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Birth Order, College Major, and Social Behavior

By

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Psychology

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Abstract

There are many risk factors for antisocial behaviors. For example, birth order has been linked to personality traits, such as aggression and stubbornness (Fagan & Najman, 2003), and these personality traits have been identified as risk factors for antisocial behaviors, such as callousness (lack of empathy and emotionality) and psychopathy (personality traits associated with being a psychopath; e.g., Frick & White, 2008). These traits can be found in sibling interactions and are correlated with birth order (Odudu et. al, 2020), as well as with college majors when including Machiavellianism (Tang & Chen, 2008). Using Paul Frick's work on studying callous and unemotional traits that can lead to antisocial personality traits, multiple different subscales were used to examine how differences in birth order (eg. oldest children vs. middle and youngest children), college major (eg. business vs. social science majors, or male vs female psychology majors), and personality traits (e.g., lack of empathy and emotionality, unethical behavior, and aggressiveness) relate to antisocial behavior levels in 83 college students (*M* age= 19.16, 72.3% female, 84.3% white). Findings indicated that none of these traits were statistically significant in any of the subgroups. Further research can be used to analyze how these traits are affected by birth order, and why or if they may lead to a specific college major.

Keywords: Callous Affect, Psychopathy, Machiavellianism, Antisocial Behavior

Birth Order, College Major, and Social Behavior

Callous personality traits, such as lack of empathy and aggression, as well as signs of psychopathy, have all been linked to antisocial behavior in adolescents and youth, (Frick & White, 2008). These traits can be found in sibling behavior, correlational with birth order (Odudu et. al, 2020). Similarly, Machiavellianism is related to immoral behavior and manipulateness, and has been correlated to college major, (Tang & Chen, 2008). It is important to examine the implications of these results to determine whether people with these personality traits gravitate towards a certain college major or if they all are from a certain birth order. This is something important to study as it is important to know why these patterns are occurring, and will address this gap in the research literature by using the four antisocial personality subscales together (antisocial behavior, callous affect, psychopathy, and Machiavellianism) to study these traits.

The Dark Triad, are three negative personality traits that can have a negative result on someone's perception of you, (Rauthmann & Kolar, 2012). Psychopathy, which is the lack of guilt as well as lack of empathy and manipulation (Viding et. al, 2014); narcissism, which is the lack of interest in others but complete interest in oneself, (Set, 2020); and Machiavellianism are all part of the dark triad, and focus on how a person acts towards others in terms of wanting to be more successful rather than more friendly, (Jones & Paulhus, 2010).

Due to the impulsive and erratic behavior that adolescents typically engage in, callous traits as well as psychopathy have been examined with this age group on multiple occasions, (Cleckley, 1976; Hare, 1993). Callous-unemotional traits and psychopathy are also associated with many risk factors, which are important to study, which is why determining whether people with these traits belong to certain subgroups is vital, (Frick & White, 2008). Frick and White

(2008) wrote about how these traits can lead an adolescent to be aggressive, and therefore impact their adolescent lives further.

In a study done by Thomas Li-Ping Tang and Yuh-Jia Chen, business and psychology students in a Principles of Business course were studied. They were investigating the differences between business and psychology students in their love for money and its relationship with Machiavellianism traits. “The love for money” was shown to be directly and indirectly related to unethical behavior, (Tang and Chiu, 2003), and therefore, because of the fact that Machiavellianism is principles regarding exploitation, manipulation, and amoral behavior, these two traits are associated with each other. These students were given a test and their scores were measured before and after taking an ethics intervention class. They found that the class had no effect on the business majors scores, but lowered the psychology students scores, (Tang & Chen, 2008).

Birth order and personality have been examined together by researchers for years. It has been found that birth order can greatly affect personality traits, and this research goes all the way back to Sigmund Freud and Alfred Adler, (Damien & Roberts, 2015). Adler was a middle child, and hypothesized that it was the eldest and last born children that experienced neurotic behavior due to their need for superiority, (Adler, 1928).

Coercion theory is an influence on personality that researchers think to be successful in predicting deviant and antisocial behavior. Coercion is regarding the relationship between parents, children, and siblings, and the behavior and punishments that ensue in response to problem behavior, (Patterson et. al, 1984). Patterson (1984) writes that failed family management skills can influence a child's peer relationships and lead to antisocial behaviors. These antisocial behaviors could also lead to conduct disorders, which have also been linked to antisocial

personality traits, (Bartol, 2014). Since coercion theory is related to family systems, it is possible that this theory can also be affected by birth order, which then can predict antisocial behaviors.

To replicate and advance these findings it was expected that those in social science majors would be more likely to exhibit psychopathic and callous personality traits than those who major in business. It was also hypothesized that female English majors would report more antisocial personality traits than male English majors. Alternatively, it was expected that male biology majors will report more antisocial personality traits than female biology. Additionally, it was hypothesized that those who are arts majors are least likely to display signs of antisocial behavior.

Another aim of the current study is to examine how birth order relates to antisocial behaviors. It was expected that oldest children are more likely to exhibit signs of antisocial behavior than middle or youngest children. Only children are hypothesized to be least likely to exhibit antisocial behavior. In families with four or more children, the middle children will exhibit more antisocial behavior than the oldest or youngest. To examine these hypotheses, participants reported on their antisocial, psychopathic, callous, and Machiavellianistic behaviors. The current study furthered previous research by examining the different subscales to the college major research. In addition, by adding the antisocial subscales to the personality research of birth order the research will be advanced.

Method

Participants

Participants for this study were college students, with a mean age of 19.16 years. They were 72.3% female, 25.3% male, 2.4% other. The participants were also 84.4% White, 7.2% Black, 8.4% other. Data from 83 participants were collected.

Measures

Callous Affect

To study insensitivity, participants completed the 16-item callous affect subscale of the Self Report Psychopathy Scale III (Williams, Paulhus, & Hare, 2007). This subscale measured how a person acts regarding their insensitivity to other people and lack of care for others by asking questions such as “I don’t bother to keep in touch with my family anymore,” and “I never cry at movies,” (Williams, Paulhus, & Hare, 2007). Participants responded to these items on a five-response option scale ranging from 1 = “*Disagree Strongly*” to 5 = “*Agree Strongly*.” The mean score on each participant’s responses on the items for the scale were calculated, ($\alpha = 0.791$).

Machiavellianism

To measure Machiavellianism, participants completed the 9-item Machiavellianism subscale of the Short Dark Triad 3, or SD3, (e.g., “You should wait for the right time to get back at people;” Jones & Paulhus, 2014). These items are regarding immoral and manipulative behaviors, for example “Make sure your plans benefit you, not other people,” and “Most people can be manipulated,” (Jones & Paulhus, 2014). Participants responded to these items on an option response scale ranging from 1 = “*Disagree Strongly*” to 5 = “*Agree Strongly*.” The mean score on each participant’s responses on the items for the scale were calculated, ($\alpha = 0.759$).

Psychopathy

To measure psychopathy, participants completed the 9-item psychopathy subscale of the SD3 (e.g., “Payback needs to be quick and nasty;” Jones & Paulhus, 2014). Participants responded to these items on a five-response option scale ranging from 1 = “*Disagree Strongly*”

to 5 = “*Agree Strongly*.” The mean score on each participant’s responses on the items for the scale were calculated, ($\alpha = 0.767$).

Antisocial Behavior

To study deceit, as well as disregard for right and wrong, the Antisocial Behavior subscale was used. Participants completed the 16-item antisocial behavior subscale of the Self Report Psychopathy Scale III (Williams, Paulhus, & Hare, 2007). This subscale measured how a person acts regarding their deceit and lack of care for right and wrong by asking questions such as “I have tricked someone into giving me money,” and “I was convicted of a serious crime.,” (Williams, Paulhus, & Hare, 2007). Participants responded to these items on a five-response option scale ranging from 1 = “*Disagree Strongly*” to 5 = “*Agree Strongly*.” The mean score on each participant’s responses on the items for the scale were calculated, ($\alpha = 0.845$).

Procedure

This study used a correlational analysis. The data was collected from participants using an online survey platform called Sona Systems. The data was collected from individuals who were 18 years of age or older and are students at mid-sized university in the southeastern United States. This study should take about 10 minutes to complete.

Results

The average scores for participants on the different subscales were as follows; scores on the antisocial subscale, callous affect subscale, and Machiavellianism subscale were moderate, while the score of the psychopathy subscale was slightly lower.

To analyze whether each of the antisocial behavior, callous affect, psychopathy, and Machiavellianism subscales were correlated to each other, a series of correlations were conducted (see Table 2). These results suggested that callous affect was correlated with

psychopathy ($r = .646, p < .001$), antisocial behaviors ($r = .363, p < .001$), and Machiavellianism ($r = .380, p < .001$), as well as that psychopathy was correlated with antisocial behavior ($r = .553, p < .001$) and Machiavellianism ($r = .457, p < .001$). Machiavellianism was not correlated with antisocial behavior ($r = .161, p = .145$).

To test the hypothesis: a series of independent samples t tests was conducted. The hypothesis that female psychology majors are more likely to display signs of antisocial behavior than male psychology majors, was tested, and results were not statistically significant for any of the personality traits examined (see Figure 1). For the callous affect subscale, female psychology majors ($M = 2.32, SD = 0.43$) and male psychology majors ($M = 2.42, SD = 0.38$), scored similarly, that they disagreed that callous affect accurately represents them $t(9) = -0.341, p = .741$. For the psychopathy subscale, female psychology majors ($M = 2.29, SD = 0.55$) and male psychology majors ($M = 2.26, SD = 0.23$), also disagreed that psychopathy accurately represents them $t(9) = 0.096, p = .925$. For the Machiavellianism subscale, female psychology majors ($M = 3.08, SD = 0.48$) and male psychology majors ($M = 3.1, SD = 0.39$), both reported neutrally that Machiavellianism accurately represents them $t(9) = -0.089, p = .931$. Finally, for the antisocial subscale, female psychology majors ($M = 1.74, SD = 0.69$) and male psychology majors ($M = 1.35, SD = 0.24$), scored similarly, as well, that they strongly disagreed that antisocial behaviors represented them accurately $t(9) = 0.932, p = .376$.

Another independent sample t test was used to analyze the hypothesis that male business majors were expected to more show antisocial personality traits than female business majors. For the callous affect subscale, female business majors ($M = 2.30, SD = 0.47$) and male business majors ($M = 2.78, SD = 0.72$), scored similarly, that they disagreed that callous affect accurately represents them $t(9) = -1.334, p = .215$. For the psychopathy subscale, female business majors

($M = 2.13$, $SD = 0.56$) and male business majors ($M = 2.36$, $SD = 0.56$), scored similarly, that they disagreed that psychopathy accurately represents them $t(9) = -0.676$, $p = .516$. For the Machiavellianism subscale, female business majors ($M = 3.07$, $SD = 0.35$) and male business majors ($M = 3.40$, $SD = 0.55$), scored similarly, both reported neutrally that Machiavellianism accurately represents them $t(9) = -1.141$, $p = .264$. Finally, for the antisocial subscale, female business majors ($M = 1.19$, $SD = 0.14$) and male business majors ($M = 1.70$, $SD = 0.79$), scored similarly, as well, that they strongly disagreed that antisocial behaviors represented them accurately $t(9) = -1.583$, $p = .148$. These similar results prove that there was no significant difference in scores between female and male business majors (see Figure 2).

Another hypothesis that resulted to be not statistically significant was “arts majors will display less signs of antisocial personality traits than non-arts majors,” (see Figure 3). Arts majors and non-arts majors reported similar levels of each of these traits. For these hypotheses the results are as follows: Callous affect for arts majors ($M = 2.70$, $SD = 0.45$) and non-arts majors ($M = 2.40$, $SD = 0.52$; $t(81) = -1.005$, $p = .318$), psychopathy for arts majors ($M = 2.22$, $SD = 0.58$) and non-arts majors ($M = 2.19$, $SD = 0.59$; $t(81) = -0.095$, $p = .925$), Machiavellianism for arts majors ($M = 3.48$, $SD = 0.51$) and non-arts majors ($M = 3.20$, $SD = 0.57$; $t(81) = -0.834$, $p = .407$), and finally, antisocial behavior for arts majors ($M = 1.33$, $SD = 0.26$) and non-arts majors ($M = 1.49$, $SD = 0.54$; $t(81) = 0.493$, $p = .623$).

The last hypothesis for college majors was “those in social science majors are more likely to exhibit antisocial personality traits than those who major in business.” The results of these independent sample t tests also were not statistically significant (see Figure 4). For callous affect, social science majors' scores ($M = 2.44$, $SD = 0.49$) were similar to that of business majors ($M = 2.52$, $SD = 0.62$; $t(31) = -0.393$, $p = .697$). Scores for psychopathy for social science majors (M

= 2.33, $SD = 0.52$) and scores for business majors ($M = 2.23$, $SD = 0.54$; $t(31) = 0.514$, $p = .611$.), were also similar. Scores were similar as well for Machiavellianism for social science majors ($M = 3.24$, $SD = 0.59$) and for business majors ($M = 3.22$, $SD = 0.47$; $t(31) = 0.099$, $p = .921$.), and scores for antisocial behavior in social sciences ($M = 1.64$, $SD = 0.58$) and business majors ($M = 1.42$, $SD = 0.57$; $t(31) = 1.029$, $p = .312$.) were similar as well.

For the four hypotheses regarding birth order, (social science majors versus business majors, female psychology majors versus male psychology majors, male business majors versus female business majors, and Arts majors versus non-arts majors), a series of one-way ANOVAs were run to determine the significance between each subscale as well as each level of birth order, (see Figure 5). Each group of birth order reported similar levels of each of these characteristics. For oldest children, their results came back not statistically significant for callous affect ($M = 2.47$, $SD = 0.54$), psychopathy ($M = 2.30$, $SD = 0.64$), Machiavellianism ($M = 3.21$, $SD = 0.54$), and antisocial behavior ($M = 1.47$, $SD = 0.66$). Middle children for callous affect ($M = 2.63$, $SD = 0.49$), psychopathy ($M = 2.04$, $SD = 0.50$), Machiavellianism ($M = 3.08$, $SD = 0.66$), and antisocial behavior ($M = 1.36$, $SD = 0.43$), resulted the same. As well as last born (callous affect $M = 2.45$, $SD = 0.57$), (psychopathy $M = 2.09$, $SD = 0.63$), (Machiavellianism $M = 3.26$, $SD = 0.55$), and (antisocial behavior $M = 1.53$, $SD = 0.51$), and only children (callous affect $M = 2.53$, $SD = 0.48$), (psychopathy $M = 2.35$, $SD = 0.41$) Machiavellianism $M = 3.37$, $SD = 0.55$), and (antisocial behavior $M = 1.60$, $SD = 0.31$), who also had not statistically significant results.

Discussion

Antisocial personality traits have been studied by scientists for decades. It is important to learn about these specific personality characteristics as these traits are commonly found in criminals that result in a lot of harm to societies (Velotti et. al 2019). It is important to research

these topics and how these traits relate to college majors because it is important to notice if people with these traits all gravitate towards a specific major or some from a certain birth order, and figure out why that could occur.

Each of the hypotheses the results were different than expected, and results from the 83 participants that completed this study. After analyzing all of the data and running multiple series of tests, it was found that none of the hypotheses were significantly supported. Both female and male psychology majors scored relatively similarly on each of the subscales, as did female and male business majors. This means that men and women from each of these majors scored similarly to each other and had similar levels of these traits. These findings were different from that of Tang and Chen's (2008) work, as they found that male students had a higher score than female students.

When comparing arts versus non-arts majors and social science versus business majors, neither of the hypotheses can be supported by this data. Participants of all majors within this sample tested similarly on each of the subscales, implying that they all show no significant signs of antisocial personality traits.

When investigating the comparisons in birth order with these subscales the same results as with college majors were reported, which is that none are statistically significant. First children, middle children, last children, and only children were all compared. Based on these comparisons, these groups reported similar levels of antisocial behavior, psychopathy, callous affect, and Machiavellianism, rejecting all of the hypotheses about the differences in birth order. Adler's theory regarding eldest and youngest children did not seem to boast true in this study.

These findings, although not significant, can still be related to the coercion theory. These findings can be connected to deviancy training, which then can lead to coercion theory.

Aggressive and disruptive childhood behavior can result from coercion theory, in which antisocial personality traits will emerge, (Snyder et. al, 2008). These findings can lead research to discover where the deviancy training may have started from, or who is affected by it the most.

Limitations for this study could have also impacted the results. The first reason that there may have been no statistically significant results could be because this sample size was rather small. With only 83 participants, it is very hard to get a wide array of people from different demographics, majors, and genders. This would limit the ability to detect smaller effects or differences, since the sample size was so small. Additionally, most participants were White, female, psychology students. This limits the generalizability of the findings to accurately represent the whole population. The last limitation would be that there should have been a fifth subscale, borderline personality traits, since women are more likely to exhibit these characteristics, and the current study was mostly women, (Wirth-Cauchon, 2001).

In the future this study should be rerun on a much larger scale, with a more diverse sample. Also, when rerunning this study, there should be another subscale added to the variables. In addition, adding a subscale regarding borderline personality traits would be beneficial due to the fact that they are more common in women, and therefore will give a better chance at showing significant results. Finally, including aspects of coercive exchanges to see if they are related to birth order would aid in furthering research with the coercion theory and deviancy training.

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Table 1*Means and Standard Deviations for Study Variables*

	Overall	Female	Male
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Callous Affect	2.41 (0.52)	2.30 (0.47)	2.78 (0.72)
Psychopathy	2.19 (0.58)	2.13 (0.56)	2.36 (0.56)
Machiavellianism	3.21 (0.57)	3.07 (0.35)	3.40 (0.55)
Antisocial Behavior	1.48 (0.53)	1.19 (0.34)	1.70 (0.79)

Table 2*Correlations Between Subscales*

	1	2	3
Callous Affect	-		
Psychopathy	.65***	-	
Machiavellianism	.38***	.46***	-
Antisocial Behavior	.36***	.55***	.16

Note. *** = $p < .001$

Figure 1

*Examining Differences in Antisocial Behavior, Machiavellianism, Psychopathy, and Callous Affect in Female and Male Psychology Majors Using Independent Samples *t* Tests*

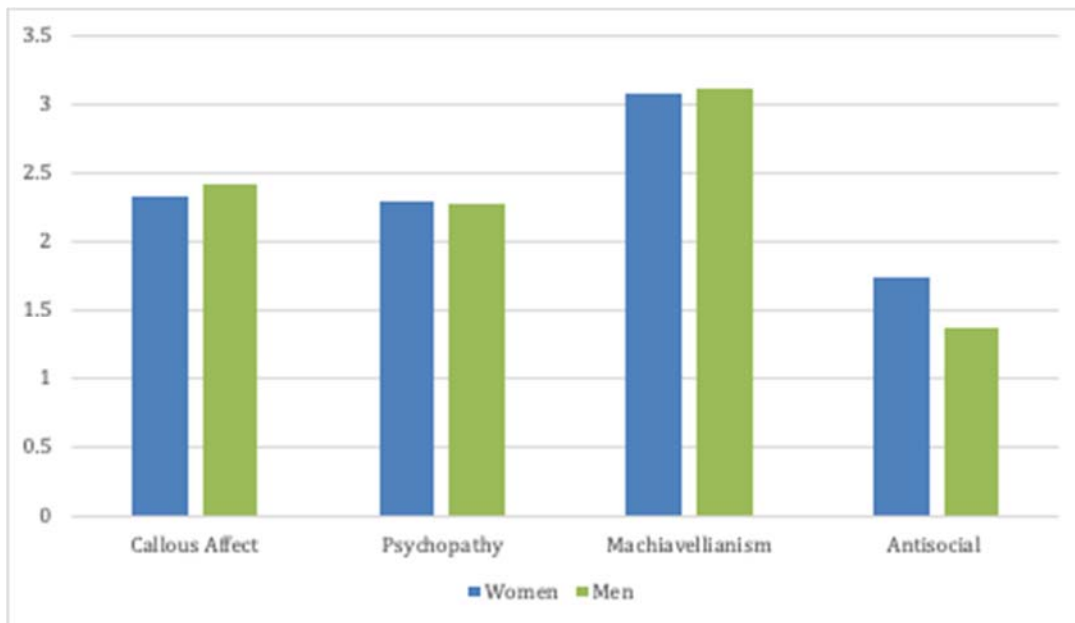


Figure 2

Examining Differences in Antisocial Behavior, Machiavellianism, Psychopathy, and Callous Affect in Female and Male Business Majors Using Independent Samples t Tests

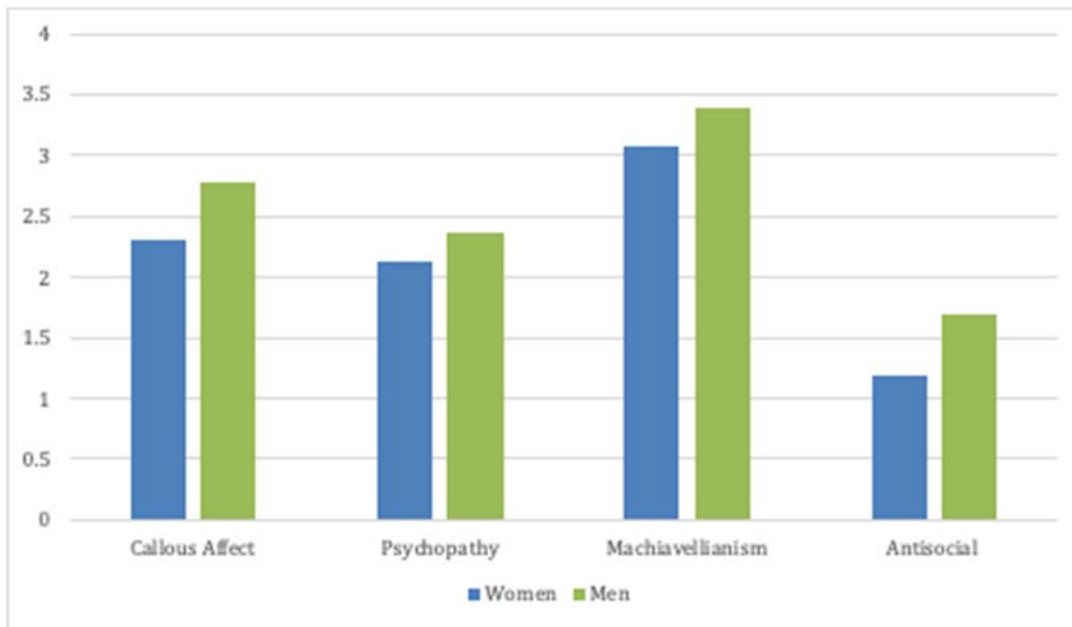


Figure 3

Examining Differences in Antisocial Behavior, Machiavellianism, Psychopathy, and Callous Affect in Arts and Non- Arts Majors Using Independent Samples t Tests

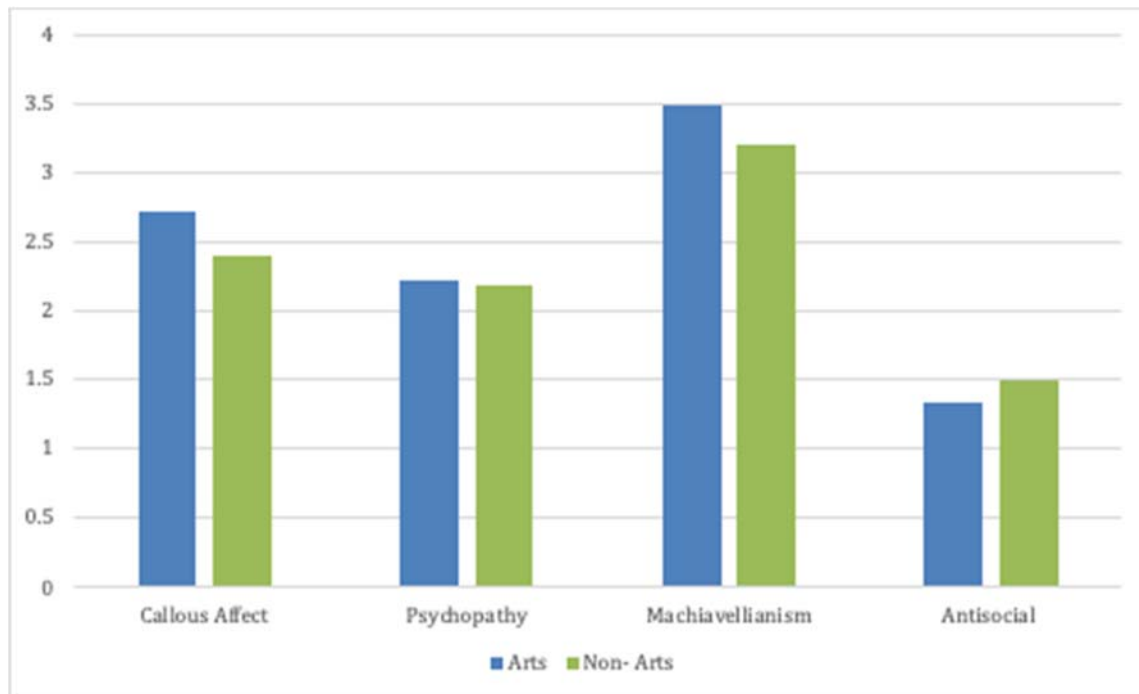


Figure 4.

Examining Differences in Antisocial Behavior, Machiavellianism, Psychopathy, and Callous Affect in Social Science and Business Majors Using Independent Samples t Tests

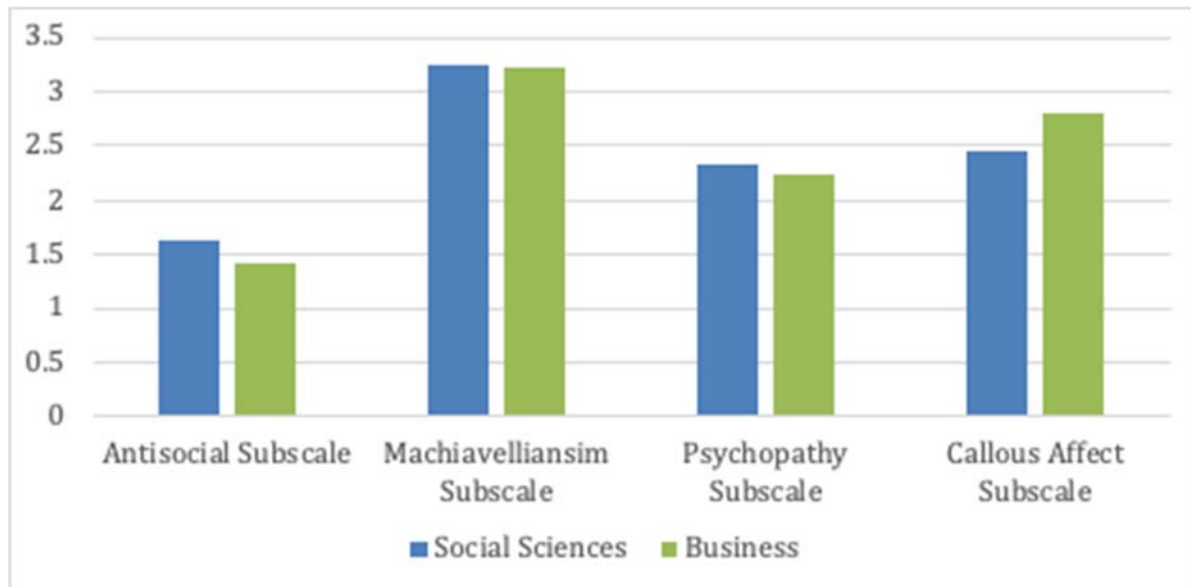


Figure 5.

Examining Birth Order Differences in Antisocial Behavior, Machiavellianism, Psychopathy, and Callous Affect Using One- Way ANOVAs.

