

A Review of 200 Birth-Order Studies: Lifestyle Characteristics

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Abstract

Alfred Adler was one of the first theorists to use birth-order position in his conceptualization of clients. Birth order continues to inform professionals practicing from an Individual Psychology framework; however, the wealth of research on the topic can seem overwhelming. Using a modified version of Light and Smith's (1971) *vote-counting* methodology, the authors reviewed 200 published articles with statistically significant findings of birth order characteristics. From these studies, lifestyle characteristics associated with birth order were tabulated to provide a clear picture of results. Examples of typical characteristics associated with persons of specific birth-order positions include high success and achievement for first-born children, high need for achievement for only children, high sociability for middle children, and high social interest for youngest children. Implications for counselors conclude the article.

Birth order is an extensively researched and controversial concept in the social science literature. Ernst and Angst (1983) reported that many birth-order studies are both confounding and poorly executed, and a number of researchers echo their opinion by minimizing the importance of birth order. However, Sulloway's *Born to Rebel* (1996) brought renewed energy to birth-order research. Although the book was acclaimed by many, it also found equally ardent detractors (e.g., Freese, Powell, & Steelman, 1999; Johnson, 2000; Spitzer & Lewis-Beck, 1999). Major criticism centered on Sulloway's research design as well as accusations of misleading manipulation of the data (Johnson; Spitzer & Lewis-Beck).

The sheer volume of research on birth order can be overwhelming. Miley (1969), Forer (1977), Watkins (1986), and Stewart and Stewart (1995) all compiled bibliographies on birth-order research, and Stewart and Stewart alone found 1,065 items published about birth order from 1976 to 1993. In an attempt to make sense of the broad amount of information available in birth-order research, Eckstein (2000) categorized the birth-order attributes of 154 birth-order studies. The primary goal of this study was to expand that earlier research by categorizing and synthesizing the 200 studies we reviewed. Additional aims were to provide a response to critics who

argue that there is no research in support of birth-order characteristics and to incorporate core Adlerian personality implications along with statistically significant studies indicating birth-order differences. Implications for counselors conclude the article.

An Adlerian Perspective of Psychological Birth Order

Adler was one of the first theorists to incorporate the concept of birth order into his work, using it with other information as a means to assess life-style (Ansbacher & Ansbacher, 1956). Shulman and Mosak (1977) described two definitions of birth order: *ordinal position*, which refers to the actual order of birth of the siblings, and *psychological position*, which refers to the role the child adopts in his or her interactions with others. Adler (as cited in Ansbacher & Ansbacher) emphasized the importance of psychological birth order, stating, "it is not, of course, the child's number in the order of successive births which influences his character, but the situation into which he is born and the way in which he interprets it" (p. 377). In support of psychological position, Carlson, Watts, and Maniaci (2006) note that age differences greater than 5 years often place children into distinct subgroups that confound strict ordinal positions. They suggest that because age 5 is when school typically begins, a new child coming into the family will not have as much direct contact with the school-age sibling. From a cognitive sense, a newborn and a 5-year-old are in vastly different stages of development. Another challenge to strict ordinal positions is when one child has a physical or mental disability which may alter psychological roles through a decrease in abilities. The death of a child can also confound psychological roles within the family. These situations illustrate a skew in the research if strictly considered from an ordinal perspective.

Gender may be influential when the parents model strong sex role differences. For instance, a third-born child who is the first son born into a family may be treated more like a first-born child than like a later-born child. Adler (1938) added that a unique problem may arise in the case of an older boy who is followed by a slightly younger sister. Because girls tend to develop faster than boys, this situation may result in the older boy's constantly striving for superiority and, in the girl, a pervasive sense of inferiority may ensue. While gender affects some birth-order perceptions in today's society, Adler's observation likely reflected the cultural milieu of the 1930s and society's subsequent beliefs about gender; these are not necessarily true in all families today.

Finally, ordinal positioning becomes quite complex when applied to blended families. One cannot simultaneously be a second and fourth born

in ordinal birth order. Numbers are categorical concepts, not dimensional ones. Multiple psychological positions often occur in blended families, making assessing the subjective nature of the individual's birth-order position paramount.

The effects of ordinal and psychological birth order extend to research findings as well. Birth-order literature is often characterized by conflict and ambiguity (Herrera, Zajonc, Wieczorkowska, & Cichomski, 2003). For example, Ernst and Angst (1983) looked at data and decided that "birth order differences . . . have been widely overrated" (p. 242). Conversely, Sulloway (1996) examined the *same* data and concluded, "The literature . . . exhibits consistent trends" (p. 242).

To address contradictions in birth-order research, Watts and Engels (1995) hypothesized that Adlerians typically consider *psychological* birth order, whereas non-Adlerians tend to focus on *ordinal* birth position. The majority of research examines ordinal position because instruments to measure psychological position, such as the White-Campbell Psychological Birth Order Inventory (PBOL; Campbell, White, & Stewart, 1991) are few. Research focusing only on ordinal position may neglect important psychological factors. Across both ordinal and psychological perspectives, however, there do appear to be distinctive personality differences in various birth-order positions..

A Review of Sulloway and Other Current Research

In *Born to Rebel*, Sulloway (1996) approached birth order through an evolutionary psychology lens by arguing that functional birth order, like Adler's psychological birth order, has preeminence over biological birth order. In his research about birth-order personality factors, Sulloway's findings lent support for Adler's theory. Specifically, Sulloway asserted that first-born children are typically more achievement-oriented, antagonistic, anxious, assertive, conforming, extraverted, fearful, identified with parents, jealous, neurotic, organized, planful, responsible, self-confident, and traditional than their siblings. They also tend to affiliate under stress and are more likely than later-born children to assume leadership roles. Conversely, Sulloway found later-born children are generally more adventurous, altruistic, cooperative, easygoing, empathic, open to experience, popular, rebellious, risk-taking, sociable, and unconventional.

Dethronement, a likely influence on Adler's theory (Ansbacher and Ansbacher, 1956) and Sulloway's (1996) findings of birth-order characteristics, is often felt by first-born children with the birth of another sibling. Adler (1937) cited an example of an adult man who had developed difficulty

swallowing. In the course of therapy, it was discovered that as a young boy he had been able to regain his parent's attention by the medical necessity of attending to him during just such times. Such behavior only occurred after the birth of another sibling.

Stein (1999) notes that dethronement is more likely to occur in families that are very competitive. He gives an example of a female first-born child whose father expressed a strong desire for a boy. Her creative solution was to become a type of substitute son for her father. For example, they often went hunting together. But with the birth of an actual son, her place of significance was replaced by a feeling of displacement. While the experience of dethronement can occur with any birth order, the often inordinate attention paid to the first-born child when he or she is the sole child can result in inappropriate behaviors meant to refocus the attention away from the new arrival back onto the original "center of the universe" child.

In contradiction to conjectures that Sulloway's (1996) research design was lacking and that he manipulated data (Johnson, 2000; Spitzer & Lewis-Beck, 1999), several studies corroborate Sulloway's (1996) results. Paulhus, Trapnell, and Chen (1999) tested Sulloway's findings using a within family design, and their results were consistent with Sulloway's conclusions. Zweigenhaft and Von Ammon (2000) reported that later-born children were more likely to have been arrested and that the effect was not confounded because of family size. Healey and Ellis (2007) confirmed Sulloway's hypothesis that first-born children are higher in achievement and conscientiousness and later-born children are more rebellious and open to experience.

Sulloway's (1996) hypothesis was partially supported by Zweigenhaft (2002). Zweigenhaft examined marijuana use and willingness to participate in protest demonstrations. Later-born children were more likely to use marijuana (which supported the hypothesis of being more rebellious) but were not more likely to be active in a demonstration. To understand this from a psychological perspective, Carlson et al. (2006) proposed that later-born characteristics may result from a teeter-totter game that second-born children play with first-born children in which one goes up when the other goes down. For example, if the first-born child is good in math, then the second-born child will typically choose to ignore math and focus on something the first-born child ignores, such as sports. A similar phenomenon may also occur with personality traits such as rebelliousness. Youngest children can also become the most ambitious in the family if they perceive themselves to be so far behind that they strive to catch up with the older ones to prove they are no longer babies (Carlson et al.).

Some other exemplary birth-order research includes a summary of a 25-year longitudinal study of birth order and eventual academic achievement from 1977 through 2002 (Fergusson, Horwood, & Boden, 2006). Fergusson

and colleagues found that descending birth order was related to higher achievement as measured by high school completion, entrance into a university, and university degree obtainment. Paulhus et al. (1999) conducted four studies (two in Canada, two in California) using a within-family design. In all four research studies, first-born children were rated as being higher scholastic achievers as well as being more conscientious.

Recent research has focused on birth order in relationships (Hartshorne, Salem-Hartshorne, & Hartshorne, 2009). Hartshorne et al. conducted two different online surveys in which 2,624 responses were tallied. They found that people are "more likely to form close platonic and romantic relationships with other people of the same birth order" (p. 156). They also discovered strong effects of birth order for both friendship and for romantic relationships with "between 6% and 88% ($M = 28\%$) more oldest-oldest, middle-middle, youngest-youngest and only-only pairings than expected" (p. 168). Such results are consistent with another finding by Burgess and Wallin (1943), noting 14% more same-birth-order spouses than would be expected by chance.

Herrera et al.'s (2003) contribution is one the most comprehensive on this subject. Their study focused on the effects of individuals' *perceptions* of birth-order characteristics and their psychological origins. Studies involving the psychological origins of birth order "reflect some reality about the correlates of birth order and may well influence the actual role of birth order in society" (p. 142) as people make decisions, often unconsciously, based on their beliefs about birth-order characteristics. Adler (Ansbacher & Ansbacher, 1956) similarly noted that parents and members of society can impose on children beliefs about different birth-order characteristics which can affect expectations, rearing practices, and ultimately children's outcomes in life. After combining samples from the United States and Poland, Herrera et al. found that their 196 participants *believed* that:

- (a) first borns are the most intelligent, responsible, obedient, and stable, and the least emotional and creative,
- (b) only children are the most disagreeable,
- (c) middle borns are the most envious and the least bold and talkative, and
- (d) last borns are the most creative, emotional, extraverted, disobedient, irresponsible, and talkative. (p. 144)

Beliefs about birth-order differences may also translate into career choice (Herrera et al., 2003). In both a Wisconsin-focused study and a Stanford University California-based study, participants believed that first-born adults were more likely to work as accountants, lawyers, architects, police officers, surgeons, college professors, or astronauts. (Interestingly, the first 16 astronauts were oldest or first-born men.) Conversely, later-born adults were stereotyped in such occupations as firefighter, high school teacher, musician, photographer, social worker, and stunt man. The authors

found that the average prestige of occupations attributed to first-born adults was significantly higher than that of last-born adults. Similar trends were found in a fourth study comparing actual occupational prestige and academic attainment of the various birth ranks.

Several studies show significant birth-order effects but fail to fit nicely into specific categories. While these are not listed in the tables below, it is important to note their findings. For example, the interaction of gender and birth-order factors in to some studies in regards to characteristics such as intelligence (Kirkcaldy, Furnham, & Siefen, 2009), age of first sexual intercourse (Milne & Judge, 2009), and behavior problems (Lahey, Hammer, Crumrine, & Forehand, 1980). Just as Adler (Ansbach & Ansbatcher, 1956) proposed that environmental influences affect birth-order characteristics, these studies suggest that some of these characteristics may differ by gender and birth order, not simply by birth order alone.

Birth-Order Implications for Alfred Adler's Own Life and Theory

One of the most concrete examples of the interrelationship of sibling dynamics on one's later theoretical model is in the life and theory of Alfred Adler himself. A salient experience for Adler was the interplay of feelings of inferiority coupled with striving for superiority. Growing up small in a world of giants and striving for superiority were driving motivators in Adler's own life. He was initially aligned with the original giant of psychology, Sigmund Freud, but his striving began many years before meeting Freud.

Many of Adler's later memories of his childhood revolved around his older brother. Here is one example:

I remember sitting on a beach bandaged up on account of rickets, with my healthy elder brother sitting opposite me. He could run, jump, and move about quite effortlessly, while for me, movement of any sort was a strain and an effort. Everyone went to great pains to help me and my mother and father did all that was in their power to do. (as cited in Mosak & Kopp, 1973, p. 158)

Adler believed that Sigmund, his older brother, was the favored one in the family. During Adler's entire life, the albatross around his neck was, "I'm not Sigmund!"

Not surprisingly, Adler stressed that second-born children make the best counselors. Not only do they have the opportunity to observe and profit from mistakes the first-born children make, but they also can learn compassion for others by themselves initially being in a "second place-act two slot" coming into the world (Ansbatcher, 1992).

Because of the lack of studies of second-born children, we excluded Adler from our study by limiting the study to the following four most

prevalent birth-order positions in the professional literature: *first*, *middle*, *youngest*, and *only*. Second-born children are largely ignored in the research literature. Future research, possibly led by a second-born author, might focus on this important Adlerian construct. Such research would be an important next step to the birth-order investigation.

Method

We set out to create a representative study of ordinal and psychological birth-order research that could provide a gestalt of statistically significant results. We searched the Academic Search Complete, PsycARTICLES, PsycEXTRA, Psychology and Behavioral Sciences Collection, PsycINFO, Science Direct, and Sociological Collection databases and examined studies that found a statistically significant effect ($p < .05$) for a birth-order position and recorded these studies in the appendix. We then tabulated and summarized the results of the research, listing findings from the most prevalent to the least. Certain results pertaining to constructs being observed were grouped together in the tables when the findings were of a similar construct (e.g., marijuana use, increased likelihood of arrest, and increased likelihood of sexual offense were grouped together under the construct of rebelliousness).

The concept of researching a selective sample stems from the vote-counting methodology. Light and Smith (1971) introduced the term *vote-counting* to describe the procedures researchers use to collect and to report data. Their three suggested categories are to report articles that (a) show significant differences in birth-order studies, (b) yield negative instances (i.e., negative correlation between a particular attribute and birth order when other results are showing positive correlations), and (c) yield results that are not statistically significant.

In a modification to Light and Smith's (1971) method, we only present studies that showed significant differences in birth order. Because we modify the vote-counting methodology, a limitation of the research is that it does not report nonsignificant studies. However, the scope of the study is in providing an overview of some of the existing literature from 1960 to 2010.

Results

The following four tables summarize, in rank order, the statistically significant personality factors along with the actual number of cited studies. Only those characteristics reported in *more than one study* are represented in the tables.

Table 1
Characteristics of First-Born Children

Characteristic	<i>n</i>	Citation
Highest academic/intellectual success	23	1, 3, 23, 24, 25, 33, 34, 35, 51, 69, 73, 83, 86, 100, 106, 127, 136, 137, 164, 167, 190, 194, 195
High achievers	12	4, 34, 60, 85, 86, 95, 111, 133, 152, 171, 185, 196
Highly motivated	9	8, 60, 62, 73, 78, 153, 160, 161, 170
Most likely a leader/dominant	9	6, 20, 66, 78, 85, 92, 127, 128, 172
Most affiliative	7	1, 53, 73, 103, 131, 147, 148
Most affiliative under stress	7	79, 91, 120, 147, 163, 175, 193
Overrepresented among learned	6	3, 4, 23, 70, 72, 85
Most influenced by authority	6	21, 73, 117, 129, 135, 181
Conformist to parental values	6	60, 73, 93, 110, 129, 135
Least conventional sexually	5	73, 77, 87, 181, 186
Most fearful in new situations	5	45, 73, 84, 115, 186
Earliest sexuality	5	73, 77, 87, 181, 186
Most likely to be politician	5	6, 73, 92, 128, 189
Responsible and conscientious	5	22, 60, 73, 83, 136
Mature behavior	4	3, 43, 154, 192
Highest self-esteem	4	47, 73, 76, 78
Type A behavior	4	20, 94, 127, 142
Dependent on others' approval	4	73, 74, 93, 135
Most vulnerable to stress	3	91, 163, 170
Self-disciplined	3	73, 110, 129
Least emotionality	3	76, 86, 123
Competent and confident	3	70, 73, 182
Conservative toward change	3	60, 73, 76
Highest activity levels	3	58, 59, 113
Likely to have frightening dreams	2	118, 119
Women in leadership positions	2	60, 61
Higher narcissism	2	51, 96

Note. *n* = number of studies. Citation numbers refer to references in the appendix.

Table 2
Characteristics of Only Children

Characteristic	<i>n</i>	Citation
Achievements/intelligence (exclude oldest)	7	3, 24, 33, 42, 88, 100, 137
Most need for achievement	5	8, 62, 73, 153, 161
Most likely to go to college	4	19, 190, 192, 196
Most behavior problems	4	43, 97, 154, 192
Lowest need for affiliation	4	45, 64, 101, 156
Selfish	3	64, 78, 170
Need for affiliation under stress	3	79, 91, 163
Percentage of psychiatric disorders	2	23, 183
Most likable (exclude youngest)	2	1, 25
Most cooperative	2	64, 170
Most trusting	2	64, 181
Strongest gender identity	2	27, 170

Note. *n* = number of studies. Citation numbers refer to references in the appendix.

Table 3
Characteristics of Middle Children

Characteristic	<i>n</i>	Citation
Feelings of not belonging	7	60, 73, 78, 83, 121, 158, 159
Sociable	5	57, 60, 73, 133, 158
Fewest "acting out" problems	4	73, 75, 168, 169
Success in team sports	2	73, 180
Relates well to older and younger people	2	57, 73
Competes in different areas than oldest	2	60, 178
More faithful in monogamous relationships	2	39, 78

Note. *n* = number of studies. Citation numbers refer to references in the appendix.

Table 4
Characteristics of Youngest Children

Characteristics	<i>n</i>	Citation
Highest social interest/agreeableness	11	14, 20, 55, 56, 73, 78, 86, 123, 124, 136, 162
Most rebellious	8	22, 49, 83, 86, 116, 136, 199, 200
Most empathic	7	73, 74, 78, 86, 162, 175, 179
Most likely to be an alcoholic	6	12, 13, 28, 29, 109, 165
Overrepresentation of psychiatric disorders	5	16, 17, 23, 56, 73
More artistic, less scientific	5	30, 38, 73, 86, 191
Act as only child if seven-year difference	3	81, 170, 183
Anxiety like oldest if 5 years gap in siblings	3	45, 73, 84
Most popular	3	55, 73, 124
Choose activities involving social interplay	3	55, 73, 132
Perceived as spoiled	3	60, 73, 78
Highest self-esteem	2	73, 97
Lowest IQ	2	23, 97
Cognitively specific	2	73, 82
Most disturbed by losing a parent	2	52, 104

Note. *n* = number of studies. Citation numbers refer to references in the appendix.

First-born children. First-born children received much attention, making them a well-researched group. The definition of a first-born child is the first child born in a family with subsequent siblings. Therefore, first-born children are distinguished from only children. The effect of having a sibling is an important distinction that would be muted if the two groups were combined. Table 1 shows the most prevalent findings for first-born children from 107 studies that we located.

Only children. Table 2 focuses on only children. By definition, only children are first-born children, and there are many similarities in their characteristics (compare with Table 1). However, not having siblings also

constitutes a distinction in birth-order typology, as the differences between Table 1 and Table 2 indicate.

Middle children. Table 3 describes middle children. Middle children include all children born between the first-born child and the youngest child. The characteristics listed in Table 3 differ substantially from those listed in Table 1 for first-born children and Table 2 for only children.

Youngest children. Table 4 describes youngest children. Youngest children are the last children born of families with two or more children. As the table demonstrates, characteristics of youngest children differ in many ways from characteristics of the other three groups.

Discussion and Counseling Implications

Consistent with Adler's perspective, a recent emphasis in the literature has been the importance of the subjective nature of birth order. Despite criticism of birth-order findings (Ernst & Angst 1983; Freese et al., 1999; Johnson, 2000; Spitzer & Lewis-Beck, 1999), research overwhelmingly supports general differences in birth-order characteristics (e.g., Paulhus et al., 1999; Sulloway, 1996). Moreover, these findings regarding specific birth-order characteristics are rarely as confounding as Ernst and Angst argued. Most studies of similar characteristics find comparable results. Some criticism of Sulloway's major contribution has focused on reports of flawed research design and manipulation of data (Johnson; Spitzer & Lewis-Beck); however, successful replication of Sulloway's research (e.g., Healey & Ellis, 2007; Paulhus et al.) lends support for the credibility of his findings. Herrera et al. (2003) emphasized the link between beliefs and behaviors, suggesting that individuals' beliefs about typical birth-order characteristics may affect actual outcomes in career choice. Whatever the cause for birth-order differences, research findings appear to support Adler's original theory.

The counseling implications of both ordinal and psychological birth order are also important. An anecdotal example of birth-order consideration is that in workshops and media interviews relative to birth-order implications, individuals often launch into a discussion of their own family of origin or make similar comparisons to their present work environment. The significant recognition reflexes that families have with Adlerian-oriented therapists and the interests that interviewers have taken in their own families of origin when interviewing the authors seems to give some credence to the utility of considering birth order in clinical settings.

Making guesses is what Dreikurs (1971) called digging gold mines. It is similar to the concept Gladwell, in his best selling work *Blink* (2005), called "thin slicing" (p. 23). Both involve the idea that the microcosm reflects the

macrocosm by inferring larger meaning from smaller samples of information. Adlerians conducting family counseling demonstrations often impress the parents by making correct guesses about their challenging behaviors simply on the basis of a presentation of the chronological ages and sexes of their children. Counselors in individual, group, and family settings may find it beneficial to examine the client's experience in the family-of-origin. Such information can facilitate an understanding of lifestyle and family dynamics that can assist client treatment.

Adler (as cited in Ansbacher & Ansbacher, 1956) stressed the golden rule of Individual Psychology: Everything can be different. Similarly, birth-order personality implications are not *one-size-fits-all*. Instead, they are important tools that, when coupled with such other developmental issues as gender, family values, ethnicity, and community values, help provide an environmental context to a client's subjective understanding of the world. Additional factors such as death or impairment of a sibling, blended families, a large age gap between siblings, and differential familial and cultural norms may influence expectations of siblings differentially. Because of the primary importance of the subjective experience of birth order, we recommend future research for these differences through the measurement of psychological birth order. The White-Campbell Psychological Birth Order Instrument (Campbell et al., 1991; Stewart & Campbell, 1998) may be useful to this end.

A limitation to the findings is that most studies reviewed catalogued *ordinal* rather than *psychological* birth order; therefore, some psychological constructs may be lost. As additional findings on psychological positions are published, it will be helpful to conduct a review of these in comparison to ordinal studies.

This research was also limited by the sources of information gathered. The study did not account for research that found nonsignificant results, thus limiting its scope. A review of the nonsignificant birth-order findings would provide a nice complement to this study. The emphasis on peer-reviewed journal articles also provides cultural constraints as the research primarily represented European and North American samples. Adler (as cited in Ansbacher & Ansbacher, 1956) emphasized the role of environmental factors, including culture, on birth-order characteristics. Future cross-cultural studies from other cultures may yield different results.

This review of studies will not settle the ongoing debate about the influence of birth order on personality. However, based on the 200 articles reviewed, some consistent themes appear that bear interest in research and clinical settings. Continued research may illuminate more understanding of the effects of birth order of which Adler (Ansbacher & Ansbacher, 1956) wrote nearly a century ago.

Note

A birth-order theme issue of *The Journal of Individual Psychology* is scheduled for publication in spring 2012.

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Appendix

Statistically Significant Birth Order Studies

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