

Investigating the effects of birth order on conscientiousness, openness and self-esteem.

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Abstract

The aim of this study is to investigate the effects of birth order on conscientiousness, openness and self-esteem between participants of 18-60 years of age. The sample consisted of 206 participants (male = 30, female = 176) who fell into one of the five category's, firstborn, middle-born, last-born, only child and other. Participants completed an online survey which comprised of two different questionnaires, Rosenberg's Self-Esteem Scale and a subscale of the Big Five Inventory. An ANOVA was used to examine the results and were compared to verify any significant differences between birth order and each of the different variables. The results revealed that there was no significant difference existing between birth order and the psychological variables examined.

Introduction

The order in which an individual is born into their family plays a significant role in that person's personality. The idea of birth order surfaced when it was argued that a large number of leading scientists were all mostly first born children (Galton, 1874). It was through the research of Alfred Adler who generated awareness for the importance of family arrangement on a child's character, which according to Adler was a vital element (Adler, 1927). The family environment is the first group experience that a child will have, and the role that child has in their family will influence how their personality develops. As children discover their personal niche in the family, they will compete with their siblings for certain roles (Steward et al., 2001). Children will make a place for themselves in their family, but no two children will have exactly the same role. This will be the case even if there are identical twins present in a family (Romeo, 1994). Children in a family behave in different ways even though they were born and raised the same as their siblings and share the same genetic pools from both of their parents. Despite the fact that siblings will share these environmental elements, they will not share birth order (Dixon, Reyes, Leppert & Pappas, 2008). Birth order will make a child unique in their family as they differ in behaviour and personality characteristics.

Many theorists such as Ernst and Angst (1983) have stated that a lot of research produced investigating the effects of birth order are unclear and conducted insufficiently which has led to belief that birth order is not an important topic (Eckstein et al., 2010). However, researchers are still interested in the various effects caused by birth order. Numerous studies have been conducted examining the relationship between birth order and just about every single aspect of human psychology including intelligence, personality,

learning and creativity. In 1983, researchers Ernst and Angst produced an influential analysis of the birth order writings, which there were over 1000 works. They argued that birth order research was unsuccessful in producing replicable findings. They also stated that the results that they had investigated contained an assortment of methodological issues including sample size and controlling for confounding variables such as socioeconomic status and ethnicity. This study focuses on how an individual's birth order can affect their conscientiousness, openness and self-esteem. Even though there have been countless amount of studies investigating the effect that birth order has on various personality traits and self-esteem, there has never been a study that concentrates on these three variables and their effects together. This study will be beneficial to people with children as it will allow them to understand how and why their children may behave differently to their siblings. The firstborn child may be polite and well behaved and the lastborn child may act up more compared to their siblings. Birth order research can make it known that the position an individual is in one's family can affect who they will become in later life. Knowing this, parents may make adjustments to their child's life to ensure that they feel loved, nurtured and just as important as their siblings (Sputa & Paulson, 1995).

Birth Order and Psychological Characteristics

Alfred Adler was one of the first theorists to argue that birth order can influence personality. Adler suggested that birth order can leave a lasting impact on an individual's life. Adler stated that a child's personality is based profoundly on the order in which the child is in the family, as parents tend to treat their children differently depending on their birth order. (Adler, 1927). He found through studies and observations that the order in

which a person is born; oldest, middle and youngest all have their own common characteristics, way of thinking and personality traits (Adler, 1928).

According to Sulloway (1996) firstborn children tend to be high achieving individuals who are conscientious, responsible, conformers, anxious and competitive. They are the first with the opportunity to create their own individual niche inside their family unit. Adler proposed that firstborn children are nurtured strongly and given plenty of attention by the family, until the second born child arrives. The firstborn then feels neglected as the new baby is now receiving all the attention. This is what Adler refers to as the dethronement of the firstborn child (Adler, 1928).

It has been argued that middle-born children are the mediators of the family and are the calmest tempered. Middle-borns have an assorted range of different personality traits which are driven by the fact that they have never been the centre of their parent's attention, they have always competed for it with someone else. Even in the case that parental attention is dispersed equally, middle-born children are still given less resources than their siblings (Sulloway, 2001). The middle child has had to share their parents resources their whole lives, whereas firstborn and lastborn children frequently experience a time frame in their childhood as only children. This may result in the middle child being less dependent on their families and closer to their peers (Sulloway, 2007). Middle-born children have also been reported as more likely to feel unloved, to feel less connected to their families and more likely to go to individuals outside their family when they are in need of help, in comparison to firstborn children and lastborn children (Salmon & Daly, 1998). Sibling rivalry may occur between the firstborn child and the middle-born child but the

middle-born child may also seek the help and guidance of their older sibling (Sulloway, 2001).

The lastborn child is believed to be the most outgoing, adventurous, open to experience and the provider of entertainment for the family. They have also been described as altruistic, easy-going, cooperative, sociable, unconventional and rebellious (Eckstein et al., 2010). Being the youngest member of the family, their parents tend to spoil them which Adler clearly stated is the worst way to treat them as it could result in the child being egocentric, irresponsible and to rely on other people. Research conducted in 2000 by Zweigenhaft and Von Ammon examined Sulloway's birth order theory by interviewing a group of third level students in America who were recently arrested for partaking in a protest over a labour debate. A relationship was found between birth order and the number of individuals arrested. Out of the 20 individuals arrested, 12 of them were lastborns and 6 of those lastborns were arrested prior to this arrest. Another study by Zweigenhaft (2002) investigated marijuana use in adolescents. The study discovered that lastborn individuals correlated with a higher use of marijuana. Lastborn children have also been correlated with high levels of smoking, drinking, sexual activity and risky behaviours. This was found by Argys, Rees, Averett and Witoonchart in 2006 with the use of 1997 data from The National Longitudinal Survey of Youth. It was also found that adolescents had an increased likelihood of participating in these behaviours if they had an older brother or sister (Argys et al., 2006).

Only children can often have the same personality as the firstborn or the lastborn. This is due to the fact that only children possess no siblings and are therefore not in competition for their parents attention. In the case of an only child, parents tend to 'pamper' them which may lead to social issues in later life (Adler, 1928). It has been stated

that if an only child experiences lack of admiration or dislike by their peers, they will find this difficult to deal with as they are used to a large amount of attention given to them by their parents in early life (Ryckman, 2008). Research has shown that firstborn children and only children have the highest level of intelligence and strive for high academic achievement (Eckstein et al., 2010). This study will investigate the differences between firstborn children and only children and also between lastborn children and only children to see if the results are consistent with prior findings.

Birth Order, Step-Siblings and Age Gaps

Frank Sulloway (1996) puts emphasis on the significance of functional birth order which in some families may change because of adoption, death of a sibling or remarriage. The loss or entrance of a family member, for example a step-sibling, will have an effect on the children in the family. This disturbance at vital times of development could interrupt important environmental prompts that correlate with functional birth order.

Early research conducted in 1981 by Kidwell documented that when there is an age gap between adjoining siblings such as a second-born and a third-born child becomes sizeable enough, for example six years or more, the family dynamics become very different. The third-born may find him or herself in a position that is similar to what the firstborn sibling was in. It was emphasised by Kidwell the point that previous research done on birth order at this particular time inclined to overlook the effect of age spacing which resulted in researchers placing all third-born children in the same group. It was also noted by Kidwell (1981) that all works on birth order before the 1970's documented firstborn siblings as the receiver of an increased amount of parental affection and love compared to younger

siblings. Firstborns usually undergo a more authoritarian upbringing and are presumed to be more responsible and have an increased amount of high expectations thrust upon them. These expectations have an effect on the other siblings as parents expectations tend to decrease for them. This study will investigate the effects of step-siblings on birth order and also the effects of a large age gap between siblings.

Birth order and Personality

The most researched variable investigated in birth order studies is personality. The majority of previous research on birth order and personality has presented with a diverse result on each separate personality trait. This topic is appealing to researchers as there are various types of personality traits present in each family. Understanding more about personality can aid the explanation as to why each individual behaves uniquely in similar situations (Weiten, 2007). In 1992, Costa & McCrae presented their Five-Factor Model (FFM), which is the most popular taxonomy of personality. The model is divided up into five traits of personality which include, conscientiousness, openness, extraversion, agreeableness and neuroticism. It is collectively known as The Big Five Inventory.

Birth order and Conscientiousness

One of the goals of this research is to test the hypothesis originally obtained by Sulloway's (1996) theory of birth order that firstborn children are more conscientiousness than later-born children. Conscientiousness refers to an individual who is driven and are

determined to achieve their goals. Individuals who are conscientious are organised, capable and are adamant to do their best. A person's level of conscientiousness can determine occupation choice (Furnham & Heaven, 1999) and also academic accomplishment (Chamorro-Premuzic & Furnham, 2008). It is believed that firstborns are more conscientious than their later siblings due to the fact that firstborn children are more likely to feel the need to please their mother and father. They are wary of taking risks as they crave parental approval which leads to firstborn siblings to exhibit behaviour that correlates with their parents' morals (Sulloway, 1996). In 2001, Sulloway stated that firstborn children assume the role as surrogate parents to their younger siblings which leads to the development of conscientiousness.

The trait of conscientiousness is displayed in a 2006 report by Fergusson, Horwood and Boden of a 25 year longitudinal study which was from 1977 to 2002. This research explored a variety of educational outcomes which included second level and third level accomplishments. The results of the study were that firstborn children received higher academic accomplishments. Furthermore, this theory is supported by a 1987 study done by Ivancevich, which puts emphasis on the theory that firstborns are more likely to be in occupations where a higher level of education is needed. Another study on academic achievement conducted by Paulhus, Trapnell and Chen (1999) also documented that firstborn children were associated with higher academic achievement. However, in 2006, Beck, Burnet and Vosper argued against the study done by Paulhus et al. (1999). They believed that the measure used to evaluate personality traits was not sufficient. In the 1999 study, participants were requested to rank their siblings and also themselves on seven different variables connected to the features in the Big Five Inventory. Beck et al. expressed

that in replications of the study conducted by Paulhus et al., validated psychometric measures ought to be used.

Birth Order and Openness

Openness comprises of being conscious of one's own emotions, an inquiring mind, liberal beliefs, a proneness to fantasise and a sensitivity and awareness for beauty and art, according to Costa and McCrae (1992). Other characteristics of openness are creativity and a good imagination. To be open is to think and behave individually (Costa & McCrae, 1992). Individuals who score high in openness tend to present with adaptable behaviour and complex thinking, and those who score low usually have strict traditional principles and prefer things to be straightforward and uncomplicated. This research is to test Sulloway's 1996 hypothesis that lastborn children are more open to experience than firstborn and middle-born children. According to Sulloway (1996), there is a connection between openness and rebelliousness, which he associated with lastborn children. In 2000, Townsend investigated the association between birth order and rebelliousness, in which he found no relationship between the two variables. A within family study conducted by Healy in 2007, discovered that firstborn children had a lower score on openness than lastborn children, which is consistent with Sulloway's theory. This outcome allowed Healy to gather support for Sulloway's (2001) family niche model of personality. Healy claimed that the outcome of the study is due to using a within family design instead of a between family design.

It was found that only children and later-born children are more open to experience than firstborn children in a study by Shao, Yao, Li & Huang (2013). The study used a rare

type of sample, which contained members of the Chinese population, where families usually only have one child because of the country's policy. Although there was a strong association found between one's birth order and the openness trait, the study had many limitations. These limitations include a significant imbalance of only children to later-born children and firstborns. In the report, the researchers did make note of this disproportion and proposed that replications would ideally include a sample before the one child per family policy and a sample after the policy. This would give the study a more reliable outcome. Another study on birth order that investigated the trait openness was conducted by Ha & Tam in 2011. The study consisted of 30 firstborns, 30 middle-born children, 30 last-born children and 30 only children. The results showed that firstborn and only children scored highest for agreeableness. However, scores did not significantly differ in extraversion, emotional stability or openness in participants.

Birth Order and Self-Esteem

The term self-esteem is used to express the level of an individual's general feeling of worth. This can include several different views on one's appearance, feelings and also how one conducts themselves. Rosenberg (1965) defined self-esteem as a feeling of self-worth, a favourable or unfavourable viewpoint of oneself. An important theorist of birth order, Alfred Adler believed that birth order can not only be related to personality but also self-esteem. He stated that the particular role a child plays in his or her family is unique and comes with differing expectations depending on the role. Each role is met with difficulties, however, Adler believes that those who overcome these difficulties will have a healthy level of self-esteem (Eckstein et al., 2010). Firstborn children are seen as the ones with the

highest level of self-esteem compared to the middle-born child who usually possess the lowest. This may be due to the fact that the firstborn child has no older siblings to overshadow them and the middle child is in competition for their parent's attention which may result in them lacking in confidence and feeling insecure (Adler, 1928). This study will test this hypothesis to see if the middle-born child has lower self-esteem compared to the firstborn child and the lastborn child.

Birth order can have an effect on how parents view their children. Various studies have revealed that the relationship between a parent and their child is one of the most important indicators of self-esteem (Parker & Benson, 2004). Research carried out by Shanahan, Crouter & Osgood in 2008 examined the parents of 4th and 5th grade children in a seven year longitudinal study. The parents were interviewed one to one and asked to discuss with the interviewers if they viewed a certain child differently compared to their other children. Maternal conflict, maternal warmth and sibling relationships were all components that were looked at whilst assessing results. Results of the study found that in the majority of cases, certain children were treated differently in comparison to others. The middle-born child was found to be the child that was more likely to experience less maternal warmth and were involved with more maternal conflicts than the other children in the family. This discovery indicates that middle-born children may be at risk or may already be experiencing a low level of self-esteem due to the lack of parental investment and care. Additionally, Zervas & Sherman (1994) presented research that is similar to the study by Shanahan et al. (2008). 91 third level students were asked to participate in a questionnaire regarding perceived parental favouritism and their level of self-esteem. It was discovered that the students with the highest levels of self-esteem identified as favoured in their family.

62% of the students surveyed claimed that the reason as to why certain children are favoured is due to their birth order.

In 1981, researchers examined the effects of birth order on self-esteem using a sample of 841 males and 944 females who were all undergraduate students. A variety of measures were used, such as Rosenberg's Self-Esteem Scale. The results indicated that later-born children tended to have lower self-esteem compared to firstborns who scored high in self-esteem. The lowest level of self-esteem was found in the middle-born children (Falbo, 1981).

Rationale

Upon a review of the literature, it is clear that there is a broad collection of studies conducted on birth order and a range of different variables, but there is no study that specifically focuses on how birth order effects conscientiousness, openness and self-esteem. Also, no other study has focused on these variables with Irish sample. The reason for this study is to build on existing research and also to produce new material that allows a more complete understanding on how birth order influences who a child will become in later life. Even though it has been recognised that these variables vary between the different birth orders in a family, it is not yet known if those who are in the same birth position and are in different families will differ. This study will give a clear insight into conscientiousness, openness, self-esteem and if it is birth order that impacts these variables. It will also give a better understanding of the impact that step-siblings can have on the effects of birth order. The main aim of this study is to investigate the effects of birth order on conscientiousness, openness and self-esteem.

Hypotheses

For the purpose of this study there are 3 hypotheses, which are as follows:

Hypothesis 1: It is hypothesised that firstborns will be more conscientious than later-borns

Hypothesis 2: It is hypothesised that middle-borns will have lower self-esteem than firstborns and lastborns.

Hypothesis 3: It is hypothesised that lastborns will be more open than firstborns and middle-borns.

Methodology

Participants

Participants of this study were gathered from the general population of Facebook users by posting a link to an anonymous and confidential questionnaire on the researcher's personal Facebook page. A convenience sample of 206 participants (M= 30, 14.56%) (F= 176, 85.44%) was collected in the current study. Some participants of this study shared the link to the questionnaire on their Facebook pages which resulted in a snowball sample. There were both male and females used in this study. It was required that all participants were over the age of 18. The age range consisted of 148 in the 18-25 category, 21 in the 26-40 category, 32 in the 41-60 category and 0 in the 61+ category. Out of the 206 participants, there were 70 firstborns, 49 middle-borns, 69 lastborns, 11 only children and 3 in the other category. Participation in this study was completely voluntary and no incentives were offered to take part.

Design

A quantitative correlational design was carried out in order to establish the extent of the relationship between two or more variables using statistical data. In this study, the predictor variable was birth order and the criterion variables were self-esteem, conscientiousness and openness.

Materials

A survey was produced with the purpose of measuring self-esteem, conscientiousness and openness to experience. The researchers own questions were also included in order to find out if participants had step-siblings in their family (Do you have any step siblings? This was simple yes/no answer) and if so, how old they were when their step-siblings entered their family (If yes, how old were you when your step-siblings joined your family?). This was an open ended question. A question on age difference between siblings was also asked by the researcher (Please list the number of years between you and your sibling and state if they are older or younger than you). Other demographic questions were also included in order to gain information on age, gender and birth order. Rosenberg's self-esteem scale (1965) was used to measure self-esteem. This scale consisted of 10 questions which the participant was asked to choose if they strongly agreed, agreed, disagreed or strongly disagreed with the list of statements. For example, 'I feel that I have a number of good qualities'. Items were worded in both directions, so negatively worded items were reversed scored. The higher the score, the higher the participant's self-esteem. A subscale of the Big Five Inventory (1999) was used to measure the personality traits openness and conscientiousness. This questionnaire was comprised of 19 characteristic type questions such as 'I am someone who can be somewhat careless' in which the participant was asked to choose a number from 1 to 5 for each statement to specify the level to which they agreed or disagreed with each individual statement. Items in this questionnaire were also worded in both directions, so certain items were reversed scored. The higher the score, the more the participant possessed that particular personality trait.

Procedure

Firstly, before participants could be gathered for this study, ethical approval was sought and gained. A link to an online survey was posted on the researcher's personal Facebook page asking for volunteers to take part in the study. In the post, it was stated that participation in this study was completely voluntary, confidential and anonymous. It also specified to the participants that the data was de-identified and as a result they would not be able to withdraw their data once it has been submitted. Once the participants clicked the link, they were taken to the cover page of the questionnaire. This provided the participants with the information about the nature of the study and how long it would take them to complete. The questionnaire took up to 10 minutes to complete. In order to abide by the ethics of Dublin Business School, participants had to be 18 years of age or over. The next section of the questionnaire was the demographic section which gathered information such as age range, gender, birth order and also asked about the participant's step-siblings and sibling age difference. Following this section of the questionnaire, questions were asked in order to determine the level of self-esteem of the participant and then the personality traits conscientiousness and openness. On completion of all the questions, participants were taken to a confirmation page which provided them with helplines such as 'Samaritans' and also contact information for the researcher in the event that the participants had any queries regarding the study.

Results

All results were input into SPSS version 22 where it was recoded where necessary. Total scores for each scale were also calculated. Descriptive statistics such as the standard deviation and the mean were determined. Next, the normality of the data was examined in order to determine if it met with the assumptions of using parametric tests. Inferential statistical tests which included one way analysis of variance, Kruskal-Wallis one way analysis of variance and Mann Whitney U tests were performed and the results were as follows.

Descriptive Statistics

The sample consisted of a total of 206 participants, males (N=30, 14.56%) and females (N=176, 85.44%). Participants placed themselves into three age categories, which were 18-25 (N=148, 73.63%), 26-40 (N=21, 10.45%) and 41-60 (N=32, 15.92%). Participants were also categorised into five birth order groups, firstborn, middle-born, lastborn, only child and other (eg. Twins). The category for the firstborn child (N=70, 34.65%) and the lastborn child (N=69, 34.16%) contained the highest response and the only child (N=11, 5.45%) and other (N=3, 1.49%) had the lowest amount of responses as displayed in figure 1 below.

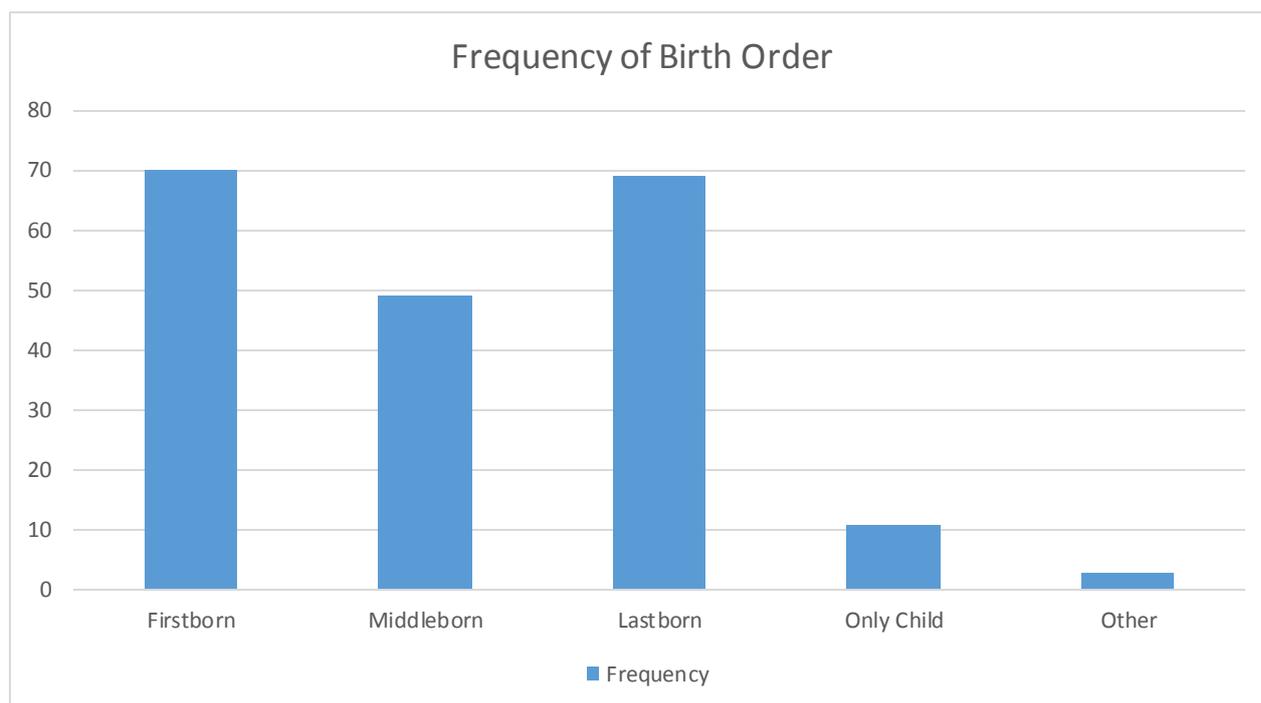


Figure 1: Frequency of birth order among participants

Before performing any tests to determine if there were any significant relationships, various descriptive statistics were computed to establish any trends in the variable scoring. Descriptive statistics provide background information on the participants taking part in the study. All participants completed two different questionnaires in the online survey, Rosenberg's Self-Esteem Scale, which measured the participant's level of self-esteem, and a subscale of The Big Five Inventory, which measured the participant's level of openness and conscientiousness. The table below shows the mean (M) and the standard deviation (SD) acquired from these measures.

Table 1: Means and Standard Deviations for Psychological Measures

Variable	Number	Mean	Standard Deviation
Conscientiousness Total	173	30.89	6.82
Openness Total	175	34.28	6.85
Self-Esteem Total	185	18.94	6.45

The minimum score for conscientiousness is 13 and the highest score is 45 and as shown in table 1, the mean score is 30.89, which indicates a relatively high level of conscientiousness in respondents. The mean score for openness is 34.28 and the highest score achievable is 49 and the lowest being 17. This shows that participants are scoring on the higher end of openness. The highest possible score that can be scored in self-esteem is 30 with the lowest score being 2. The mean for self-esteem is 18.94 which exhibits a moderate level of self-esteem among participants, scoring slightly above mid-range.

Inferential Statistics

Hypothesis 1

The data passed the assumptions of no outliers and normality, and the Shapiro-Wilk test of normality. As the data passed the assumption of homogeneity of variance, a one way analysis of variance was carried out to see if firstborn individuals are more conscientious than later-born individuals. The result of the analysis showed that there is no significant difference between the firstborn's level of conscientiousness and later born individual's

level of conscientiousness ($F(4,168)=1.190$, $p = .317$) as shown in table 2. Therefore, hypothesis 1 was rejected.

Table 2: ANOVA for Conscientiousness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	220.537	4	55.134	1.190	.317
Within Groups	7786.376	168	46.347		
Total	8006.913	172			

Hypothesis 2

The data failed the assumption of normality ($P=.010$) and as a result of this, a non-parametric equivalence was used. A Kruskal-Wallis one way analysis of variance was run to find out if middle-borns have lower self-esteem than firstborns and lastborns. The Kruskal-Wallis analysis showed that there is no significant difference between the middle-born individual's self-esteem and the self-esteem of firstborns and lastborns ($\chi^2= 2.89$, $p = .576$), which lead to hypothesis 2 to be rejected.

Hypothesis 3

A one way analysis of variance was conducted in order to determine if lastborn individuals have a higher level of openness than firstborns and middle-borns. The results indicated that the level of openness varies significantly across the different birth orders ($F(4,170) = 2.767$, $p = .029$) as displayed in table 3. A post hoc analysis using tukey to

compare all the different birth positions showed that there was no significant difference between the lastborn individual's level of openness and the firstborns and middle-borns level of openness ($p > .05$). Therefore, hypothesis 3 was rejected.

Table 3: AVOVA for Openness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	499.749	4	124.937	2.767	.029
Within Groups	7675.531	170	45.150		
Total	8175.280	174			

Other findings

It was also found that there is no significant difference between the only child's level of conscientiousness, openness and self-esteem and firstborns and lastborns level of conscientiousness, openness self-esteem which is exhibited in table 4. This result is not consistent with prior findings.

Table 4: Comparison between Only Child, First Born and Last Born

Birth Order	Birth Order	Mean		Sig.	95% Confidence Interval	
		Difference	Std. Error		Lower Bound	Upper Bound
Only Child	Firstborn	-3.03409	2.24523	.659	-9.2256	3.1574
	Lastborn	-.70274	2.22465	.998	-6.8375	5.4320

A Mann Whitney U analysis was carried out to see if the levels of conscientiousness, openness and self-esteem varies significantly between participants who have siblings with an age gap of less than 6 years and participants who have siblings with an age gap of more than 6 years. The result of the analysis showed that there was no significant difference between the two groups for all the siblings ($p > .05$).

Another Mann Whitney U analysis was performed to determine if the levels of conscientiousness, openness and self-esteem differs significantly between individuals who have step-siblings and those who do not have step-siblings. The results of the analysis revealed that there was no significant difference between the two groups of participants ($P > .05$).

Discussion

Overview

The central aim of this study was to investigate the effects birth order had on conscientiousness, openness and self-esteem. The first theorist to highlight the importance of the family structure on a child's character and development was Alfred Adler (1927). Since then, a vast amount of birth order research has taken place, including a numerous amount of studies on the effects of birth order on an individual's personality and also their self-esteem. Early theorists such as Frank Sulloway (1996) all agree that each different birth position is related with a higher or lower score on particular traits, such as conscientiousness, openness and self-esteem. This section will summarise the main findings of this study in relation to the three hypotheses predicted in the first section. Strengths and weaknesses of the study will also be discussed along with recommendations for future research.

Three hypothesis were investigated in relation to conscientiousness, openness and self-esteem. These variables were examined through the use of an online survey which was completed by participants who were gathered on social networking sites. Even though there are a vast amount of studies that investigate birth order in relation to conscientiousness, openness and self-esteem, this is the first study that focuses specifically on only these three variables. Also, there is no previous research that examines these variables using an Irish sample. The first hypothesis stated that firstborns will be more conscientious than later-borns. The second hypothesis predicted that middle-borns will have lower self-esteem than firstborns and lastborns. Finally, the third hypothesis posited that lastborns will be more open than firstborns and middle-borns. Results were obtained with the use of an ANOVA

and a Kruskal-Wallis ANOVA for each participant and their individual birth position, firstborn, middle-born, lastborn, only child and other (eg. Twins), and for each of the variables, conscientiousness, openness and self-esteem. All results were analysed for each birth position and for each of the three variables. This study was not consistent with other studies previously conducted on birth order, personality and self-esteem. The outcome of this research did not present with the results that were initially hypothesised. This may be because the topic of birth order is such so vast, it is not unusual for the results to differ from the ones that were predicted.

Hypothesis 1

The outcome of the ANOVA for conscientiousness revealed that conscientiousness did not differ significantly throughout the five groups of birth positions. The 'Other' group ($M = 34.00$, $SD = 5.65$) came out with the highest level of conscientiousness, closely followed by firstborns ($M = 32.12$, $SD = 7.39$). The 'Only Child' group ($M = 29.09$, $SD = 5.87$) had the lowest results for conscientiousness. Although these findings are not significant, they do support previous studies conducted by researchers such as Sulloway (1996) and Paulhus et al. (1999) that state that firstborns have a higher level of conscientiousness compared to their later-born siblings.

Hypothesis 2

In relation to openness to experience, the birth position that scored the highest was the firstborns ($M = 35.61$, $SD = 7.15$) and the lowest scoring birth position was the 'Only

Child' group ($M = 29.30$, $SD = 7.60$). These findings are inconsistent with previous research such as studies done by Shao et al. (2013) and Sulloway (1996) which showed the lastborn child would score highest in openness. This was not the case in this study as the lastborn child ($M = 35.04$, $SD = 6.03$) scored lower than the firstborns.

Hypothesis 3

The variable self-esteem also showed inconsistencies in its results with the highest score belonging to the firstborns ($M = 19.75$, $SD = 6.65$), closely followed by the middle-borns ($M = 19.20$, $SD = 5.66$). The lowest scoring birth position was the 'Other' group ($M = 15.50$, $SD = 5.80$). These results differed from previous finding by researchers such as Falbo (1981). It was previously predicted that the middle-borns would have the lowest level of self-esteem, but instead the middle-borns were the second highest scoring birth position.

Other findings

It was emphasised by Frank Sulloway (1996) that changes in birth order, for example, the entrance of a step-sibling can have an effect on the children in the family and could interrupt important environmental prompts that correlate with functional birth order. It was also proposed by Kidwell (1981) that an age gap of six or more years can have an effect family dynamics, as the third-born child may find him or herself in a comparable position to the firstborn child and may have the same characteristics typical to a firstborn. The results of a Mann Whitney U revealed that there was no significant difference between individuals who had step-siblings and those who did not, and also no significant difference was found

between participants who had siblings with an age gap of less than six years and participants who had siblings with an age gap of more than six years. These results are also not consistent with previous research. This could be due to a small sample size and also lack of information which will be discussed in the 'Strengths and Weaknesses' section below.

Strengths, Weaknesses and Future Research

Although this study included a numerous amount of strengths, it was not without its weaknesses. The limitations of this study may be a contributing factor to the non-significant results. Even though the majority of previous studies indicate that birth order does have an effect on an individual's character, there has been some previous research that presented with inconsistencies much like this study. A study conducted by Ha et al. (2011) on birth order and personality showed inconsistencies with previous research when the results of the study were not significant. This lead to two of the four hypotheses to be rejected. This may be due to the fact that birth order is such a broad topic and even though your position of birth is an important element in how an individual's personality and self-esteem develops, the environment of that individual is also an important factor. Confounding variables such as the environment a child grows up in can have an effect on results, such as the insignificant results present in this study.

The small sample size may be responsible for the inconsistencies found in this study. The sample size consisted of 206 participants which were split into five groups. This is a small sample compared too previous studies and also for the number of groups involved. Out of the five groups, the firstborns (N = 70) and the lastborns (N = 69) contained over two thirds of the whole sample leaving the middle-borns (N = 49) the 'Only Child' group (N = 11)

and the 'Other' group (N = 3) with roughly only one third of the sample. The last two groups contained a very small response in comparison with the firstborns and the lastborns. This vast difference in participant's birth order resulted in a non-reliable average that had been expected at the beginning on this study. There was also a significantly large gender imbalance, as female participants made up over 85% of the sample. This may have had an effect on the results as female participants are usually more sensitive than male participants.

Another issue with the sample size is the age of the participants, as the age group 18-25 was 74% of the entire sample. This left the 26-40 age group with 10% of the sample and the 41-60 age group with 16% of the sample. There was the option for participants to place themselves into the 61+ age category but there were no participants of this age. This can be put down to the fact that individuals in the 18-25 age group are much more likely to use social media, which is where participants were gathered for this study. This study may not have obtained participants in the 61+ age group and a small number of participants in the 26-40 age group and also the 41-60 age group as individuals of this age may be due to the fact that they may not be able to access social media sites or may not have access to the internet. These issues with the sample size should be taken into consideration for future research similar to this study. Participants in a certain birth position, age or gender should be sought out if there is a significantly lower amount in a particular group. This will result in all groups having a similar amount of participants, which will make results more reliable.

Another limitation of this study is that it did not take social class into consideration. Researchers Ernst and Angst (1983) argued that not controlling for environmental factors such as social class may mistake differences in an individual's personality, developed from a

certain social background, with difference due to that individual's birth position. This study also failed to account for education level, nationality and ethnicity, which may also be mixed up with birth order in the results obtained from this study. Previous research conducted on birth order have not taken cross cultural issues into consideration. It would be useful for future research to see if differences in birth position exists in different cultures around the world and how they differ from an Irish sample. This would provide researchers with a more complete view of a participant's family background, and beliefs.

Parental favouritism was another factor that was not taken into account. Research conducted by Zervas & Sharman (1994) and also Bulanda & Majumdar (2009) indicated that parental involvement and encouragement can have an effect on their child's level of self-esteem. This research did not take these measures into consideration.

A further weakness on this research is the vagueness of the third question in the questionnaire. The question asked what the participant's birth order is and gave them a choice of five different birth positions, firstborn, middle-born, lastborn, only child and other. This question was seen as ambiguous and created uncertainty for some participants as some were not sure which category they fell into. A number of participants who were born second in a family of five were unsure if they should be in the middle-born group or some asked if the middle-born group only applied to individuals who were in the actual middle of their family, for example, a second born individual in a family of three.

This study allowed everyone to participate except those who were not over the age of eighteen. Gender, occupation, religion did not matter, once the individual was over the age of eighteen they were eligible to take part. This can be viewed as a strength of this study as the study wasn't only open to a particular type of person, such as a study that may only

focus on people in a specific occupation. Birth order, the main topic that this study centred on is a very broad topic and it relates to everyone. Every person falls into one birth position in their family, which made it easy for people to participate.

Another strength of this study is the fact that the survey was available to take online. This meant that participants could complete the online questionnaire in their own time and pace. As the survey could be taken in the comfort of their own homes, participants did not feel under pressure in comparison with a questionnaire that has to be filled out in the presence of the researcher and other participants. This meant that the participant could respond more openly and could spend time thinking about their answers. The online questionnaire itself was straightforward, short and easy to comprehend, which made it easier for participants to complete it. The fact that participants were obtained through social media, it allowed individuals from different backgrounds and social classes to take part in the study.

The high level of internal reliability of the measures used in this study can also be seen as a strength. Rosenberg's Self-Esteem Scale and The Big Five Inventory have both been established as consistently reliable measures and increases the validity and reliability of this study.

Although it was looked at briefly in this study, it would be beneficial to future research to gain more information on families with step-siblings. Blended families are much more common in Ireland now than ever before as the rate of divorce is rising (Cancian & Danziger, 2009). Parents who have children may separate and remarry someone who also has children from a previous marriage. A child who was once the firstborn may suddenly find themselves as the middle child. As previously discussed, new additions to a family may

disrupt family dynamics and have an effect on functional birth order. Obtaining more information on families with large age gaps between siblings and also the sex of the participant's siblings would also be useful for future research.

In future research, it could be beneficial if researchers examined these variables in a longitudinal study. A longitudinal study would give more reliable results and could also establish if an individual's birth position effects their level of conscientiousness, openness and self-esteem over a long period of time, instead of comparing different birth positions between three different age groups.

As done in a study produced by Ha et al. (2011), future replications of this study should try to obtain the same amount of participants in each age group. This study just waited to see how many participants would fall into each age group, instead of setting a limit of participants that could be in each category. In the research conducted by Ha et al. (2011), a maximum target was set of thirty participants per age group. In doing this, it meant that the researchers acquired a better average from each category of birth order as they have the exact same amount of participants in each group to analyse.

The dynamics of the family could also be looked at in greater detail in future research. More information should be sought from participants such as gender of siblings. Perhaps the participant is the middle-born child but could also be the firstborn girl or if the participant is the only girl in her family. This could have an effect on birth order.

Future replication of this study could place more focus on multiple births such as twins or triplets. This study only contained three participants in this category, it was not possible to do. Future research should compare participants that are twins or triplets and investigate if they have similar levels of conscientiousness, openness and self-esteem or

will they differ from each other. Although this would be useful to birth order research, gaining access to enough twins willing to participate in this research could prove to be problematic. Future replications of this study could also allow participants to state exactly where they fall in the family instead of putting themselves into a group like firstborn, middle-born etc. instead they should be able to state that they are, for example, third born in a family of five and also allow them to state the gender of each of their siblings.

Conclusion

In conclusion, this study sought to investigate the effects of birth order on consciousness, openness and self-esteem. Conscientiousness and openness were measured using a subscale of the Big Five Inventory (1999) and self-esteem was measured using Rosenberg's Self-Esteem Scale (1965). These two scales along with a number of demographic questions were given to 206 participants who were gathered from social media, in the form of an online questionnaire. This study showed a lot of inconsistencies with previous research as all three hypothesis were rejected. These results can be put down to a considerable amount of confounding variables and the fact that birth order is such a vast topic. Although this study did not produce any significant findings, there are still an endless amount of discoveries to be made with this topic. Birth order is a topic that everyone can relate to as everyone falls into a category. Finding out more about the effects of birth order is beneficial in allowing people to understand why one sibling may behave and feel differently to another. Research on the effects of birth order can also enable individuals to not only have a better understanding of the people around you, but to have a better understanding of yourself.

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Appendix

My name is Emma Cullen and I am a final year psychology student at Dublin Business School.

As part of my final year project I am looking at birth order and individual differences in attitudes and personality.

The questionnaire that follows should take no more than 10 minutes to complete.

Participation is completely voluntary. Please do not feel obliged to take part if you are not comfortable doing so. If any of the questions asked in this survey distress you, there is contact information for support services on the final page.

All the information gained from the questionnaire is anonymous and will be kept confidential. As a result, the data is de-identified which means that you will not be able to withdraw your data once it has been submitted. The data will be securely stored on a password protected computer. The data will be kept for one year after the submission of the research and then confidentially destroyed. You are free to leave any responses you wish blank.

If you require any further information regarding the research, you may contact me at XXXXXX@mydbs.ie.

Thank you for taking the time to complete this survey.

Please tick whichever box is applicable to you

Q1. Gender:

Male []

Female []

Q2. Age:

18-25 []

26-40 []

41-60 []

61+ []

Q3. Birth Order:

Firstborn []

Middle-born []

Lastborn []

Only Child []

Other (eg. Twins) []

Q4. Do you have any step-siblings?

Yes []

No []

Q5. If yes, how old were you when your step-siblings joined your family?

Q6. Please list the number of years between you and you sibling(s) and state if they are older or younger than you:

Sibling 1:

Sibling 2:

Sibling 3:

Sibling 4:

Sibling 5:

Sibling 6:

Sibling 7:

Sibling 8:

Sibling 9:

Sibling 10:

Q7. Here are a number of characteristics that may or may not apply to you. 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...

1: Tends to be lazy []

2: Does a thorough job []

3: Is inventive []

4: Is original, comes up with new ideas []

5: Perseveres until the task is finished []

6: Can be somewhat careless []

7: Values artistic, aesthetic experiences []

8: Is curious about many different things []

9: Does things efficiently []

10: Is a reliable worker []

- 11: Prefers work that is routine []
- 12: Is ingenious, a deep thinker []
- 13: Makes plans and follows through with them []
- 14: Tends to be disorganized []
- 15: Likes to reflect, play with ideas []
- 16: Has few artistic interests []
- 17: Has an active imagination []
- 18: Is easily distracted []
- 19: Is sophisticated in art, music, or literature []

Q8. Instructions: Below is a list of statements dealing with your general feelings about yourself. If you:

Strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

1. On the whole, I am satisfied with myself. SA A D SD
2. At times, I think I am no good at all. SA A D SD
3. I feel that I have a number of good qualities. SA A D SD
4. I am able to do things as well as most other people. SA A D SD
5. I feel I do not have much to be proud of. SA A D SD

6. I certainly feel useless at times. SA A D SD

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

8. I wish I could have more respect for myself. SA A D SD

9. All in all, I am inclined to feel that I am a failure. SA A D SD

10. I take a positive attitude toward myself. SA A D SD

Helplines:

Samaritans: 116 123/ jo@samaritans.org