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ANXIETY AND BIRTH ORDER: DOES BIRTH ORDER PLAY A ROLE IN A  
CHILD'S ANXIETY LEVEL?

By  
Tarah R. Pearson

A Thesis

Submitted in partial fulfillment of the requirements of the  
Masters of Arts Degree  
of  
The Graduate School  
At Rowan University  
May 6, 2009

Approved by \_\_\_\_\_  
Advisor

Date Approved May 6, 2009

## ABSTRACT

Tarah R. Pearson

ANXIETY AND BIRTH ORDER: DOES BIRTH ORDER PLAY A ROLE IN A  
CHILD'S ANXIETY LEVEL?

2008/09

Dr. Roberta Dihoff

Masters of Arts in School Psychology

The purpose of this study was to see if there is an interaction between anxiety levels and birth order. It was hypothesized that the first-born child would have a higher level of total anxiety than a non-first born child. It was also hypothesized that females would have an overall higher level of anxiety than males. The Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Edition, which was used to measure the different subtests of anxiety, tested for specific types of anxiety: total anxiety, worrying, social anxiety, physiological anxiety, and defensiveness. It was hypothesized that females would feel a higher level of total anxiety, worrying, and social anxiety while males would have a higher level of defensiveness, and physiological anxiety. The data was analyzed using t-tests and 2-way ANOVA's to determine the significance of the interactions. Implications for anxiety in an educational setting are discussed and reviewed.

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## CHAPTER I

### Introduction

#### Need

Anxiety affects everyone. It was a common misconception that only adults suffer from anxiety. The notion that children do not worry or become anxious is false; anxiety can take many forms. Some of the leading causes of anxiety in children are psychological, social, and environmental issues. Although children do not have to worry about the same stressors that adults have, their stressors can have the same affect on the body and mind.

Anxiety disorders affect one out of every ten children. Some of the physical symptoms of generalized anxiety disorder (GAD) are restlessness, fatigue, difficulty concentrating, irritability, and muscle tension. These symptoms coupled with a sense of apprehension or worry can have profound interactions with the child's ability to function (Conner, 2002). Everyday tasks can become difficult and almost unmanageable- like the world is going to end. Children with GAD tend to be very hard on themselves; sometimes repeating a task several times until it is perfect. These children also tend to seek approval and reassurance from peers and elders ([www.adaa.org](http://www.adaa.org)). With this kind of daily regiment, it is no wonder that the statistics for childhood anxiety are so high. Children that suffer from GAD need a strong support system to overcome or adjust to their anxiety.

When addressing with the psychological, social, and environmental issues that cause anxiety, family relations and structure must be taken into consideration. A family's structure and where the child fits in can have major effects on that particular child's development and how they perceive the world. According to Alfred Adler's psychological positions of birth order, each child takes on a specific role (Adler, A., Liebenau, G., & Stein, H., 2005). For example, the oldest receives the most attention, the middle child often feels squeezed out, and the youngest is the baby and treated accordingly. While this theory does not apply to all family set ups, it gives a nice foundation for further research.

By understanding what needs children will have based on their birth order, practitioners can become better suited to address their specific issues concerning their anxiety. Researching how birth order interacts in a child's anxiety levels, school psychologists and other child service providers can begin early intervention work by helping the child recognize what causes them such anxiety and how to manage it. By applying the knowledge of birth order, school psychologists can begin to work with the child to accept their possible predisposition to anxiety and adjust for it.

### Purpose

The purpose of this study was to become better informed on how birth order interacts with a child's anxiety levels. While many factors play a role in why a particular child has anxiety, children cannot control how they were born into their family system. A child does not have the choice in what order they are born into. By taking a factor that the child cannot control and turning it into



something that they can control and recognize could help them manage their overall anxiety level. For example, if a child knows that they are the middle child and have a tendency to feel squeezed out, resulting in high anxiety levels, by making the child aware of these circumstances could help them control and maintain a safe level of anxiety.

### Hypothesis

It was hypothesized that the first-born child will have a higher level of total anxiety than a non-first born child. It was also hypothesized that females will have an overall higher level of anxiety than males. The Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Edition tests for specific types of anxiety: total anxiety, worrying, social anxiety, physiological anxiety, and defensiveness. The RCMAS-2<sup>nd</sup> Ed. also has a built in inconsistent response measure. It was hypothesized that females will feel a higher level of total anxiety, worrying, and social anxiety while males would have a higher level of defensiveness, and physiological anxiety.

### Operational Definitions

Two major themes were highlighted throughout this paper. The first was anxiety. The American Psychological Association (APA) defines anxiety as the following:

**“Anxiety is a symptom. People who feel anxiety experience muscle tension, restlessness, panic, or a sense of impending doom. They often also have anxious thoughts, such as fears of dying of a heart attack, fears of embarrassment or humiliation, or fears of something terrible happening. In addition, they often have uncomfortable physical sensations, including heart palpitations, sweating, dizziness, or shortness of breath. (American Psychiatry Association, 2000)”**

While there are many different forms of anxiety, for the purpose of this study the Generalized Anxiety Disorder (GAD) will assumed. The APA defines GAD as the following:

“As the name implies, generalized anxiety disorder is characterized by a chronic high level of anxiety and is associated with a wide variety of physical signs of arousal including trembling, feeling keyed up or on edge, being easily startled, having difficulty sleeping, and being irritable. Along with this anxiety, the person worries excessively about bad things that might happen and finds it difficult to control this worry. (American Psychiatry Association, 2000)”

The second term that was be used throughout is birth order. Birth order, as defined by Encyclopedia of Child’s Health, is the chronological order of sibling’s birth in a family. For the purpose of this study only biological siblings will accounted for. Any siblings acquired through marriage or adaption will not be used. Children from a single family home will also not be used.

### Limitations

There were a few limitations to this study that must be addressed. First, the geographical location of the participants come from one specific region is New Jersey and should not be generalized to other populations of children. Second, the children that participated in this study were considered to be of a high socioeconomic background, which should be taken into consideration when compared to a general population. Third, the participants for this study were high school students and confounding anxieties and stressors such as SAT preparation and college applications should be taken into consideration. Lastly, the anxiety test itself should be considered a limitation. The sheer presence of the test could cause a child to become more anxious, thus giving the appearance of an elevated

anxiety score. Anxiety can be subjective for a particular student depending on the day or month. For more accurate results, this study should be preformed as a longitudinal study.

### Summary

This research study highlighted a very real epidemic facing young people today, anxiety. While birth order cannot be controlled by the child, for the purpose of this study, birth order will be controlled and observed as a way for a child to manage their anxiety. The results found from this study can help lay the foundation for school psychologists and case study managers to better understand what initial anxieties and predispositions a child may face based on their birth order. The next chapter of this paper will discuss previous research on this topic with significant findings that sparked this research project. Chapter Three will explain the research methodology, including the participants, research measures used, and the procedure of the design experiment. Chapter Four will revile the results found after completion of the Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Edition. Finally, in Chapter Five a summary of all of the findings will be presented which includes implications for school practitioners and suggestions for further research.

## CHAPTER II

### Literature Review

#### History of Anxiety

There was no time or place in recorded history when fear and anxiety were not part of human experience. Fear of harmful or life-threatening events are a common experience in the animal world and feeling anxious was an adaptive response for the human species. Consequently, early in life the child learns, through painful experiences and teaching from adults and peers, to anticipate or avoid potentially harmful circumstances, as a defense mechanism.

In his book originally published in 1872, Darwin (1965) suggests that fear reactions develop through a natural selection process. He described specific physical manifestations of fear and notes that fear reactions vary from mild surprise to extreme panic or terror. As early as the 11<sup>th</sup> century, an Arab philosopher described that maintaining anxiety was a universal and basic condition of human existence (Kritzech, 1956). Continuing this emphasis on the universality of anxiety, the author of *Paradise Lost*, noted that worrying was the most natural and spontaneous of all human condition (Milton, 1993). Although anxiety was universal, occurring throughout our lives, and at lower levels serves as a driving or motivating force, Akiskal (1985) asserts that if it was experienced repeatedly and with sufficient intensity, anxiety can result in a maladaptive behavior.

Although fear as a response to threat was generally regarded as adaptive, in some instances anxiety may be detrimental to the effective functioning of the individual. The individual's level of anxiety may be so high that decisions cannot be made or appropriate actions cannot be taken to resolve a problem. High anxiety levels clearly can interfere with a rational, logical thought processes. In this case, anxiety became a problem that those who are interested in the welfare of school-aged children must seek to ameliorate.

Frankl (1963) presented the basis for existential anxiety. A loss of feeling that life was meaningful and the realization that human life was finite contribute to the continuing state of anxiety. He also noted that tension resulting from a person's efforts to find meaning in life was a stimulating and productive form of anxiety. Anticipatory anxiety, however, in which the individual feared the occurrence of an unpleasant event, often caused that event to occur. For example, the person who had a fear speaking before a group because his or her voice may tremble would suffer severe anguish prior to the speech and then discover that his or her voice does indeed tremble. Frankl found that paradoxical intention was often an effective logotherapeutic technique for freeing the person from this kind of anticipatory anxiety.

In recent years, behavioral psychologists have discounted the concept of anxiety as an emotional state. They prefer to examine anxiety in terms of a specific stimulus or condition under which it occurs. For example, test anxiety occurs because the test taker fears faring poorly on test results. Stage fright,

mathematics, romantic relationships, and authority figures are other stimulus that create anxiety for many persons and thus have been examined frequently.

Other psychologists view anxiety not as one response or emotion but as a complex interrelationship of human emotions or traits. Cattell (1966) and Cattell and Scheier (1961) describe anxiety as a second-order factor. The first-order components of anxiety include ego weakness, ergic tension, guilty proneness, defective integration of self-sentiment, and pretension or suspicion. These terms may seem more vague and confusing than the notion of anxiety, which has more universal communication value. However, Cattell and his colleagues did illustrate that anxiety was a complex concept and possesses numerous origins and manifold methods of expression. Izard (1972) offers greater clarity and specificity in his definition of anxiety as a “variable combination of fundamental emotions of distress, anger, shame (including shyness and guilt), and interest-excitement.” His major thesis was that anxiety was not a unitary concept but rather a complex mix of emotions and their interactions with antecedents in cultural, learning, psychological, and physiological aspects of the individual.

Gottschalk and Gleser (1969) also viewed anxiety as a multimodal concept. They described anxiety, from the perspective of their clinical work with clients, as classifiable into six categories: death, mutilation, separation, guilt, shame, and diffuse or nonspecific anxiety. Apparently, each of these can be associated with severe feelings of anxiety in the individual who seeks help through counseling or therapy.

Katz and Zigler (1967) treated the issues of both self-concept and guilt as related to anxiety. In their conceptualizations, the individual may perceive a wider gap between the ideal self and the real self with increasing age. At some developmental stage, often in adolescences or early childhood, the individual may feel guilt and anxiety about not achieving what he or she expected to achieve. As most clinicians realize, this phenomenon of guilt over unrealized goals may also come later in life in the declining years of career. This work can be connected to Erik Erikson's Stages of Psychosocial Development (Marcia, 2002), in particular his earlier stages- trust vs. mistrust, autonomy vs. shame and doubt, and initiate vs. guilt. Erikson believed that an individual must overcome each of these obstacles or crisis in order to successfully move to the next stage of development. Failure to overcome a crisis would result in a maladaptive behavior for each particular stage. By not overcoming the first stage, for example, trust vs. mistrust, a child may experience difficulty forming strong relationships thus causing the child anxiety and stress over new and existing relationships (Dusek, Flaherty, & Hill, 1981).

Although there was no universal agreement today on a definition of anxiety, there are some commonly accepted aspects of the concept. For example, the notion expressed in the last century by Freud (1924) that anxiety was something felt as an unpleasant affective state or a condition that was a simple response to a stimulus, an emotional state, or a complex interaction of several emotions was hotly debated by proponents of varying theoretical positions. Though this descriptive definition may seem vague on the surface, anxiety was

unquestionably something that everyone will be familiar with, experience, and recognize in themselves and often in others. Anxiety will always be a universal phenomenon.

What is Anxiety?

Spielberger (1972) distinguished among stress, threat, and anxiety. He noted that “stress refers to the objective, stimulus properties of a situation, threat refers to an individual’s idiosyncratic perception of a particular situation as physically or psychologically dangerous.” In contrast, state anxiety, as Spielberger described it, was an emotional reaction evoked when the individual perceived a specific situation as threatening, regardless of whether there is any present danger.

Stress became such a popular word in the 21<sup>st</sup> century that it was often used as a symptom from anxiety. Stress was best understood, however, as an interaction of anxiety and special environmental circumstances. For example, driving a car may be a pleasant experience but very stressful in heavy interstate traffic or severe weather. Scientific research required careful definitions of both anxiety and stress in an investigation of these constructs.

The emotions of fear or anxiety in reaction to an externally threatening stimulus may prompt the individual to take quick and sometimes drastic action to avoid a harmful situation. The physiological responses, such as increased flow of adrenalin, rapid heart palpitations, increased perspiration, and other changes, signal that attempt to confront or escape threat- fight or flight response (Swann, Gómez, Seyle, Morales, & Huici, 2009). However, when the incident perceived



as threatening was not really so, then the emotional state of anxiety was considered an inappropriate behavior and constitutes as a maladaptive response to the environment. A normal fear response could occur when someone appears in a classroom holding a gun; however, a state of anxiety occurs when a student has a strong fear that someone may appear in the classroom with a gun.

By the mid-20<sup>th</sup> century, literary figures, psychologists, and philosophers were commenting on the century as an “age of anxiety.” Auden (1947), in his well-known poem titled “The Age of Anxiety”, described the heightened feelings of loneliness and inability to love as indicators of anxiety. Many of the writers, poets, sociologists, and philosophers who observed the increasing anxiety of the 20<sup>th</sup> century attributed its rise to an increase in uncertainty and to bureaucratic interference with the individual’s efforts toward self-recognition and self-realization.

Psychologists, counselors, and therapists were also aware of the increase in anxiety because more of their patients were appearing with anxiety-related complaints. Therefore, a considerable volume of research and theory developed in the 20<sup>th</sup> century, especially after World War II, in an effort to understand the causes and treat the effects of anxiety. These psychologists, counselors, and therapists, as well as teachers and parents, became more aware of the effects of anxiety on children’s academic achievement and their later psychological and physiological health. Children, as well as adults, remain a focus of efforts in research and treatment as threatening influences persist in our environment. The 21<sup>st</sup> century was witness to an increase with the AIDS epidemic, death and

injuries attributed to guns and violence in the home and on the streets. The fatal attacks on children in schools, often by other students, augment our need to understand the causes and treat the effects of anxiety on children.

May (1977) described anxiety as a human response directed toward reducing or destroying forces such as aggression, fatigue, boredom, and death. In May's words, anxiety was the "experience of being affirming itself against nonbeing." May goes on to present a variety of interesting philosophical, cultural, and psychological antecedents of anxiety and to record the increase in anxiety worldwide. He also discussed the treatment of anxiety from the framework of psychotherapists and others who function in a helping relationship. Kierkegaard (1944) indicates in his 19<sup>th</sup> century work that to venture causes of anxiety, and May concluded that "the positive aspects of selfhood develops as the individual confronts, moves through, and overcomes anxiety-creating experiences."

Both Kierkegaard and May seem to be extolling the potential for human growth caused by a satisfactory response to an anxiety-producing incident. Many psychologists and educators today describe a curvilinear relationship between learning and anxiety, where both very high and very low levels of anxiety are negatively related to learning, resulting in the well-known inverted U-shaped curve between anxiety and performance on complex tasks (Yerkes and Dodson, 1908). As a television commercial once suggested, everyone needs a little anxiety in life.

## Anxiety or Fear?

Theoreticians and researchers examining the nature of anxiety generally agree also that the concept must be distinguished from fear. Fear was an immediate response to a threatening situation that probably has developed through the process of natural selection in the human and animal species. Anxiety, however, may occur when there was no real threat to an individual. This frequent perception of threat, particularly where no real physical or psychological threat exists, can create a state of anxiety that interferes seriously with the individual's effectiveness in daily activities and can disrupt normal thought process.

## Anxiety and Personality

Anxiety was also understood to be a personality trait in some individuals. This idea suggested that it was a more permanent aspect of the individual's mode of functioning. Whether or not state anxiety is evoked at a particular time depends upon the given situation and the evoking stimulus (Hawes, & Boccaccini, 2009).

Many significant differences in the individual experiences of anxiety remain. A preponderance of research attested to the reality that females express more anxiety than do males. This may occur, in part, because females are encouraged to express emotions more than males are. Some researchers maintain that anxiety occurs largely in response to environmental circumstances, whereas others depict some person subjects to a more permanent state of anxiety (Hawes, & Boccaccini, 2009). Some explanations of anxiety focus on its emotionally components, and others emphasize cognitive, physiological, and/or environmental

antecedents of anxiety. Likely, there are some elements of truth in each theory, but no one yet has the final answer on either the cause or treatment of anxiety.

#### Anxiety and Environment

The home appeared to be central in the child's early inclination toward behavioral inhibition, which was correlated with later anxiety disorders, especially in social anxiety. Behavioral inhibitions are the tendency to show fearfulness in the face of novel events or situations, including unfamiliar rooms, toys, peers, and adults (Hirshfeld-Becker, Biederman, & Rosenbaum, 2004). This behavioral inhibition on the part of the young child usually results in strong feelings of separation anxiety and environmental factors.

Both genetic and environmental factors are cited as influencing children's development of anxiety disorders ("Children's Fears and Anxieties", 2004). Both twin and adaption studies that suggested heredity as one factor in the development of anxiety, behavioral inhibitions are reported to occur as early as four months of age. The child not only withdraws from strangers but his or her heart begins to beat fast and the amygdala, often associated with fear, anxiety, and emotional expression, shows a high level of activity.

#### Family Relations

Just as with many species of lower animals, human offspring compete for parental favor. Birth order was just one of many factors that influence the ways in which this competition is expressed. By itself, competition among siblings does not cause birth-order a difference in personality, but birth order was a powerful proximate (environmental) source of sibling strategies. These strategic variations

arise because birth order was correlated with differences in age, physical size, power, and status within the family. These disparities cause siblings to experience family relationships in dissimilar ways and to pursue differing ways of maximizing their parents' investments in their welfare. Competition for parental love and attention has been an important driving force in human evolution, just as have been parental decisions about how to invest in offspring. Before 1800, half of all children did not survive childhood, and differences in parental favor, mediated through nutrition and health care, influenced which children reached adulthood (Volland, 1988, 1990). Children living long enough to become the eldest in a family were often a better Darwinian bet for their parents. Having survived the most perilous years of life, these children were more likely than their younger brothers and sisters to reach the age of reproduction and to pass on their parents' genes. In every society surveyed by anthropologists, eldest children are accorded higher status (Rosenblatt & Skoogberg, 1974). Parental investment strategies tend to be variable because parents themselves do not always share the same interests and because birth order was only one of many relevant factors in these decisions. In addition to taking into account the relative quality of their offspring, parents may invest differentially in children based on such considerations as the parents' age and available resources. Leaving property exclusively to the eldest child was a policy that has been practiced by affluent parents in agrarian societies, where wealth is tied to land and where talent does not matter much. This inheritance system is much less common in mercantile societies where wealth can be acquired rapidly through entrepreneurship. Under these conditions, parents tend to invest equally in all of

their offspring (Hrdy & Judge, 1992; Sulloway, in press-b). Even when parents do not favor one child over another, sibling competition influences the dynamics of family life because it promotes diversity. Such competition generally involves the cultivation and exploitation of family niches that correspond to differences in birth order. That families provide offspring with a series of niches was a conclusion that is also suggested by research in behavioral genetics (Plomin & Daniels, 1987).

During the last two decades psychologists have discovered that brothers and sisters raised together are almost as different in their personalities as people who grow up in separate families. From studies of twins raised together and apart, behavioral geneticists have concluded that only about five percent of the variance in individual personality traits are attributable to the shared environment, that is, growing up in the same family—whereas thirty-five percent was associated with the non-shared environment. About forty percent of the overall variance is believed to be genetic, and the remaining twenty percent were attributable to errors of measurement (Loehlin, 1992). By suggesting that the family is not a single environment, but rather a collection of microenvironments or “niches,” these research findings have begun to reshape the understanding of personality development. The main reason why the shared family environment does not have a substantial impact on personality was that very little of the family experiences are actually shared. For example, siblings often interpret shared experiences differently, something that was reinforced by the circumstance that brothers and sisters are at different ages when they experience the same events within the family. One particularly important and systematic source of non-shared experiences was

birth order.

### Birth Order

Alfred Adler (1927, 1928) highlighted social influences on personality, including birth order, as part of his challenge to Sigmund Freud's biologically based theory of psychosexual development. Adler regarded firstborns as "power-hungry conservatives," middle-borns as competitive, and youngest children as spoiled and lazy.

Psychologists have conducted more than two thousand studies on the subject of birth order since Adler set forth his own theories on the subject. Critics of this literature have rightly argued that the findings conflict and that most studies are inadequately controlled for social class, sibship size, and other background influences that, because they correlate with birth order, can lead to false conclusions. Nevertheless, meta-analysis—a technique for aggregating findings from different studies in order to increase statistical power and reliability—suggests that these differences are robust. Consider those well-designed studies that control for sibship size and social class, meta-analysis points to consistent birth-order differences for many personality traits. These conclusions may be summarized in terms of the Five Factor Model of personality (Sullo way 1995, 1996, in press-a). Four studies generally show that firstborns are more conscientious than laterborns, a difference that was exemplified by their being more responsible, ambitious, organized, and academically successful. Laterborns emerge as being more agreeable than firstborns, in the sense of being more tender-minded, accommodating, and altruistic. Differences by birth order are more limited and

mixed for the three remaining dimensions of the Five Factor Model. Laterborns appear to be more open to experience, as expressed by their being more non-conforming and unconventional; by contrast, firstborns appear to be more open to experience in ways that reflect intellectuality. Compared with laterborns, firstborns also appear to be more neurotic in the sense of being temperamental and anxious about their status. Lastly, firstborns are more extraverted than laterborns, in the sense of being assertive and dominant; whereas laterborns are more extraverted in the sense of being fun-loving and sociable. Sociability and assertiveness are substantially different personality traits, even though they are classified together within the Five Factor Model. Firstborns tend to have higher IQs than laterborns, but this difference is small, especially after one controls for differences in sibship size. On average, IQ declines one point with each increase in birth rank. Proponents of the Five Factor Model consider IQ to be a sixth factor, largely independent of personality. The causes of these reported IQ differences are controversial and have given rise to several competing theories. According to the confluence model (also known as the resource dilution hypothesis), firstborns experience an environment that was intellectually richer than the one experienced by laterborns, who progressively dilute this environment with their own relative lack of intellectual ability (Zajonc & Mullally, 1997; Zajonc, 2001; and Downey, 2001). Considerable evidence—both developmental and cross-cultural—appears to support the validity of this hypothesis in samples fully controlled for social class and sibship size, although some critics remain unconvinced (Retherford & Sewell, 1991; Rodgers, Cleveland, van den Oord, & Rowe, 2000; Rodgers, 2001).



Birth order differences in personality vary in size, and sometimes even in direction, depending on how they are measured. When assessed by self-report questionnaires, birth-order effects are generally modest and non-significant. Yet significant differences are typically found when parents rate their own offspring or when siblings compare themselves with one another. A comparative method of assessment has several advantages over customary methods of self-report. Direct comparison serves to anchor the scales. In addition, comparative judgments among siblings obviate any confounding effects associated with differences between families. In one study, involved unanchored as well as anchored scales in a survey involving 660 business leaders (Suloway, 1999). In self-report personality ratings, firstborn CEOs did not differ from laterborns on ten of the eleven personality traits included in my survey. After providing these self-assessments, respondents were asked to compare themselves with their siblings, using the same scales. In these direct comparisons, eight of the eleven scales included in the survey elicited significant birth-order differences. Relative to their younger siblings, firstborn business leaders were more dominant, tough-minded, uncooperative, inflexible, conservative, conventional, temperamental, and lacking in empathy. These comparative ratings produced birth order differences that were five times larger than those previously obtained, using unanchored scales. A much larger follow-up study involving 6,053 individuals aged eight to ninety-five ( $M=36.8$ ,  $SD=17.1$ ) has produced similar results for a broad array of personality traits. Firstborns were asked to rate themselves and an immediately younger sibling, whereas laterborns were asked to rate themselves and an immediately older sibling. Subjects made

their assessments on nine-step scales using bipolar adjective pairs. Thirty adjective pairs were selected to represent the thirty facets of the NEO PIR, a comprehensive personality inventory based on the Five Factor Model (Costa & McCrae, 1992). In direct sibling comparisons, twenty-three of these thirty bipolar adjective pairs yielded significant differences—all in the expected direction. As anticipated, firstborns were judged to be more conscientious than their younger siblings, whereas laterborns were judged as being more agreeable, extraverted, and open to experience. For Neuroticism, a dimension for which birth order differences were expected to be minimal and mixed, firstborns were found to be more anxious and quicker to anger, whereas laterborns emerged as more self-conscious.

## CHAPTER III

### Methodology

#### Sample

The participants in the study were freshmen, sophomore, and junior high school students ranging in age from fifteen to seventeen- the mean age was 15.3. the sample of students was taken from College Preparatory History classes. The high school that was used was located in the North West region of New Jersey with a predominantly high socioeconomic status- all students identified themselves as white/ Caucasian. The students did not receive any incentive for participating in the study. The proportion of males to females was twenty-one males to thirty-two females, totaling n= fifty-three. The break down of grade level was the following; nineteen freshmen, twenty-one sophomores, and eleven juniors. The sample was also broke down into twenty-one first born- nine males and twelve females and thirty-two non-first-borns- twelve males and twenty females.

#### Measure

The Revised Children's Manifest Anxiety Scale, 2<sup>nd</sup> Ed. was used as a way to determine the student's overall level of anxiety. This Revised Children's Manifest Anxiety Scale-2 (RCMAS-2) was updated and formatted by Cecil R. Reynolds, Ph.D., and Bert O. Richmond, Ed.D. The RCMAS-2 was a brief self-report inventory measuring the level and nature of anxiety in six to nineteen year

olds. The test was composed of forty-nine items covering the following scales: psychological anxiety, worry, social anxiety, defensiveness, and a built in inconsistent responding index. The test generated a Total Anxiety score plus scale scores. Norms are based on an ethnically diverse sample of more than 2,300 individuals between the ages of six and nineteen, with almost equal numbers of males and females. Norms are presented separately for three age groups: six to eight years, nine to fourteen years, and fifteen to nineteen years.

### Design

This research study called for two sets of variables. The first considered birth order as the independent variable and the overall level of anxiety as the dependent variable. The second set of variables looked at gender as the independent variable and overall level of anxiety as the dependent variable.

### Hypotheses

Based on past research on the matter of birth order and how it related to the overall level of anxiety of a person, many sets of hypotheses were established. All of the hypotheses were based on birth order- first-born or non-first born, and gender- male or female. The following table describes the hypotheses for this research study- who will have a higher level of anxiety for each of the subgroups that the RCMAS-2<sup>nd</sup> Ed. tested for.

Table 1- Summary of Hypotheses

	First-Born	Non-First Born	Male	Female
Total Anxiety	X			X
Defensiveness		X	X	
Physiological Anxiety		X	X	
Worry	X			X
Social Anxiety		X		X

It was hypothesized that the first-born child would have a higher level of total anxiety than a non-first born child. It was also hypothesized that females would have an overall higher level of anxiety than males. The Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Edition tests for specific types of anxiety: total anxiety, worrying, social anxiety, physiological anxiety, and defensiveness. The RCMAS-2<sup>nd</sup> Ed. also has a built in inconsistent response measure. It was hypothesized that females will feel a higher level of total anxiety, worrying, and social anxiety while males would have a higher level of defensiveness, and physiological anxiety.

#### Analysis

For all of the hypotheses, a 2-way ANOVA was used to determine the relationship between each gender and birth order and how they interacted with each anxiety scale. A set of frequency measures was also used to determine the demographics of the participants. T-tests were also use to determine the significance of each section of the anxiety scale and how it related to birth order and then gender.

## Summary

The focus of this study was to examine how birth order affected anxiety in high school students. The Revised Children's Manifest Anxiety Scale-2<sup>nd</sup> Ed. was used to determine anxiety; total anxiety, defensiveness, physiological anxiety, worrying, and social anxiety between first born children and non-first born children and then between males and females. This study hypothesized that first-born children will have a higher anxiety score on total anxiety and worrying and that non-first born children will have a higher anxiety score on defensiveness, physiological anxiety, and social anxiety. This study also hypothesized that males will have a higher anxiety score on defensiveness and physiological anxiety while females will have a higher anxiety score on total anxiety, worrying, and social anxiety.

## CHAPTER IV

### Analysis of Data

#### Introduction

There were 53 total participants in the study. The gender breakdown was 21 males to 32 females. The birth order break down was 21 first-borns to 32 non-first born. The data was manipulated using two main forms of analysis, 2-way ANOVA's and t-tests. The data was divided into the appropriate groups and subgroups depending on what the Revised Children's Manifest Anxiety Scaled 2<sup>nd</sup> Ed. was evaluating. An alpha level of .15 was accepted for all significant values.

#### Results

Five 2-way ANOVAs were run to see the interaction between gender and birth order and how each subgroup of the RCMAS 2<sup>nd</sup> Ed. was affected. The subgroups included total anxiety, defensiveness, physiological anxiety, worrying, and social anxiety. The 2-way ANOVA's were run for each subgroup between gender and then birth order. No significant results were found from any of the groups.

Independent Samples T-tests were run to determine the relation between gender and birth order and the different subgroups. No significant results were yielded from the independent samples t-test with gender and any of the

subgroups. No significant results were yielded from the independent samples t-test with birth order and any of the subgroups of anxiety.

### Summary

After collecting the data and running the significance tests, the data produced findings that failed to reject all the null hypotheses. The implications of these findings will be discussed in the following chapter, along with the limitations of the study, and need for further research.



## CHAPTER V

### Summary, Conclusions, and Recommendations

#### Summary

The purpose of this study was to see if there is an interaction between anxiety levels and birth order. It was hypothesized that the first-born child would have a higher level of total anxiety than a non-first born child. It was also hypothesized that females will have an overall higher level of anxiety than males. The Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Edition, which was used to measure the different subtests of anxiety, tested for specific types of anxiety: total anxiety, worrying, social anxiety, physiological anxiety, and defensiveness. It was hypothesized that females would feel a higher level of total anxiety, worrying, and social anxiety while males would have a higher level of defensiveness, and physiological anxiety. The data was analyzed using t-tests and 2-way ANOVA's to determine the significance of the interactions. Implications for anxiety in an educational setting are discussed and reviewed.

Anxiety disorders affect one out of every ten children. Some of the physical symptoms of generalized anxiety disorder (GAD) are restlessness, fatigue, difficulty concentrating, irritability, and muscle tension. These symptoms coupled with a sense of apprehension or worry can have profound interactions with the child's ability to function (Conner, 2002). Everyday tasks can become difficult and almost unmanageable- like the world is going to end. Children with

GAD tend to be very hard on themselves; sometimes repeating a task several times until it is perfect. These children also tend to seek approval and reassurance from peers and elders ([www.adaa.org](http://www.adaa.org)). With this kind of daily regiment, it was no wonder that the statistic for childhood anxiety is so high. Children that suffer from GAD need a strong support system to overcome or adjust to their anxiety.

When addressing with the psychological, social, and environmental issues that cause anxiety, family relations and structure must be taken into consideration. A family's structure and where the child fits in can have major effects on that particular child's development and how they perceive the world. According to Alfred Adler's psychological positions of birth order, each child will take on a specific role (Adler, A. et al., 2005). For example, the oldest receives the most attention, the middle child often feels squeezed out, and the youngest is the baby and treated accordingly. While this theory does not apply to all family set ups, it gives a nice foundation for further research.

By understanding what needs children will have based on their birth order, practitioners can become better suited to address their specific issues concerning their anxiety. Researching how birth order interacts in a child's anxiety levels, school psychologists and other child service providers can begin early intervention work by helping the child recognize what causes them such anxiety and how to manage it. By applying the knowledge of birth order, school psychologists can begin to work with the child to accept their possible predisposition to anxiety and adjust for it.

Just as with many species of lower animals, human offspring compete for

parental favor. Birth order was just one of many factors that influence the ways in which this competition is expressed. By itself, competition among siblings does not cause birth-order a difference in personality, but birth order was a powerful proximate (environmental) source of sibling strategies. These strategic variations arise because birth order was correlated with differences in age, physical size, power, and status within the family. These disparities cause siblings to experience family relationships in dissimilar ways and to pursue differing ways of maximizing their parents' investments in their welfare. Competition for parental love and attention has been an important driving force in human evolution, just as have been parental decisions about how to invest in offspring. Before 1800, half of all children did not survive childhood, and differences in parental favor, mediated through nutrition and health care, influenced which children reached adulthood (Voland, 1988, 1990). Children living long enough to become the eldest in a family were often a better Darwinian bet for their parents. Having survived the most perilous years of life, these children were more likely than their younger brothers and sisters to reach the age of reproduction and to pass on their parents' genes. In every society surveyed by anthropologists, eldest children are accorded higher status (Rosenblatt & Skoogberg, 1974). Parental investment strategies tend to be variable because parents themselves do not always share the same interests and because birth order was only one of many relevant factors in these decisions. In addition to taking into account the relative quality of their offspring, parents may invest differentially in children based on such considerations as the parents' age and available resources. Leaving property exclusively to the eldest child was a policy

that has been practiced by affluent parents in agrarian societies, where wealth is tied to land and where talent does not matter much. This inheritance system is much less common in mercantile societies where wealth can be acquired rapidly through entrepreneurship. Under these conditions, parents tend to invest equally in all of their offspring (Hrdy & Judge, 1992; Sulloway, in press-b). Even when parents do not favor one child over another, sibling competition influences the dynamics of family life because it promotes diversity. Such competition generally involves the cultivation and exploitation of family niches that correspond to differences in birth order. That families provide offspring with a series of niches was a conclusion that is also suggested by research in behavioral genetics (Plomin & Daniels, 1987).

#### Limitations and Directions for Future Research

There were limitations to the study that could have had an affect on the findings. In the future, such a study should be examined with a larger and more diverse sample size. The present study was conducted with a small sample size and from a homogenous sample population. A larger sample size will allow for more first-born male and female participants to be exposed, yielding more conclusive results.

When testing for anxiety, the test itself can produce an anxiety-evoking situation, which could be a confounding variable to the research. Another confounding variable could be the location that the test was presented in. The current study conducting the anxiety test in a school setting, where students may have felt pressure in the presence of their peers, resulting in inaccurate scores. Although the Revised Children's Manifest Anxiety Scale 2<sup>nd</sup> Ed. had a built in

inconsistent scoring record to rule out any potential inconsistent responses, students may have felt uneasy answering certain questions for fear that their peers would see their responses.

### Implications and Discussion

Although the tests that were run did not yield significant results, future studies with a larger sample size may produce significant data, which is why this study should be replicated. The tests that were significant involved birth order and physiological anxiety and birth order and social anxiety. Both results suggest that first-born children will have a higher level of physiological and social anxiety.

By understanding what needs children will have based on their birth order, practitioners can become better suited to address their specific issues concerning their anxiety. Researching how birth order interacts in a child's anxiety levels, school psychologists and other child service providers can begin early intervention work by helping the child recognize what causes them such anxiety and how to manage it. By applying the knowledge of birth order, school psychologists can begin to work with the child to accept their possible predisposition to anxiety and adjust for it.

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