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AN EXAMINATION OF DIFFERENCES IN PERSONALITY CHARACTERISTICS BETWEEN NON-ATHLETES AND ATHLETES

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AN EXAMINATION OF DIFFERENCES IN PERSONALITY CHARACTERISTICS BETWEEN NON-ATHLETES AND ATHLETES

by

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ABSTRACT

AN EXAMINATION OF DIFFERENCES IN PERSONALITY CHARACTERISTICS BETWEEN NON-ATHLETES AND ATHLETES

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The long-accepted personality differences between athletes and non-athletes were researched and discussed in this paper. In the field of kinesiology, athletes are often held to different standards due to assumed prenotions of their nature. Using purposeful stratified sampling, classes containing new Kinesiology majors were surveyed to include the potential athlete subjects as well as classes that were unlikely to include Kinesiology majors to represent the non-athletes in the subject pool. Applying the "Big 5 Personality Test," which measures levels of openness, conscientiousness, extraversion, agreeableness, and neuroticism by self-survey, it was found that athletes score similarly to non-athletes. Athletes had slightly higher, but not significant, levels of extroversion. However, they

scored similarly in openness, conscientiousness, agreeableness, and neuroticism when compared to non-athletes. Therefore, athletes should not be held to a particular distinction compared to their student-peers at the University of Texas at Arlington. Overall, athletes and non-athletes do not have differing personality characteristics.

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CHAPTER 1

INTRODUCTION

1.1 Personality Traits

When looking at a group as a collective, it is common to stereotype them based on their shared traits. For example, a team of football players may be described as aggressive or competitive. This can be referred to as their personality traits. A personality trait, as described by Kajtna et. al,

> "it can be defined as a consistent pattern of thinking, feeling and acting, that differs between the people themselves." (Kajtna et al., 2004, p.25)

However, this leads to the question of how accurate or prevalent are these terms? Using the Big 5 Personality Model to asses these personality characteristics, it has been found that sub-groups of populations, such as athletes or highly successful students, have had higher levels of specific traits while possessing lower levels of others. The Big 5 Personality Model is a respected tool to measure personality characteristics because, according to Zillig et al., it

> "—emerged from decades of research and have been celebrated for their ability to simplify an otherwise overwhelming number of traits" (Zillig et al., 2002, p.847). The Big 5 Personality Model measure five characteristics described as openness, conscientiousness, agreeableness, neuroticism, and extraversion. Judge et al. described them as following:

"Conscientiousness is related to an individual's degree of self-control, as well as

need for achievement, order, and persistence… Neuroticism refers generally to a lack of positive psychological adjustment and emotional stability… Extraversion is related to the experience of positive emotions, and extraverts are more likely to take on leadership roles and to have a greater number of close friends... Openness to experience is characterized by intelligence (philosophical and intellectual) and unconventionality... Agreeable persons are cooperative (trusting of others and caring) as well as likeable." (Judge et al., 1999, p. 5)

1.2 Athletes and Non-Athletes

An athlete is often thought of as an individual on a sports team or simply someone who participates in sports or extraneous activities for enjoyment or sport. However, in this particular research, an athlete is determined as one who has competed collegiately at the University of Texas at Arlington or competed in varsity (high school) sports, within the past three years. Those two factors were inclusion criterions for a subject to be considered an athlete during this research. With this in mind, a "non-athlete" is a student at the college that does not meet the inclusion criteria for the athlete group. Therefore, once on a sport team at a college, training is much more vigorous and intense. For the basis of this research, an assumption was made that a person with higher levels of specific personality traits would be more likely to participate on a sports team in college.

CHAPTER 2

LITERATURE REVIEW

2.1 Estimated Probability of Competing in College Athletics

In this article by the NCAA, they discuss the likelihood of a young athlete continuing their sport of choice after graduating high school. Although the author of this research was not listed, the publication was most recently updated on April 8, 2020.This study was conducted in order to show participation in both the NCAA post-high school and professional eligibility after completing college in the following sports: baseball, Men's basketball, Women's basketball, football, and ice hockey. The NCAA gathered the information on NCAA recruitment by taking the number of NCAA sport players and dividing it by the number of high school participants. Their data showed that 7.5% of baseball players may go on to play in college, while only 2.2% of those will be at a Division I college. For Men's basketball, the percentages are even lower at 3.5% playing and 1.0% playing at a Division I school. Women's basketball players have a 4.1% retention rate, but only 1.3% of those are Division I athletes. Football is a bigger sport in Americana and therefore 7.3% of players are likely to play in college. However, the likeliness of playing at a Division I school is 2.9%. Finally, 12.3% of ice hockey players will go on to play collegiately, 4.8% of those players being drafted to a D1 school. It is important to note that in this portion of the study, the researchers did not account for multi-sport participation and therefore, these numbers are estimates. Also, many high schools in America do not offer sports such as ice hockey. This will lower the number of players substantially and therefore

inflating the percentage with respect to other sports. When estimating the number of players being drafted to play sports professionally; the NCAA divided the number of collegiate players by 4.5 to account for the varying time of academic degree plans as well as dropouts or transfers. The remaining number was then drafted by the number of drafts eligible players. In baseball, the percentage of players likely to be drafted professionally is 9.9%. In Men's basketball, 1.2% of NCAA players went to the professional league and 6.9% for Women's basketball. The NCAA estimates that only 3.8% of eligible D1 athletes went on to play for the NFL and 33% of ice hockey players go on to play for the NHL. However, the estimation of professional sports is a little more difficult as every league has their own rules and regulations. For example, professional sports often draft internationally, which will lower the percentage of NCAA players considered. It is also important to consider that the National Hockey League drafts undrafted college players, which did not go in to the NCAA calculations.

2.2 Leadership, Collective Personality, and Performance

The authors of the research are David A. Hofmann and Lisa M. Jones from theUniversity of North Carolina at Chapel Hill. They originally published the study in July 2003 and revised it in May 2004. The purpose of their research was to test if the personality of a leader would in turn affect the collective. They tested this by using the Big 5 Model and it was found that leadership was positively related to the collective openness, agreeableness, extraversion, and conscientiousness. This would create a normality for the group to focus on the task at hand, be helpful, and be more likely to assert themselves. However, it should be mentioned that individual tendences can be influenced by the social

environment and that in itself is affected by individual and contextual factors. Therefore, this study should be recreated on a more inclusive platform (Hofmann & Jones, 2005).

2.3 Meta-Analysis of FFM: Personality and Academic Performance

This study was conducted in 2009 by Arthur E. Poropat from Griffith University. This research included over 70,000 subjects from previous studies done on the Big 5 Factor Model. Any article that included measures not specifically related to academic outcome were excluded from the research. There was found to be a significant positive correlation between academic success and the personality characteristics agreeableness, conscientiousness, and openness. It should be mentioned that this research was conducted over studies done by other people. Therefore, it may accurately show a correlation between the subjects but only if the studies included were done so appropriately and without error. (Poropat, 2009)

2.4 Personality Testing Identifying Success in Surgery Residency

This research was conducted and revised in 2018 by Hughes et. al. The purpose of this was to predict if specifical personality characteristics were more prevalent in successful general surgeon residents and if this could be used to predict future success of incoming residents. The study consisted of current residents at the University of Texas Medical Branch, 34 subjects, and categorized them in to low performing and non-low performing based on performance and standardized test scores. This research found that there were significantly higher extroversion, conscientiousness, and emotional stability scores in non-low performing surgical residents. Therefore, the Big 5 Personality Model can be used in future research to predict surgical residency success. However, the limitation on this study would be that the data consisted of one institution. Also, a few residents were

excluded due to the fact that they had not completed one of the years of residency at the University of Texas Medical Branch. These two factors are important to consider when attempting to replicate the study. (Hughes et al., 2019)

2.5 Big Five Personality Traits and Career Success Across Life

This research, The Big Five Personality Traits, General Mental Ability, And Career Success Across the Life Span, was published by Judge et. al in 1999. This study followed the subjects throughout their career in order to measure their success. For the purpose of Judge's research, career success was measured by intrinsic and extrinsic success. Intrinsic success was their job satisfaction and extrinsic success was comprised of their income and occupational status. The data was obtained from the Intergenerational Studies, which is a set of three studies that followed the participants from early childhood to retirement. The three studies were the "The Berkeley Guidance Study" which enrolled 244 families from Berkeley, California, the "The Berkeley Growth Study" which included 74 participants through area pediatricians and obstetricians, and included infants born between January 1928 and May 1929, and the "The Oakland Growth Study" which recruited 212 participants from five elementary schools in Oakland. These studies followed the participants over 60 years and their general findings were that conscientiousness positively predicted intrinsic and extrinsic career success and neuroticism negatively predicted extrinsic success. However thorough these researchers were, it is important to consider the progression of science. These researchers may not have conducted their study in ways deemed appropriate in modern times and this may have led to skewed data. For example, it is possible the researchers did not account for outside factors, such as location, when following the participants. Due to the fact that these participants were found through

pediatricians, it was likely a more prominent neighborhood where many of the residents were successful as they did not take their children to general doctors. Therefore, the children may have had more opportunities to be successful that were not tied to their personality traits and this would have skewed the data results. (Judge et al., 1999)

2.6 Personality in High-Risk Athletes

This research was conducted in 2004 at The University of Ljubljana in Slovenia and The University of Zagreb in Croatia by Kajtna et. al. The purpose of this study was to study the personality characteristics of high-risk sport athletes and compare them to both non-risk athletes and non-athletes. The study consisted of 38 high-risk athletes, 39 non-risk athletes, and 76 non-athletes and used the Big 5 Observer Scale to determine their personality characteristics. Their findings demonstrated that high-risk athletes scored highest in emotional stability, conscientiousness, and energy. These scores were followed by non-athletes and then non-risk athletes. The findings of the trait acceptability were not significant. With this study, the Big 5 Observer Scale was used and not the Big 5 Personality Model (BFPM). The difference in these surveys is only the terms used to categorize the personality traits. For example, energy is referred to as extraversion in theBFPM and neuroticism in the BFPM is considered acceptability in the Big 5 Observer Scale (Kajtna et al., 2004).

2.7 Content Analysis of Processes Represented in Personality Inventories

This research was conducted in 2001 by Zillig et. al in order to measure the reliability of the Big 5 Personality Model. This analyzed the different personality traits measured in order to confirm no overlap or need to reconstruct the model. Their findings implied significant thoroughness of the Big 5 Personality Model. However, it should be

noted that as many other personality models do exist and were based on the same research as the Big 5 Personality Model, there was consistent findings that many of these models would produce similar results as the BFPM (Zillig et al., 2002).

CHAPTER 3

METHODOLOGY

3.1 Subjects

The subjects included in the research were all students at the University of Texas at Arlington. The study included ages between 19 and 40. The survey was comprised of 94 students, 40 athletes and 54 non-athletes. Of the athletes, 31 were Kinesiology majors, 9 were not. In the non-athlete group, 42 were Kinesiology majors while 12 were not.

3.1.1 Ethnicity

The ethnicities that responded to the survey were predominately Caucasian and of Central or South American decent. Third most prevalent ethnicity was African/African-American. The specifics are shown in the table below.

Table 3.1: Ethnicity of Subjects Who Participated

	Ethnicity						
Group	Caucasian	East Asian	South Asian	African	Central/South American	Native Hawaiian	Prefer not to answer
Athlete	10	3	2	8	10	2	5
Non-Athlete	26	5	2	7	9	1	4

3.1.2 Ages

The ages of the students varied from 19-40 as The University of Texas at Arlington is a rather inclusive school which is home to many "non-traditional" students. Non-traditional is referring to students that do not go to college immediately following high-school, but attend much later in their lives. Therefore, the age range of the subjects is rather large, though most of the older population does fall in the non-athlete category. The mean age for athletes is 21 while the mean age of non-athletes was 25.

3.1.3 Gender

The gender of both athlete and non-athlete groups were predominately female. For athletes, there were 15 Male and 25 Female participants. For non-athletes, there were 19 Male, 34 Female, and 1 Nonbinary/Gender fluid participant. The overall percentages are shown in the pie chart below.

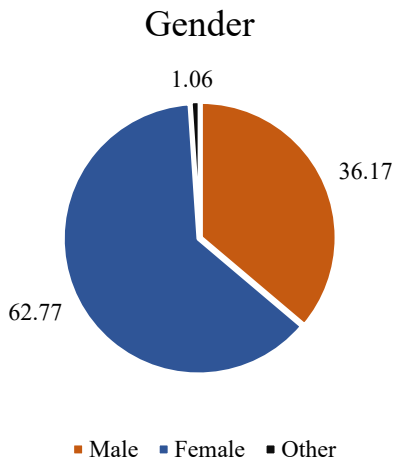


Chart 3.1: Percentage of Genders Participating in Survey

3.2 Procedure

3.2.1 Classes

The survey was sent out to willing professors who agreed to release it to their courses. These courses were as follows: Kinesiology, Sports and Society, Abnormal Psychology, English I, U.S. History Since 1865, Undergraduate Research Methods, Physiology of Exercise, and Adapted Physical Education & Sport. This was done with the intention to diversify the subject pool and include both athletes and non-athletes while also getting several different majors involved rather than just Kinesiology students. However, a large portion of the subject pool remained Kinesiology majors regardless of the researcher's effort to have various majors surveyed.

3.2.2 Survey

The survey used to determine the personality characteristics was the official survey of the Big 5 Personality Model. This analysis includes 50 questions in which the subject responds with a number 1-5: 1=disagree, 2=slightly disagree, 3=neutral, 4=slightly agree and 5=agree. Each question pertains to a specific personality trait between Extroversion (E), Agreeableness (A), Conscientiousness (C), Neuroticism (N), and Openness to Experience (O). The scale used to determine the score of each trait is pictured below.

Table 3.2: Scale for Big 5 Personality Model

E = 20 + (1) ____ - (6) ____ + (11) ____ - (16) ____ + (21) ____ - (26) ____ + (31) ____ - (36) ____ + (41) ____ - (46) ____	= _____
A = 14 - (2) ____ + (7) ____ - (12) ____ + (17) ____ - (22) ____ + (27) ____ - (32) ____ + (37) ____ + (42) ____ + (47) ____	= _____
C = 14 + (3) ____ - (8) ____ + (13) ____ - (18) ____ + (23) ____ - (28) ____ + (33) ____ - (38) ____ + (43) ____ + (48) ____	= _____
N = 38 - (4) ____ + (9) ____ - (14) ____ + (19) ____ - (24) ____ - (29) ____ - (34) ____ - (39) ____ - (44) ____ - (49) ____	= _____
O = 8 + (5) ____ - (10) ____ + (15) ____ - (20) ____ + (25) ____ - (30) ____ + (35) ____ + (40) ____ + (45) ____ + (50) ____	= _____

3.2.3 ANOVA

After each survey was collected, the data was automatically input, using QuestionPro, in to an Excel sheet. This Excel sheet calculated each individual score for each trait and categorized them between athletes and non-athletes. Following this, an ANOVA was run on the data, with a Bonferroni adjustment employed in order to prevent alpha inflation. This set the alpha to .01 for each ANOVA instead of the standard .05 because of the multiple statistics being tested.

CHAPTER 4

DISCUSSION

The results of the research showed no significant differences between athletes and non-athletes personality traits. Therefore, the null hypothesis was correct. However, it should be noted that without the Bonferroni adjustment, there was a significant difference in the personality trait extraversion with athletes scoring higher. The term extraversion often applies to the social aspect of their lives. A person with a high extraversion score would tend to be very social and, according to Hughes et. al, words that apply to them would be

"Gregarious, assertive, energetic, adventurous, enthusiastic, outgoing. People with high levels of extroversion tend to be assertive and often seek leadership positions." (p. 241). The reverse of this would be a quiet, independent person. This would make sense, stereotypically, for an athlete to be an extravert as they are often loud and play in teams.

4.1 Limitations and Future Research

This research was subject to some constraints that are vital to mention. The subject pool did consist of only one institution, The University of Texas at Arlington. In addition to this, most of the participants were Kinesiology majors (n=42). It is possible that, as kinesiology is an athletic style major, most of the students had athletic personas although they identified as non-athlete having not competed in a collegiate sport recently. If recreated, this study should be broadened to survey more majors and could even include which sport the athletes participated in. This research could predict the success of a sport

player or student in their chosen major based off of their personality traits. Although, at this time, due to the limitations this study cannot be considered generalized findings. More research should be done in the future on this subject to confirm these preliminary conclusions.

CHAPTER 5

CONCLUSION

Applying the "Big 5 Personality Test," it was found that athletes score similarly to non-athletes in all traits. Originally, the alpha level was set to 0.05 as is standard protocol to decrease the chances of rejecting the null hypothesis. However, as there were multiple statistical tests, a Bonferroni correction was applied. This decreases the alpha to 0.01 as there were five traits being tested. This allowed for less room for error to be made.

5.1 Individual Traits

The following sections will discuss the results of the research with the Bonferroni correction applied and alpha being set to 0.01. It is important to note the F ratios for the traits. They are listed in the table below.

Table 5.1: F Ratios for Each Personality Trait

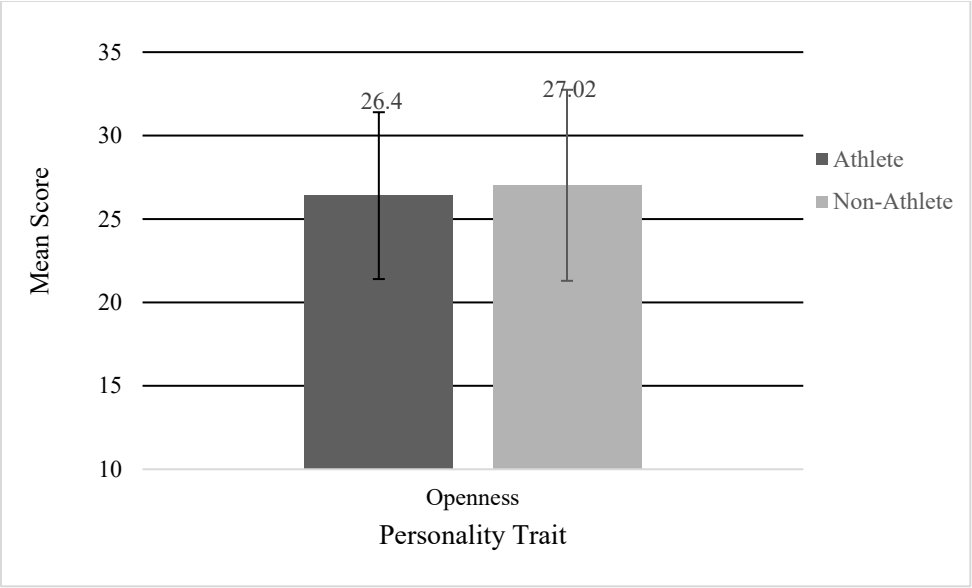
Openness	$F[1, 92] = .004$	$p = .948$
Conscientiousness	$F[1, 92] = .073$	$p = .788$
Extraversion	$F[1, 92] = .4.587$	$p = .035$
Agreeableness	$F[1, 92] = .367$	$p = .546$
Neuroticism	$F[1, 92] = .004$	$p = .948$

5.1.1 Openness

For athletes, the mean score for openness was 26.4 with a standard deviation of 5.495. In the non-athlete group, the mean score was 27.02 with a standard deviation of

5.725. The difference is shown in Chart 1. The F value for this analysis is presented in Table 5.1.

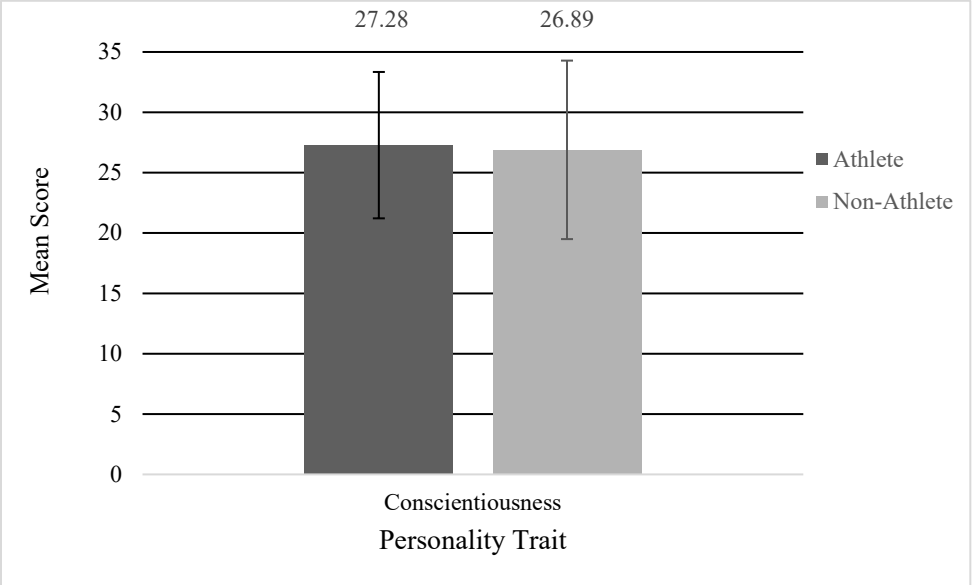
Figure 5.1: Openness Athletes Vs Non-Athletes



5.1.2 Conscientiousness

For athletes, the mean score for conscientiousness was 27.28 with a standard deviation of 6.064. In the non-athlete group, the mean score was 26.89 with a standard deviation of 7.394. The difference in shown in the following chart. The F value for this analysis is presented in Table 5.1.

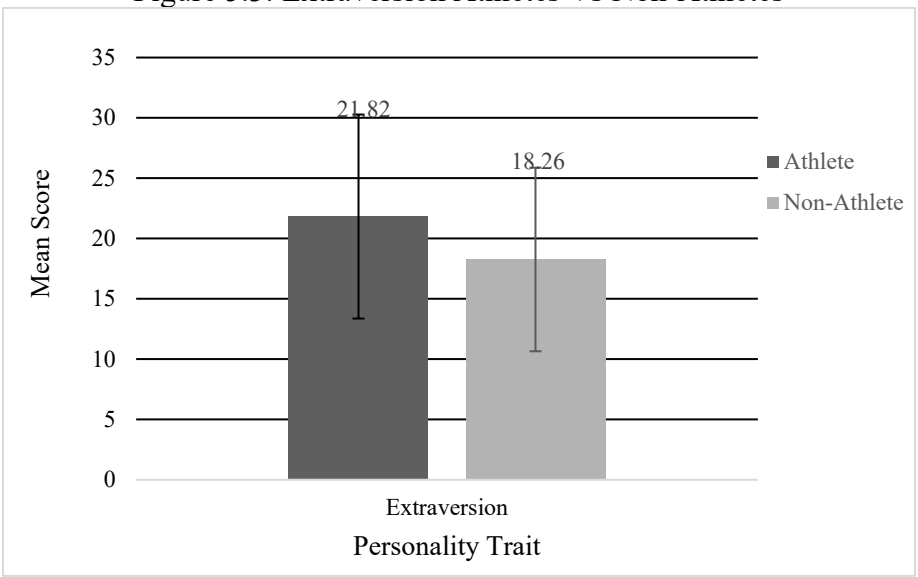
Figure 5.2: Conscientiousness Athletes Vs Non-Athletes



5.1.3 Extraversion

For athletes, the mean score for extraversion 21.82 was with a standard deviation of 8.458. In the non-athlete group, the mean score was 18.26 with a standard deviation of 7.611. The difference in shown in the following chart. The F value for this analysis is presented in Table 5.1.

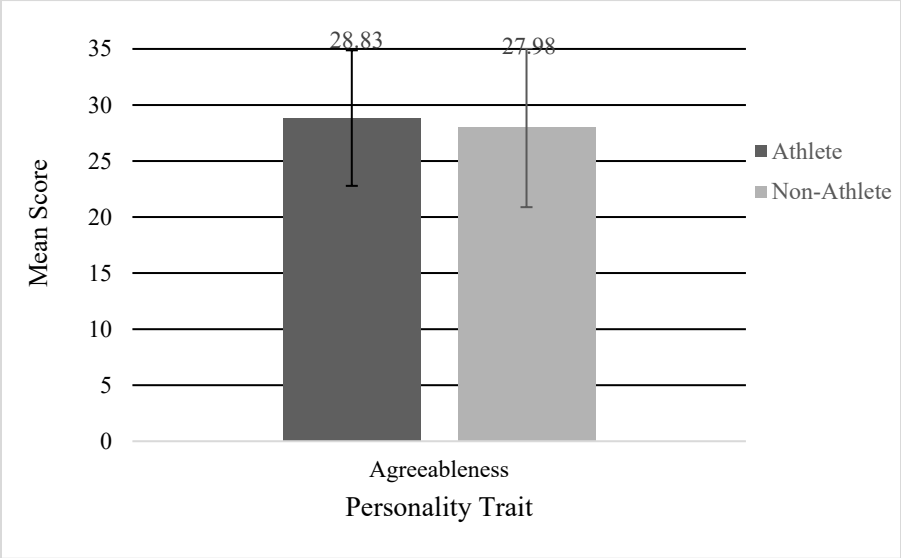
Figure 5.3: Extraversion Athletes Vs Non-Athletes



5.1.4 Agreeableness

For athletes, the mean score for openness was 28.83 with a standard deviation of 6.046. In the non-athlete group, the mean score was 27.98 with a standard deviation of 7.096. The difference in shown in the following chart. The F values for this analysis is presented in Table 5.1.

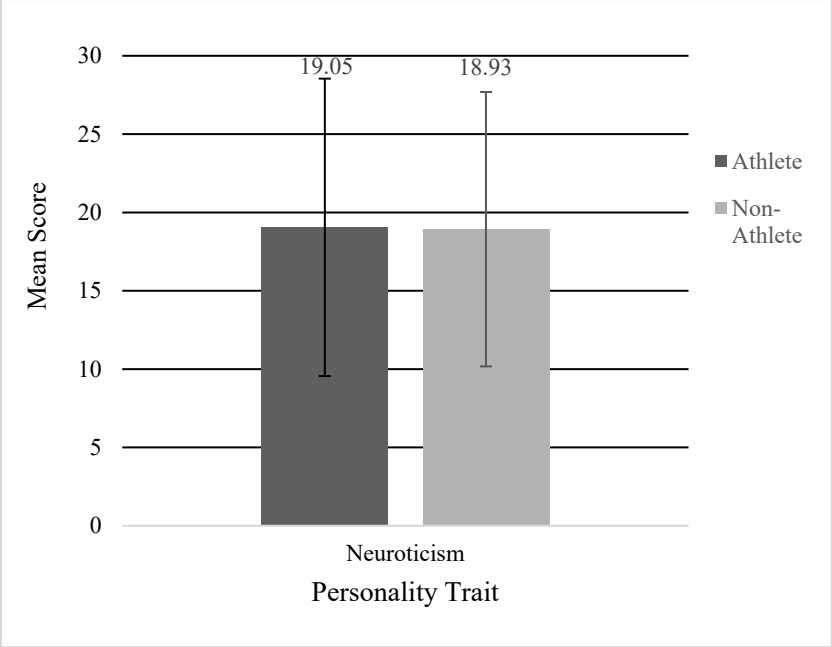
Figure 5.4: Agreeableness Athletes Vs. Non-Athletes



5.1.5 Neuroticism

For athletes, the mean score for openness was 19.05 with a standard deviation of 9.492. In the non-athlete group, the mean score was 18.93 with a standard deviation of 8.759. The difference in shown in the following chart. The F value for this analysis is presented in Table 5.1.

Figure 5.5: Neuroticism Athletes Vs. Non-Athletes



5.2 Informal MANOVA

After data collection, an informal MANOVA was performed on the data which did not perform a Bonferroni correction. When leaving the alpha set to 0.05, the data showed significance in the personality trait extraversion. This was shown as being a possibility with a higher F value of 4.587. In this MANOVA, the significance was 0.35 which is greater than the alpha level. This led to the conclusion that extraversion in athletes was significantly higher than non-athletes, which was discussed previously. This test is more complex than an ANOVA as it accounts for multiple variants without adjustments being made. However, it can lead to error when all variables are not significant. This is why the ANOVA, with a Bonferroni adjustment, was used over a MANOVA for primary testing.

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BIOGRAPHICAL INFORMATION

During Bailee Snow's time spent at The University of Texas at Arlington, she experienced an enormous amount self-reflection. She began as a Political Science major, but during her second semester of the freshman year, realized she was more intrigued by Kinesiology. After nervously switching her major and knowing she would have to begin the course requirements a year behind, she had to apply herself tremendously to catch up to her peers. In order to become more involved on campus, Bailee became a New Maverick Orientation Leader as well as an EXCEL Activities member. She also joined Alpha Lambda Delta, Psi Chi, and the Society of Kinesiology Scholars where she became Vice President. This semester she will be graduating Summa Cum Laude from the Kinesiology department with an honors Bachelor of Science in Exercise Science with a focus on Health/Wellness and minor in Psychology. After she graduates, she intends to begin volunteer work in third world countries where she will teach courses to elementary students for two years. Following this, she aspires to come back to the United States and begin her Master's degree before opening her own research gym focusing on women's health.