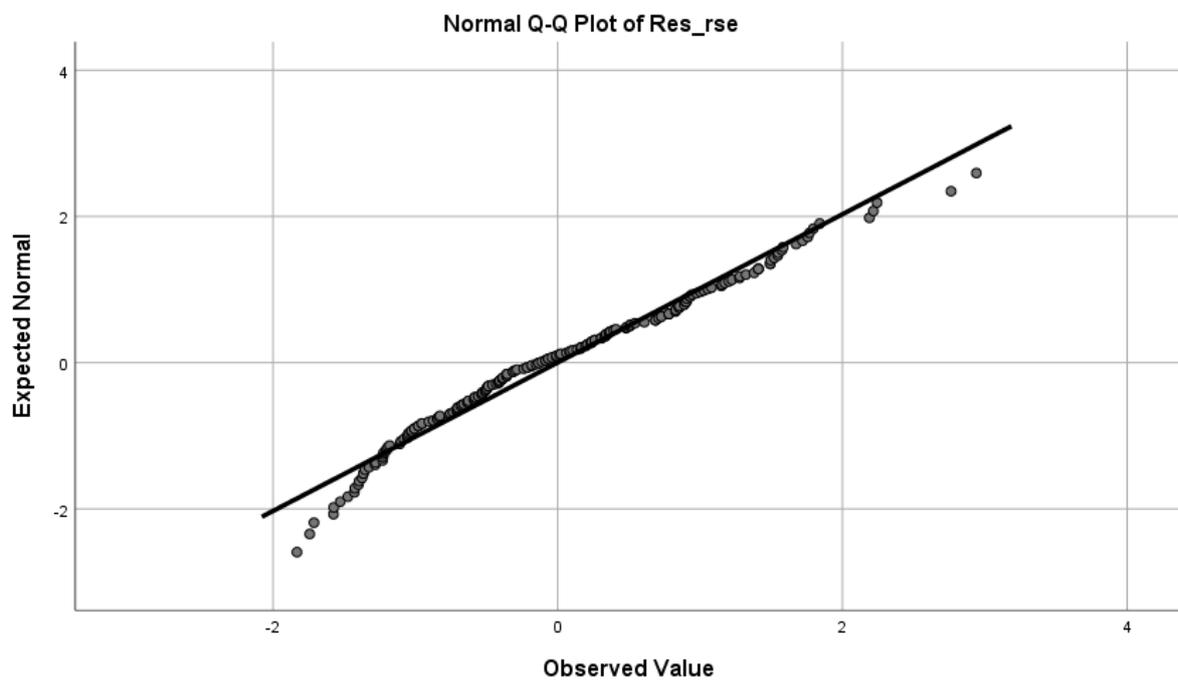
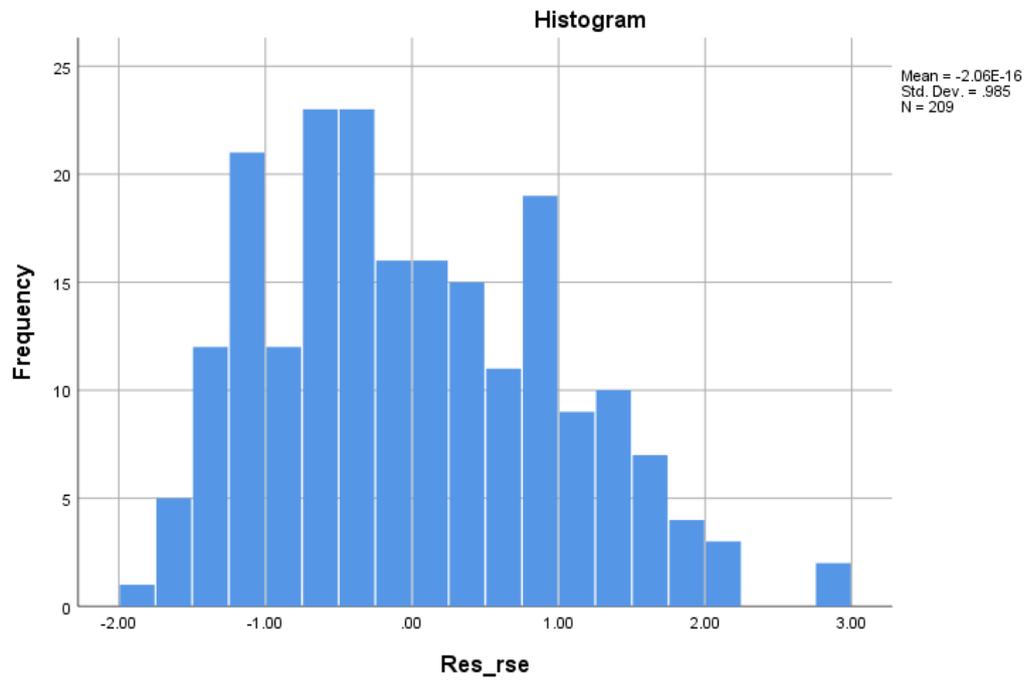
a. Lilliefors Significance Correction

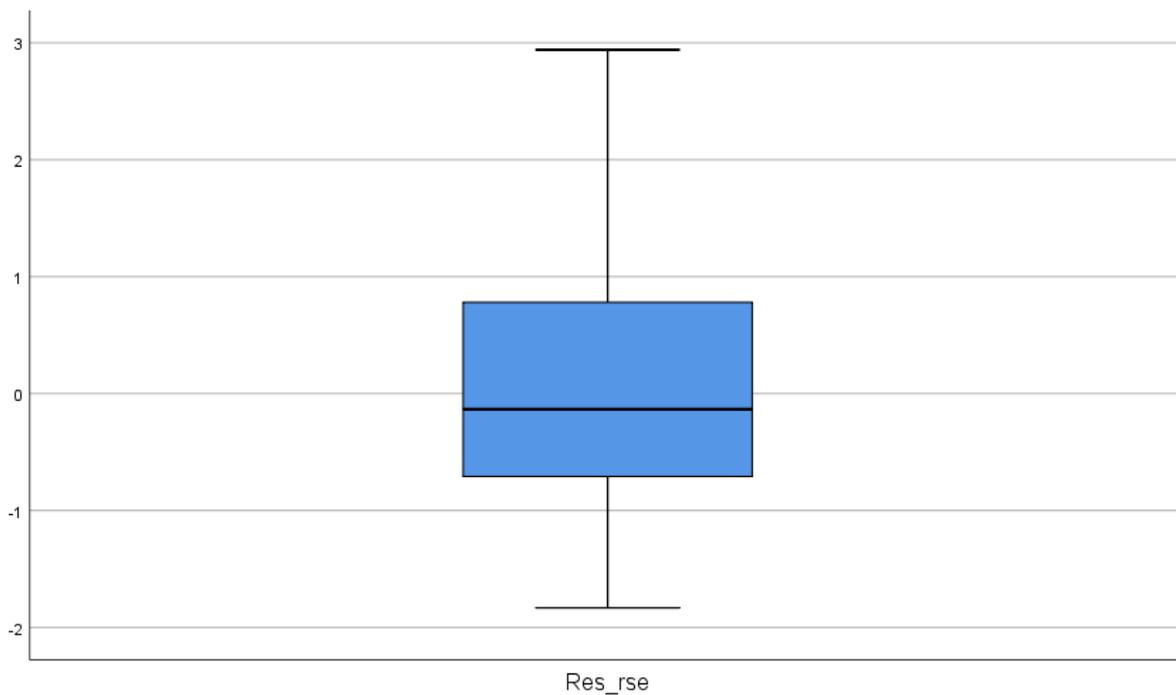
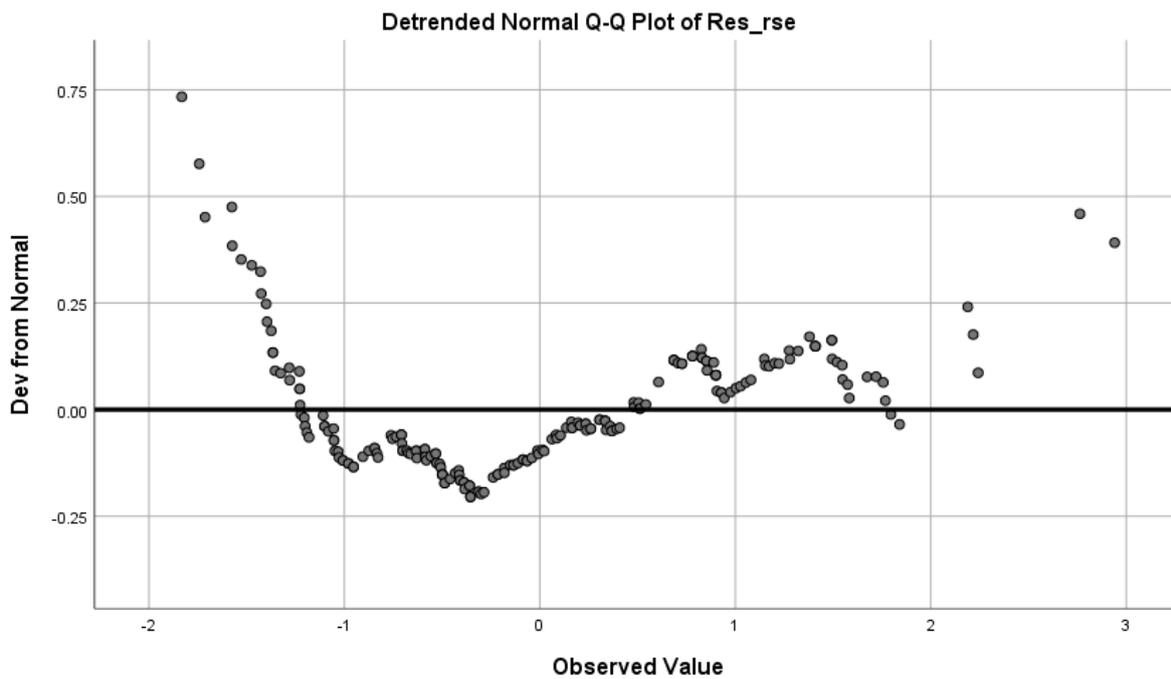
Res_swls

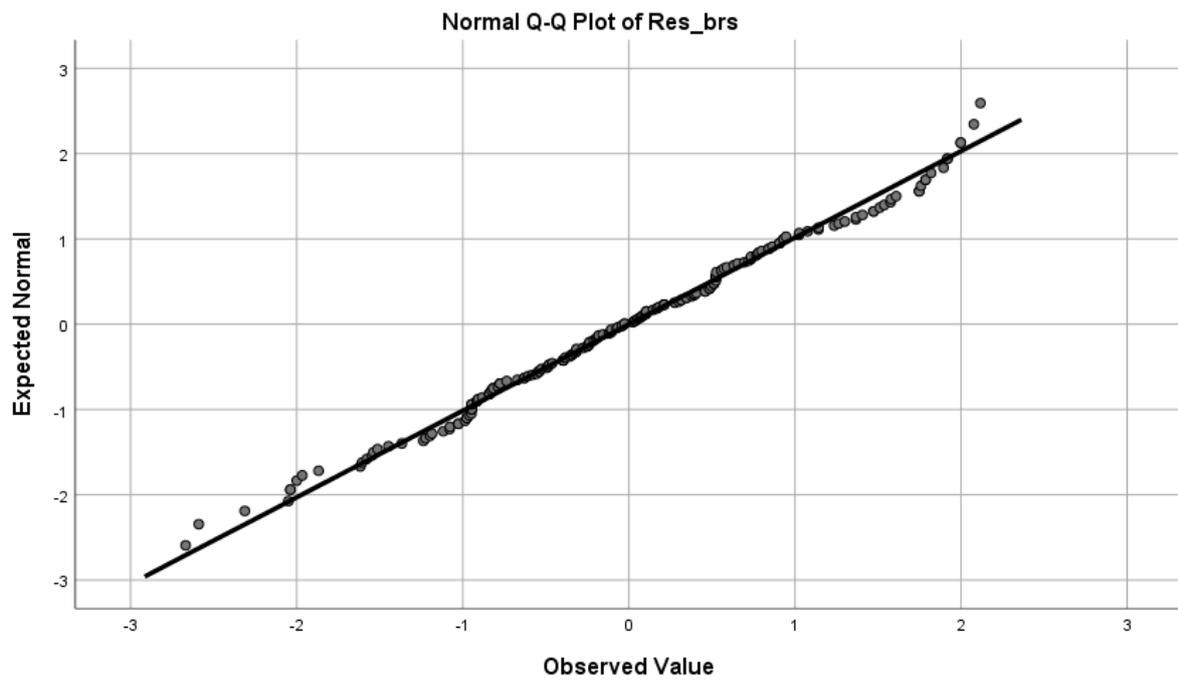
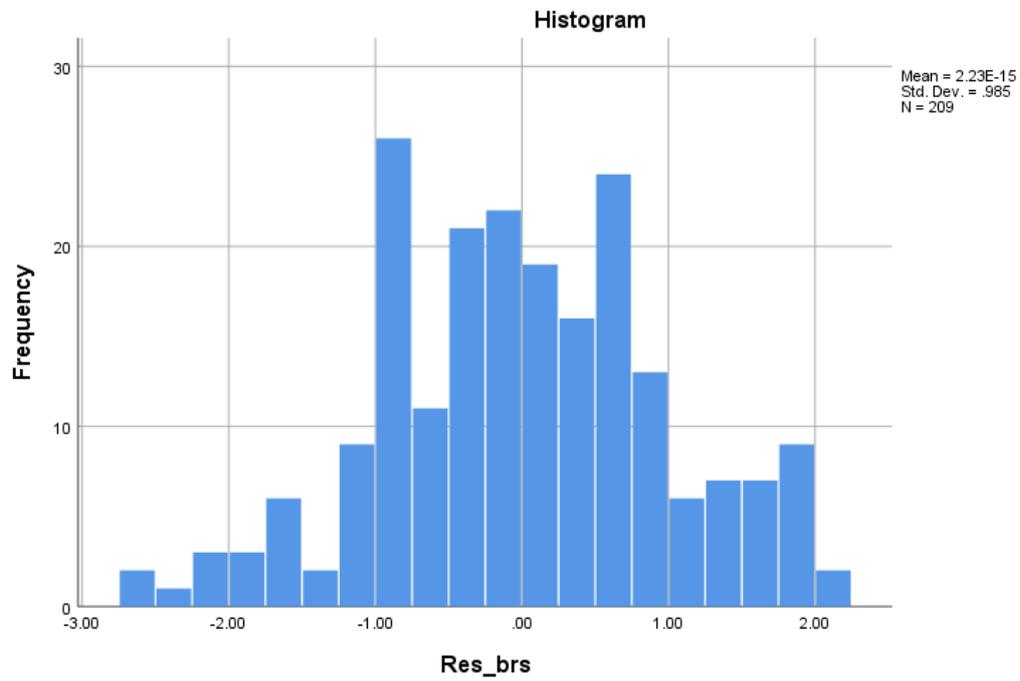


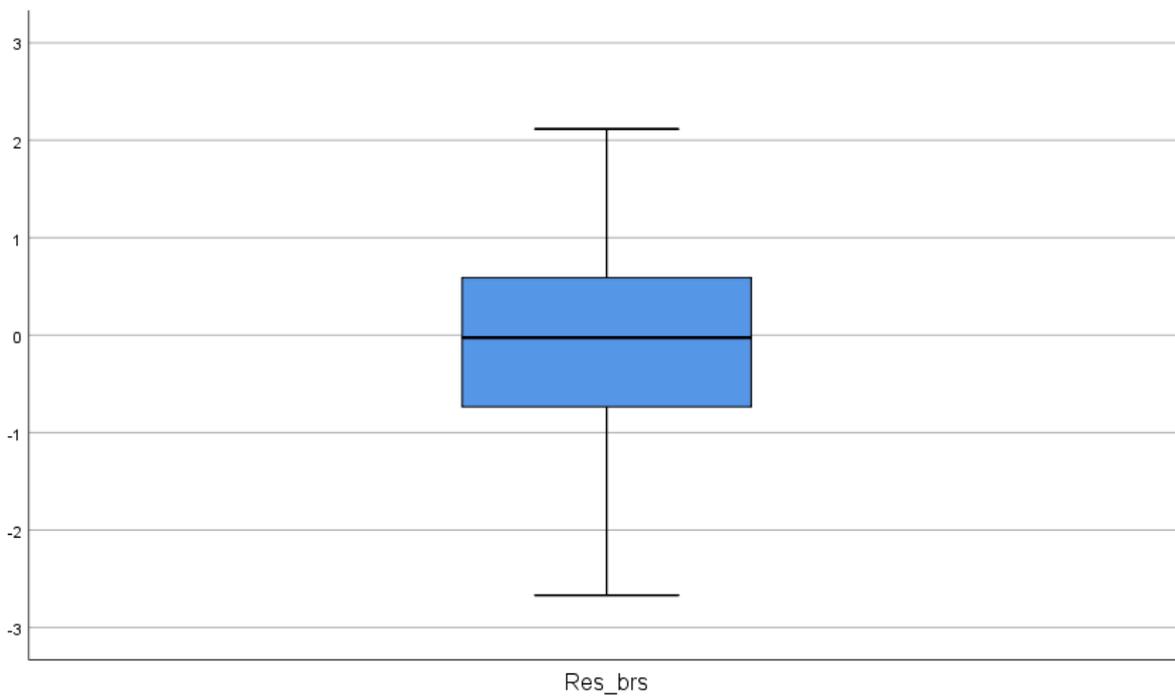
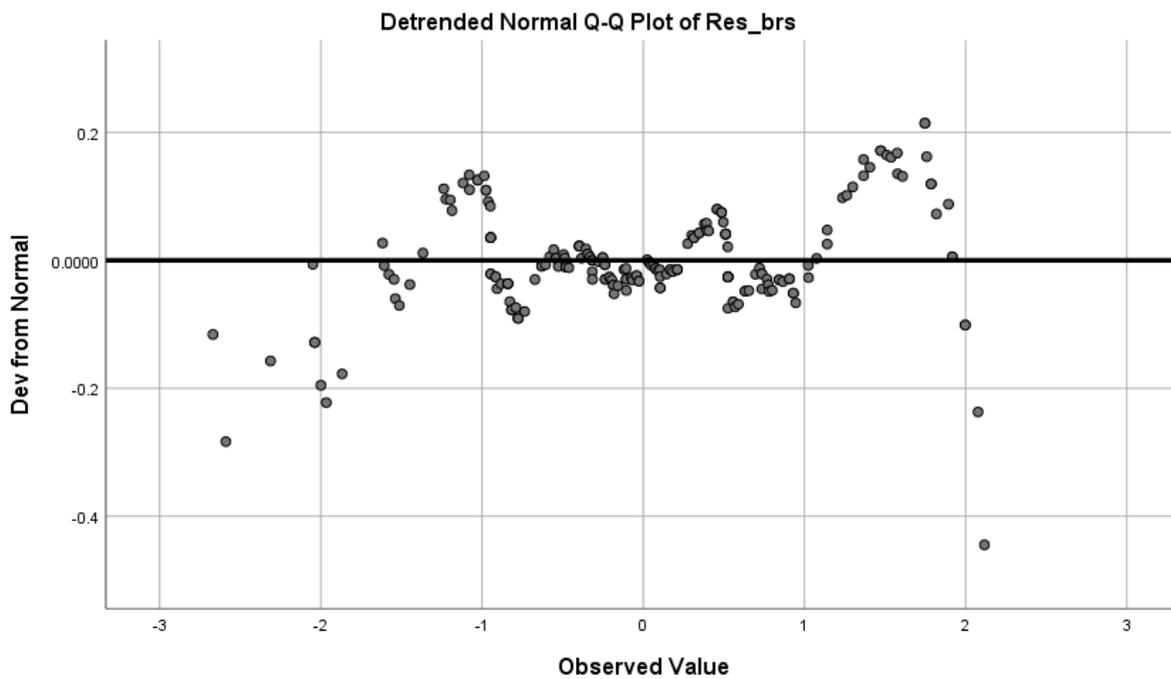


Res_rse





Res_brs



Appendix I

Descriptive Statistics

Figure 1, 2 and 3 outline Scores on SWLS, RSE, and BRS for Each Birth Order

Figure 1. Comparative means of life satisfaction for each birth order with 95% confidence interval error bars (N = 209)

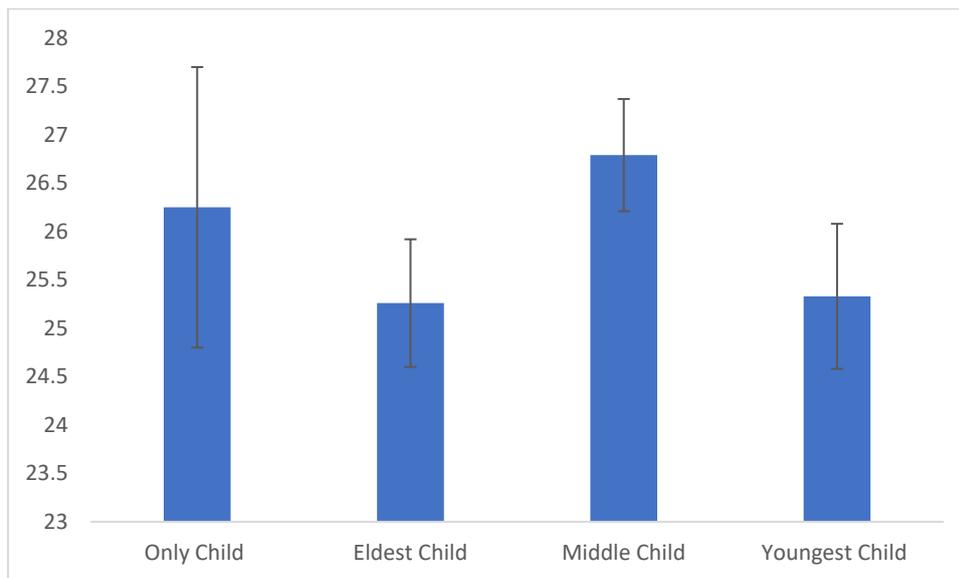


Figure 2. Comparative means of self-esteem for each birth order with 95% confidence interval error bars (N = 209)

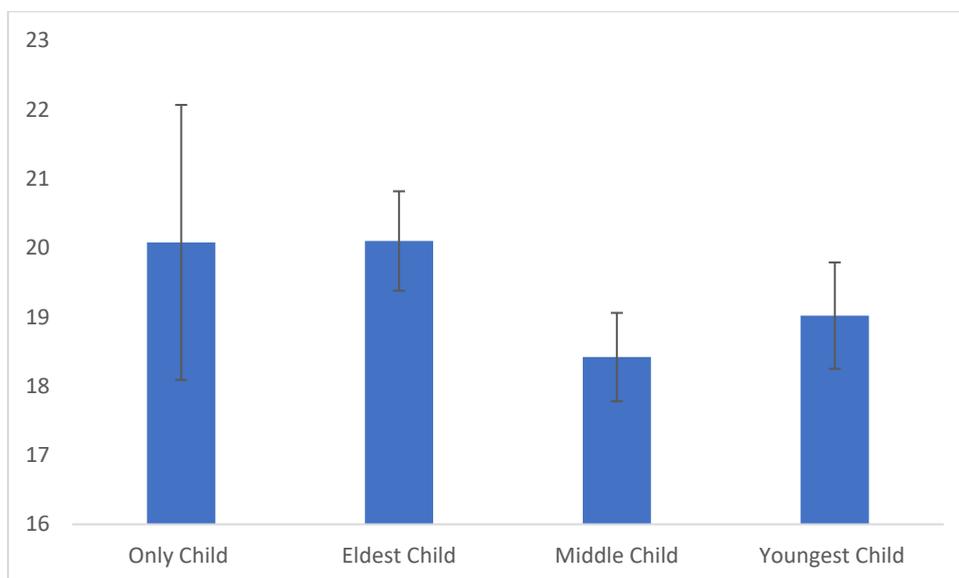


Figure 3. Comparative means of resilience for each birth order with 95% confidence interval error bars ($N = 209$)

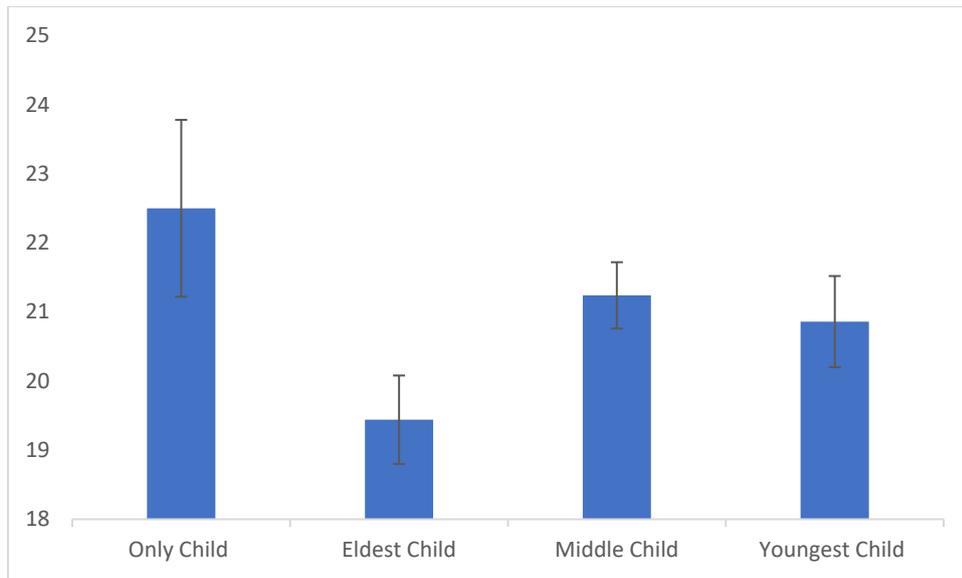


Figure 4. Frequencies of Total Number of Siblings ($N = 211$)

