

2021

The Connection between Body Modification and Personality

Taylor Ann Shoemaker

Follow this and additional works at: <https://digitalcommons.murraystate.edu/etd>



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Shoemaker, Taylor Ann, "The Connection between Body Modification and Personality" (2021). *Murray State Theses and Dissertations*. 201.

<https://digitalcommons.murraystate.edu/etd/201>

This Thesis is brought to you for free and open access by the Graduate School at Murray State's Digital Commons. It has been accepted for inclusion in Murray State Theses and Dissertations by an authorized administrator of Murray State's Digital Commons. For more information, please contact msu.digitalcommons@murraystate.edu.

THE CONNECTION BETWEEN BODY MODIFICATION AND PERSONALITY

A Thesis

Presented to

the Faculty of the Department of Psychology

Murray State University

Murray, Kentucky

In Partial Fulfillment

of the Requirements for the Degree

of Master of Arts in Clinical Psychology

by Taylor Shoemaker

April 2021

BODY MODIFICATION AND PERSONALITY**Acknowledgements**

I would like to express my gratitude to Dr. Amanda Joyce, my thesis chair, for never letting me give up, especially when life was overwhelming and hectic. To Dr. Laura Liljequist, Dr. Michael Bordieri, and Dr. Alexandra Hendley, thank you for willingly accompanying me on my thesis journey. Your feedback made my impossible project much more possible and understandable. There are no words for how grateful I am to Murray State University and the people I met there who have influenced me. To my friends and family, I appreciate your encouragement and contributions to my life. To my partner Jesse, you deserve an award for supporting me throughout my academic journey, I love you more.

BODY MODIFICATION AND PERSONALITY

Abstract

Previous research has been inconsistent in its findings regarding the associations between body modifications (e.g., piercings, tattoos, augmentation, scarification, split tongue) and the Big Five personality traits (i.e., openness to experience, conscientiousness, extraversion, agreeableness, neuroticism). All traits have been found to be significantly correlated with body modification in at least one study, but their significance differed from study to study. The purpose of the current study was to examine the associations between body modification and each domain of personality concurrently to add to the literature surrounding differences between modified and unmodified individuals. To participate in this study, participants were asked to complete the Opinions of Body Modifications and Big Five Inventory. Participants consisted of 94 people; 51 who had at least one form of body modification and 43 who had not. We hypothesized that those with body modification would differ in personality from those without modification and that participants who had higher opinions about modifications, would be higher in openness to experience than those with low opinions of those modifications. Five separate Independent Samples T-tests revealed participants with body modification were not significantly different from those without modification in terms of openness to experience, extraversion, or agreeableness but that they did score lower in conscientiousness and higher in neuroticism. No correlation between higher opinions of body modification and trait openness was found. This work has important implications regarding biases and discrimination. Specifically, knowing the differences between people with and without body modification could challenge existing public biases and could reduce discrimination in the workplace, both from employers and from the public.

BODY MODIFICATION AND PERSONALITY

TABLE OF CONTENTS

Acknowledgments	iii
Abstract	iv
Table of Contents	v
Chapter I: Literature Review	1
Chapter II: Methodology	9
Chapter III: Results	12
Chapter IV: Discussion	14
Appendix I: Demographic Survey	22
Appendix II: Opinions of Body Modification	23
Appendix III: Big Five Inventory	24
Appendix IV: Demographic Variables of Sample Table	26
Appendix V: Variable Mean Comparison Table	28
Appendix VI: Modified vs. Unmodified Participant Means	29
Appendix VII: IRB Approval Letter	30
References	31

Chapter I: Literature Review

Body Modification

Body modification is defined as practices leading to changes of the human body (Hicinbothem et al., 2006; Sweetman, 1999). These changes can be semi-permanent (i.e., piercings) or permanent (i.e., tattoos). There are many forms of modification, ranging from the largely socially accepted lower lobe ear piercings to the more extreme scarification. The last 50 years have seen a resurgence in the popularity of body piercing and tattooing (Sweetman, 1999).

Piercing is defined as “the insertion of needles, rings, and other objects into the flesh” (Aizeman, 2007, pp. 29). Body piercing has a long history; examples can be seen in ancient African cultures, Jewish communities, and among the Greeks and Romans as well (Hicinbothem et al., 2006; Perper et al., 2017). Whereas in the past, most piercings were confined to the face, recent studies have found that common sites for body piercing are not just the ear lobes, but also the eyebrows, tongue, navels, nipples, and the genitals (Hicinbothem et al., 2006; Pekar et al., 2017).

Tattooing involves inserting colored pigments into the skin (Samyuktha et al., 2018). The earliest documented tattoo dates to 5200 years ago, seen on the mummy of “Otzi the Iceman” who was discovered with 57 tattoos (Koch et al., 2005; Perper et al., 2017). Since then, tattoos have been seen in almost every group of people known to exist. Tattoos have been used for numerous cultural reasons including symbolizing identification, devotion to a god, and protection; emphasizing individuality; and, more currently, as fashion accessories (Samyuktha et al., 2018; Sweetman, 1999). While tattoos are currently seen as denoting freedom of expression,

this was not always the case. In the past, tattoos have been used to distinguish marginalized groups, as seen with the Jewish community in Nazi Germany and in branding used on Africans in chattel slavery (Schildkrout, 2004). In post-industrial America, tattoos were “largely restricted to certain groups which were considered to have aggressive and/or criminal tendencies, such as sailors, soldiers, bikers, and prisoners” (Wohlrab et al., 2007, pp. 932).

On a different note, tattoos have unique meanings specific to the individual which could look like a mixture of the above-mentioned uses. It is estimated that 21-29% of Americans have a tattoo (Broussard, 2018). The range of tattoos available is ever-changing and broadening. Specifically, how they are made is changing; the ink, the style, and even the light spectrum is being challenged in tattoo art. For example, there are “invisible” tattoos made by ink that can only be seen in ultraviolet light. The rise in popularity of tattoos has been captured in media and there are multiple shows revolving around tattoos, like *Ink Master*, *Bad Ink*, *Tattoos After Dark*, *Tattoo Nightmares*, etc. These shows depict several aspects of tattooing, from styles (e.g., Traditional, Japanese, or New School) to rules of tattooing, practicing cover-ups, hygiene practices, and aftercare (Jones, 2009).

Like other modifications, implants vary in usage. There are two main differences when referring to implants. Transdermal implants can be used to enhance the preexisting human body, as seen in breast augmentation (Hicinbothem et al., 2006). Subdermal implants, also known as “dermals”, are meant to specifically add something to the human body that was not present before (i.e., to create an unusual design by planting a three-dimensional object under the skin; Hicinbothem et al., 2006). For example, horns and hearts are made by cutting the skin which stretches it, making it possible to add material to form a design. Subdermal implants have become more visible in mainstream society.

After tattoos, piercings, and implants, there is another form of body modification becoming increasingly popular - scarification. Scarification is the practice of creating a permanent scar, either by cutting or making an incision into the skin and then allowing the lesion to heal (Perper et al., 2017). The earliest forms of scarification were seen in the Australian Aborigines in 60000 BCE (Perper et al., 2017). Since then, scarification has been used to display unity in a community and as a more extreme way to display individuality. Another unusual form of body modification that does not have a specific category, but rather obvious in title is tongue splitting, which can be categorized as a form of scarification.

Thus, for the purpose of this study, there are four umbrella categories for body modifications, limiting the modification to: body piercings, tattoos, implants (transdermal or subdermal), and scarification (includes tongue splitting). There are other modifications, but these categories are the most common. Based on Pekar and researchers' (2017) findings, piercings were more common than tattoos, but tattoos received significantly more approval from participants than piercings on body parts other than the ears. Because so many people have lower lobe ear piercings (e.g., conventional earrings), these piercings are no longer viewed as a sign of psychopathology or criminality, as they formerly were (Hicinbothem et al., 2006; Wohlrab et al., 2007). As a result of widespread acceptance of single ear piercings, these were excluded from the piercing group (Hong & Lee, 2017).

It has become more common to see someone who has a body modification depicted on television. There are several shows dedicated to showing tattoos being made, changed, or critiqued (Preston, 2018). Outside of television shows, body modification can be seen in a plethora of other arenas. For example, athletes can often be seen showing off their tattoos during sporting events. These depictions have helped change the public's perception of body

modification from signs of deviance to expressions of a person's individuality. The stigma surrounding body modification is being challenged in a way that was not possible before televised media.

Discrimination Against Body Modification

Negative stereotypes are most visible in workplaces where good appearance is emphasized; people with tattoos are perceived as “less intelligent, professional, approachable, trustworthy, and kind” (Search et al., 2018, pp. 6). In a study of 49 undergraduates comparing models with and without visible piercings, models with piercings were rated as less attractive, caring, credible, honest, generous, religious, and intelligent while also being rated as more artistic and mysterious (Martino & Lester, 2011). Women with visible tattoos have been perceived as displaying negative personality traits (Giles-Gorniak et al., 2016). The existing research on body modification mostly focuses on how those with modifications may show “antisocial, aggressive, high-risk or deviant behaviors” (Wohlrab et al., 2007, pp. 932). These perceptions can impact all relationships, including employee to manager, employee to employee, and employee to public/customers. Physical appearance is an exceptionally important aspect of everyday life. For example, students and faculty with visible tattoos are perceived as less professional, particularly among conservative individuals who are less accepting of tattoos (Search et al., 2018). Among incarcerated individuals, those with visible tattoos are more likely to be unemployed, to have behavioral problems, to have a high number of previous sentences and to be denied social services (Giles-Gorniak et al, 2016).

Multiple workplaces have instituted vague guidelines requiring employees to cover “tattoos that are visible to the public and deemed offensive, immoral, or presenting an unprofessional appearance” (i. e., Costco, Sam's Club; Kramer, 2006, paras. 20-22.) Such

policies allow room for personal interpretation and do not specify who, the employer or the public, has the ability and authority to say that a tattoo is offensive or unprofessional. Policies requiring people to cover visible body modifications are outdated and inconsistent with current values “pertaining to human diversity, cultural competence, and empowerment” (Williams et al., 2014, pp. 374).

Five-Factor Model of Personality (“Big Five”)

Discriminatory policies such as the ones described above may stem from a belief that those with modification differ in key personality traits from those without these modifications. One way of conceptualizing personality is the Big Five personality model. The Big Five refers to the current consensus of five broad personality traits that help classify existing traits. The broad traits are openness (to experience), extraversion, agreeableness, conscientiousness, and neuroticism (Morizot, 2014). Each personality trait encompasses other personality traits to explain the variation in personality. Openness represents individual differences in curiosity, imagination, ideas, artistic expressions, social and political values. Extraversion reflects differences in sociability, assertiveness, activity level, appreciation of exciting activities, expression of positive emotions, and the tendency to seek stimulation with others. Agreeableness reveals differences in prosocial behavior, empathy, collaboration, and helpfulness with others. Conscientiousness represents differences in organization, the ability to plan, to control impulses, dependability, and to respect/abide by social norms and rules. Neuroticism refers to differences in propensity to experience negative emotions (i.e., anxiety, fear, depressed mood, irritability, vulnerability), level of emotional stability, and to have low self-worth (Lumen Learning, 2017; Morizot, 2014).

Evidence for the Big Five traits originated from differences in physiological, social, developmental, socioeconomic status, and intelligence amongst other factors. These traits have appeared to be consistent over time. The Big Five Inventory as a measure has also shown validity across cultures, languages, gender, and age (Guenole & Chernyshenko, 2005). These five traits have been determined to represent the basic structure of personality traits and they have been used to understand the relationship between personality and behavior (Lumen Learning, 2017).

Employees from various workplaces have been administered personality tests to better understand their behaviors in the workplace, specifically to help “overcome performance obstacles by encouraging members to better understand each other” (Varvel et al., 2004, pp. 142). Two common personality measurements are the Myers-Briggs Type Indicator and Revised NEO Personality Inventory (NEO PI-R). The Myers-Briggs, developed by Katharine Cook Briggs and Isabel Briggs Myers, divides the personality types into 16 separate personality types. It was developed in the 1920s based on Carl Jung’s research (Varvel et al., 2004). Managers have used the results to create efficient work groups because the difference between members can impact collaboration in the workplace. The NEO PI-R was developed by Costa and McCrae, their original survey was published in 1978; it is a 240-item questionnaire that assesses the general five domains of personality and offers a more in-depth review as it includes six facets of each domain in its analysis (John & Soto, 2009). The wide overlap in item pool between the Big Five Inventory (BFI) and NEO PI-R suggests the results from participants should look similar between the two (John & Soto, 2009). For sake of time and participant ease, the BFI was used in this study.

Personality Applied to Body Modifications

Researchers have investigated personality as it relates to body modification, but the results have not been uniform across researchers and studies. For example, individuals who have body modification have scored high in openness but lower in agreeableness (Giles-Gorniak et al., 2016; Hill et al., 2016; Nathanson et al., 2006; Wohlhrab et al., 2007). Similarly, self-reported extraversion has been shown to be higher among European individuals with tattoos than it was among those without (Swami, 2012). In one of the largest studies of personality correlates of tattoo possession included over 1,000 college students, those with tattoos had significantly lower scores in agreeableness and conscientiousness than did non-tattooed individuals (Tate & Shelton, 2008). Tate and Shelton (2008) also found that participants with body piercings scored lower in conscientiousness and higher in openness to experience. Similarly, other research showed that individuals with tattoos are higher in extraversion and lower in conscientiousness (Stirn et al., 2006; Swami, 2012). In other words, while a good amount of research has demonstrated an association between body modification and personality, the results are sporadic, with no one study examining multiple forms of body modification and multiple aspects of personality simultaneously.

The Current Study

Studies that have focused on body modification have historically examined the negative outcomes of body modifications, including allergic reactions, risk-taking, sensation-seeking, deviant behavior, poor mental health including suicidal thoughts, and more (Hong & Lee, 2017). Recent studies have begun to examine potential links between body modification and personality. However, there has been little consistency between these studies. The current study sought to fill the gaps in the literature regarding body modification and personality. Based on

previous research, the Big Five Inventory was utilized to compare personality traits between participants with and without body modification. The following hypotheses were offered:

Hypothesis 1: It was expected that there would be differences in personality traits (as determined by the Big Five Inventory) between those with body modification and those without.

Hypothesis 2: It was expected that having higher opinions of body modifications would be associated with higher scores in openness to experience.

Chapter II: Methodology

Participants and Procedure

Participants for this study were recruited through an online social media platform, Facebook, which is a popular network of communities where users can discuss and post on content associated with their interests. Participants were recruited using the snowball method, where a post containing information about the study and a link to the survey was shared to multiple groups, then shared by multiple participants. There are several options for gathering participants: mailed surveys, phone calls, in-person, and online. Each technique to gather research has its benefits and drawbacks regarding who can be reached; the cost and time consumption vary between methods. In the current age where technology is more accessible than ever, posting research online to be completed by target audiences, has the potential to provide a wide range of opportunities in terms of ethnicity, race, gender, sexuality, and socioeconomic status (Lefever et al., 2007).

The original sample consisted of 103 participants; however due to incomplete or incorrectly completed surveys, nine were removed. Thus, the final sample of 94 participants was used in the current analyses. The current study included those who have engaged in self-modified behavior ($n = 51, 54\%$) and those who have not ($n = 43, 46\%$). Of the sample, 22 reported piercings, 46 reported tattoos, one reported an implant, one reported scarification, and one reported having a split tongue; 27 reported having more than one form of self-modification.

Many participants identified as White/Caucasian females, a large proportion of whom had an advanced degree and who practice Christianity. Refer to Demographic Variables table for more information about the demographics for the sample. Participants from the aforementioned

network who were interested in participating in this study were directed to the online survey where they were given a brief overview of the study and then asked to provide informed consent (see Appendix I). Once consent was provided, participants were asked to provide demographic information. After the demographic survey, participants were asked whether they had modifications and to specifically list what those modifications were. Participants were then asked to complete the Opinions of Body Modifications survey and Big Five Inventory. Once all measures were completed, participants were thanked and debriefed. Following the completion of the study, participants who were interested had the opportunity to enter a \$20 gift card drawing. Upon closure of this study, two winners of the gift card drawing were randomly chosen and received the incentive via email.

Materials

Demographic Survey.

Participants were asked to answer four demographic questions about personal characteristics (i.e., age, gender, ethnicity, and education level), and a religiosity question was asked to collect general information about the participants. Additionally, participants were asked if they had body modifications, including piercings, tattoos, implants, and scarification (including split tongue). The current study focused on individuals who have and have not engaged in body modification, and therefore, this question was included to separate participants into the appropriate group. The purpose of the demographic questions was to collect basic information about participants. See Demographic Survey for specific questions.

Opinions of Body Modifications.

A four-question survey based on the study of Pekar and colleagues (2017) asked opinion questions about body modification which were scored on a Likert scale. An example is “What is

your opinion on tattoos?”, participants could choose between 1 (‘I definitely like it’) to 5 (‘I definitely do not like it’). Lower scores indicated more acceptance of body modification, whereas higher scores indicated less acceptance. The purpose of this survey was to collect opinions of body modifications to gauge how participants feel. Cronbach’s alpha for the four opinion items was 0.87. See Opinions of Body Modifications survey for specific questions.

Big Five Inventory.

The 44-item Big Five Inventory (BFI) measured dimensions of personality specifically on factors of extraversion, agreeableness, conscientiousness, openness (to experience), and neuroticism (John & Srivastava, 1999). Previous research has shown that the scales demonstrate high reliability and strong convergence with other big five measures; alpha reliabilities for the scales range from .81 to .88, with a mean of .85 (Soto & John, 2009). The specific scale reliabilities for the current study were: extraversion (0.84), agreeableness (0.83), conscientiousness (0.78), neuroticism (0.70), and openness (0.72). The measure is comprised of sentences describing various behaviors to which participants rate their level of agreement (from 1= strongly disagree to 5 = strongly agree) regarding how well that statement describes them (see the Big Five Inventory) (Guenole & Chernyshenko, 2005). Scores were summed separately for each subscale.

Chapter III: Results

To test hypothesis one, whether participants with body modification would differ in personality when compared to participants without modification, five separate Independent Samples T-tests were conducted with groups (modified or not) as the independent variable and personality trait as the dependent variable. There was not a significant effect of body modification on extraversion for modifications ($M=26.25$, $SD=7.52$) and unmodified ($M=27.26$, $SD=5.69$) conditions; $t(92)=0.072$, $p=0.475$. There was not a significant effect of body modification on agreeableness for modifications ($M=33.04$, $SD=6.48$) and unmodified ($M=35.14$, $SD=6.64$) conditions; $t(92)=1.55$, $p=0.125$. There was not a significant effect of body modification on openness for modifications ($M=38.33$, $SD=5.16$) and unmodified ($M=37.30$, $SD=5.89$) conditions; $t(92)=-0.90$, $p=0.368$. However, there was a significant effect of body modification on conscientiousness for modifications ($M=33.71$, $SD=6.59$) and unmodified ($M=36.60$, $SD=4.77$) conditions; $t(92)=2.40$, $p=0.018$. There was also a significant effect of body modification on neuroticism for modifications ($M=26.88$, $SD=5.15$) and unmodified ($M=22.37$, $SD=5.67$) conditions; $t(92)=-4.04$, $p<0.001$. All p values represented at the $p<0.05$ level for both conditions. Refer to Participant and Variable Means Comparison tables for more information. The first hypothesis was partially supported, because significant differences between modified and unmodified individuals were found. Specifically, modified individuals were significantly higher in neuroticism and significantly lower in conscientiousness when compared to unmodified participants.

To test the second hypothesis, whether having higher scores on trait openness would be associated with higher opinions on body modification a Pearson's one-tailed correlation was run. This score was a cumulative score of all questions, which were separated into five opinion categories: piercings, tattoos, implants, scarification, and split tongue. The highest possible score being 25 while the lowest possible score being 5. Modified participants ($M=20.84$, $SD=4.09$) scored higher than unmodified participants ($M=14.25$, $SD=4.31$); the correlation between the two variables ($r = -.023$; $p = .42$) was not significant, showing hypothesis two was not supported.

Chapter IV: Discussion

The goal of this study was to investigate whether personality traits between modified and unmodified persons were different and if openness to body modification (scored on the opinions of body modification survey) was associated with openness as a personality trait. For this study, body modifications referred to participants with either: tattoos, piercings, implants, or scarification (including split tongue). Participants could have one or multiple of the above modifications to qualify as being modified, the only exception being participants who had conventional ear piercings. Placement of piercing was asked along with the demographic information.

The first purpose of this study was to examine if participants with body modifications differed from those without said modifications in terms of five personality traits: openness (flexibility of thought); conscientiousness (goal-directed behavior); extraversion (need for stimulation); agreeableness (compassionate orientation); and neuroticism (emotional instability; Morizot, 2014; O'keefe et al., 2012). The hypothesis was left open-ended, rather than speculating directionality of differences on individual personality traits, because previous research has been inconsistent in its findings. Results of this study showed that those with body modifications did not differ from one another in agreeableness, openness, and extraversion but that they were lower in conscientiousness and higher in neuroticism than those without body modification.

This finding was expected in some ways and not in others. As described before, previous research in this area has been incredibly mixed. While some research suggests no association between personality and body modification (Forbes, 2001), other research has found sporadic

associations. For instance, it could be considered surprising that this study found no association between body modification and agreeableness, because other research suggests that those with modification are lower in agreeableness (Giles-Gorniak et al., 2016; Hill et al., 2016; Nathanson et al., 2006; Tate & Shelton, 2008; Wohlrab et al., 2007). This could be due to the nature of the way in which participants are chosen for studies on agreeableness and body modification. Giles-Gorniak and colleagues (2016) argue, with regard to this, that “Body modification is linked with deviant and risky behavior and mental illness, and this is largely due to an over-focus on college student, juvenile delinquent, inpatient, and adjudicated populations where deviance and mental illness are more prevalent” (pp. 852). Older groups have been found to have more peaceful attitudes than adolescents (Erylimaz, 2014). One study of older participants (up to 91 years of age, mean age 33 years) indeed found the opposite of the above studies. Namely, agreeableness, in that study, was higher among those with having a concealed tattoo (Sagoe et al., 2017). In a similar way, the sample in this study had an average age of 37 years, which could explain why it, similarly, did not follow the common trend of finding lower agreeableness among those with modifications. To further complicate the picture, our sample also primarily identified as female, and women generally have higher agreeableness scores than men (Rantanen et al., 2007), so the uniformity of our sample’s demographics could have contributed to a lack of variability in agreeableness in comparison to what could be expected from more evenly-balanced samples.

There was also no difference in openness nor extraversion between modified and unmodified individuals in this sample. Interestingly, previous research has found positive correlations between openness, extraversion, and agreeableness, each of the three variables for which our modified and unmodified participants scored the same (Rantanen et al., 2007). As such, it may be the case that age had a similar impact on our findings on openness and

extraversion as it did on agreeableness. Younger participants are higher in openness than are older participants (Canada et al., 2013). Thus, even though previous research has found that those with modification are higher in openness (Skoda et al., 2020; Tate & Shelton, 2008), our sample may have found no difference due to the higher average age of our participants.

Similarly, even though previous research found that tattooed participants rated themselves as higher in extraversion than non-tattooed participants, and extraversion was associated with higher odds of having a tattoo (Sagoie et al., 2017; Swami, 2012; Swami et al., 2012), the current study found no significant difference between modified and unmodified individuals in extraversion. In a study looking at gender differences in stress-anxiety and stress-depression relationships, women scored significantly higher in extraversion than men (Uliaszek et al., 2010). Perhaps the differences seen in extraversion from previous studies are less related to whether a person has body modifications and more related to gender differences. It is possible no difference was seen because of the primarily female gender make-up of the sample in this study.

There were two variables, however, on which our modified and unmodified participants differed from one another. First, the current study found modified participants scored significantly lower in conscientiousness. This is consistent with previous research in which participants with piercings and tattoos have been observed scoring lower in conscientiousness (Tate & Shelton, 2008; Swami, 2012; Stirn et al., 2006). Our finding regarding neuroticism is less straight-forward. In the current study, modified participants scored higher in neuroticism than unmodified participants. However, previous research in this area is mixed. While women with piercings have scored lower in neuroticism than those without piercings, neuroticism is positively associated with having a visible tattoo (Skegg et al., 2007). Skegg and researchers (2007) had a high number of participants with piercings (in comparison to tattoos), whereas this

study (which combined all modifications into one variable) had a higher number of tattoos (in comparison to piercings) which could explain the difference in directionality of their findings.

In addition to describing differences between modified and unmodified individuals, this study also aimed to examine potential associations between opinions of body modification and personality. Specifically, we hypothesized that having higher opinions of body modifications would be associated with higher openness scores. The association between opinions of body modification and personality traits has not previously been examined in isolation. Surprisingly, in this study there was no association found between the variables. However, this may have also been influenced by the gender makeup of our sample. The research by Pekar and colleagues (2017) that previously found an association between openness and opinions on body modifications only demonstrated this association in men, driven by men's higher likelihood of choosing the "I definitely do not like" option.

Limitations and Future Directions

It is clear from this research that there is a great deal of contradiction surrounding the potential associations between personality and body modification. The goal of this study was to find the pattern of associations that would arise when concurrently examining all five aspects of personality among those who did or did not possess body modification. It is unclear why only two personality traits significantly differed between modified and unmodified individuals, but it may have to do with limitations inherent to this research. A prominent limitation to this study exists in the demographic characteristics of the sample. The sample mainly consisted of White/Caucasian Christian females with advanced degrees. Age, education level, gender, and religious practices have all been shown to be associated with personality (Bail et al., 2015; Koch et al., 2004). Thus, results may not be generalizable to the overall population.

Future research could benefit by being conducted on a more diverse sample of individuals. Specifically, we know that being affiliated with conservative religious denominations (i.e., Mormons, the Church of Christ) and belonging to a non-minority ethnic group, significantly reduces the likelihood of being interested in tattoos, having tattoos, and getting a tattoo (Koch et al., 2004). Based on that information it is highly likely that the current sample is less likely to be interested in body modifications. Better representation of males, other ethnic identities, and other education levels in future studies may lead to more variability in terms of personality and opinions of body modification. Another direction future research could pursue would be a cross sectional study, evaluating a specific group at multiple stages, about their personality and their actual modifications to see if there is a possible causal relationship between modification on personality traits.

A second limitation to this study is that it may have been prone to self-reporting bias, which is when participants give a socially desirable answer versus what their truth is. One meta-analysis of multiple personality inventories (i.e., Minnesota Multiphasic Personality Inventory, Personality Assessment Inventory, the Balanced Emotional Empathy Test) found that levels of self-reported antisocial and psychopathic features varied by measure and were often underreported, perhaps to avoid legal repercussions (Spaans et al., 2017). Thus, socially desirable responding should be considered when social presentation is involved (Hopwood et al., 2009). Specifically, in this study, it is possible that participants rated themselves artificially high in socially desirable traits and artificially low in undesirable traits, which could impact our findings.

Despite these limitations, the currently study remains important, because it brings to light assumptions and stigmas about modified individuals. Visible modifications in the workplace

have historically been viewed negatively. Workers with tattoos were perceived as “less intelligent, professional, approachable, trustworthy, and kind” (Search et al., 2018, pp. 6). In a study with undergraduates, models with tattoos were rated as less attractive, caring, credible, honest, generous, religious, and intelligent (Martino & Lester, 2011). Those with piercings and tattoos are viewed as being antisocial, aggressive, and more likely to partake in deviant behavior (Wohlrab et al., 2007). Stigma is characterized by a “mark” of social disgrace, limiting the individual from the acceptance of their peers; the marks can be physical, mental illness, unemployment, or other deviation (Campbell & Deacon, 2006). Stigma can negatively impact all aspects of quality of life. Thus, negative views of body modification can have wide-spread impacts on housing availability, employment, social relationships, health, drug use, criminality, and education (Keagy, 2017; Link & Hatzenbuehler, 2016).

Stigma primarily exists for three reasons: (1) keeping the divide between power, wealth, or status that allows one group to remain in control, (2) enforcement of normality to regulate society, and (3) separating healthy people from unhealthy people (Link & Hatzenbuehler, 2016). Understanding that stigma affects multiple domains means that challenging stigma in one setting could likely change how stigma functions in another setting. When people in positions of power, such as employers and teachers, recognize negative attitudes towards individuals with modifications, that acknowledgement can impact how those people move through life (Martin & Dula, 2010). For example, if a professor notices when a student, who is covered in visible tattoos, is constantly being excluded from groups, that professor can change how groups are formed, which could, in turn, impact that student’s choice to remain in that course. Similarly, when supervisors notice that an employee with visible piercings, is consistently passed over for a

promotion, acknowledging the discrimination can mean the difference between earning a promotion or quitting the job.

Studies have examined how to challenge stigma, focusing on two processes: (1) education (comparing myths versus facts) and (2) contact (interaction; Corrigan et al., 2017). Several researchers have found that educating the public and demonstrating interactions between different groups can reduce stigma (Corrigan et al., 2017). In the domain of employment, investigating areas where stigma or discrimination exists allows policies to be put into place that regulate the equality between people with and without body modification (Keagy, 2017). On a social scale, recognizing stigma against body modification can reduce isolation, depression, anxiety, and a multitude of other conditions in targeted people (Keagy, 2017).

Any research that can help root out bias is important to the social sciences, because it has the ability lessen stigma between groups of people. This research has made strides in clarifying the differences in personality between people with body modification and people without. The current study was designed because of discrimination experienced in the workplace, due to having visible body modifications. While depictions in the mainstream media of body modification have changed, stigma around modifications in the workplace is still prominent and can be destructive. The prejudice against body modification comes from management and the public; it can look like differential treatment or possible disciplinary actions (Kramer, 2006). Based on the results from the current study, people with modification are not significantly different in all areas of personality from people without modification, and where differences exist, those differences are small. Most importantly, these results mean that body modification does not seem to drastically change personalities, like some believe.

In summary, the current study clarifies previously inconsistent findings regarding the differences in personality traits between modified and unmodified individuals as well as the association between personality and opinion of modifications. It was hypothesized that modified participants would differ from unmodified participants and that higher opinions of body modification would correlate with the trait openness. Modified individuals were found to be significantly higher in neuroticism and lower in conscientiousness when compared to unmodified individuals. Opinions of body modification were not found to correlate with openness as a trait. These results suggest that modified individuals do differ from individuals that choose not to engage in body modification. As seen in previous research, modified individuals have been shown to be significantly different from unmodified individuals in all five personality traits in one study or another. It is important to remember that while differences between the two groups exist, the differences do not mandate different treatment.

Appendix I: Demographics Survey

1. What is your age? _____
2. What is your gender?
 - Female
 - Male
 - Transgender
 - Other (please specify):
3. What is your race/ethnicity identify? Please select ALL that apply:
 - White/Caucasian
 - African/African American
 - Hispanic/Latino
 - Asian/Asian-American
 - Other (please specify):
4. Highest level of education achieved?
 - Less than High School or Equivalent
 - High School or Equivalent
 - Associate Degree or Vocational Training
 - Bachelor's Degree
 - Advanced or Professional Degree
5. What religion do you practice? _____
6. Do you have body modifications?
 - Piercings? How many? Location? Example: lower lobe ear piercing, nose piercing
 - Tattoos? How many?
 - Implants? How many?
 - Scarification? How many?
 - Split Tongue?

Appendix II: Opinions of Body Modifications

Indicate for each statement whether it is:

Answer Options:

I definitely like it	1
I like it	2
I do not know	3
I do not like it	4
I definitely do not like it	5

1. What is your opinion about tattoos?
2. What is your opinion about ear piercings?
3. What is your opinion about body piercings in parts different than lower lobe on the ears?
4. What is your opinion about other body modifications such as subdermal implants, split tongue, or scarification?

Appendix III: Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Answer Options:

- Disagree strongly 1
- Disagree a little 2
- Neither agree nor disagree 3
- Agree a little 4
- Agree strongly 5

I see Myself as Someone Who...

- 1. Is talkative
- 2. Tends to find fault with others
- 3. Does a thorough job
- 4. Is depressed, blue
- 5. Is original, comes up with new ideas
- 6. Is reserved
- 7. Is helpful and unselfish with others
- 8. Can be somewhat careless
- 9. Is relaxed, handles stress well
- 10. Is curious about many different things
- 11. Is full of energy
- 12. Starts quarrels with others
- 13. Is a reliable worker
- 14. Can be tense
- 15. Is ingenious, a deep thinker
- 16. Generates a lot of enthusiasm
- 17. Has a forgiving nature
- 18. Tends to be disorganized
- 19. Worries a lot
- 20. Has an active imagination
- 21. Tends to be quiet
- 22. Is generally trusting
- 23. Tends to be lazy
- 24. Is emotionally stable, not easily upset
- 25. Is inventive
- 26. Has an assertive personality
- 27. Can be cold and aloof
- 28. Perseveres until the task is finished
- 29. Can be moody
- 30. Values artistic, aesthetic experiences
- 31. Is sometimes shy, inhibited
- 32. Is considerate and kind to almost everyone
- 33. Does things efficiently
- 34. Remains calm in tense situations
- 35. Prefers work that is routine
- 36. Is outgoing, sociable
- 37. Is sometimes rude to others
- 38. Makes plans and follow through with them
- 39. Gets nervous easily
- 40. Likes to reflect, play with ideas
- 41. Has few artistic interests
- 42. Likes to cooperate with others
- 43. Is easily distracted
- 44. Is sophisticated in art, music, or literature

Scoring:

BFI scale scoring (“R” denotes reverse-scored items)

Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36

Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42

Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R

Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39

Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

Appendix IV: Demographic Variables of Sample

Table 1
Demographic Variables of Sample

Variables	M(SD)/ n (%)	Total Sample (n = 94)
Age	37 (15.29)	
Gender		
Female	72 (76.6%)	
Male	18 (19.1%)	
Non-binary/Other	4 (4.3%)	
Ethnicity		
White/Caucasian	81 (86.2%)	
African/African American	6 (6.4%)	
Hispanic/Latino	4 (4.2%)	
Asian/Asian American	3 (3.2%)	
Education		
High School	8 (8.5%)	
Associate Degree	7 (7.4%)	
Bachelor's degree	33 (35.1%)	
Advanced Degree	46 (49%)	
Religion		
Agnostic/Atheist	5 (5.3%)	
Catholicism	7 (7.4%)	
Christianity	42 (44.7%)	
Islam	1 (1.1%)	
Pagan	6 (6.4%)	
N/A	33 (35.1%)	
Modification	51 (54%)	
Piercing	1.17 (2.32) / 22 (43.1%)	
Tattoo	1.70 (3.51) / 46 (90.2%)	
Implants	0.01 (0.10) / 1 (2%)	
Scarification	0.01 (0.10) / 1 (2%)	
Split Tongue	0.01 (0.10) / 1 (2%)	
*Multiple	27 (53%)	
No Modification	43 (46%)	

Note. Age and modification type is shown as mean and standard deviation (*M/SD*). Modification type and all other variables are shown as number of participants and percentages (*n/%*). Type of modification percentages do not sum to 100 as participants could endorse more than one type of body modification. The percentages of type of modification represent the percentage of participants with modification as opposed to all participants.

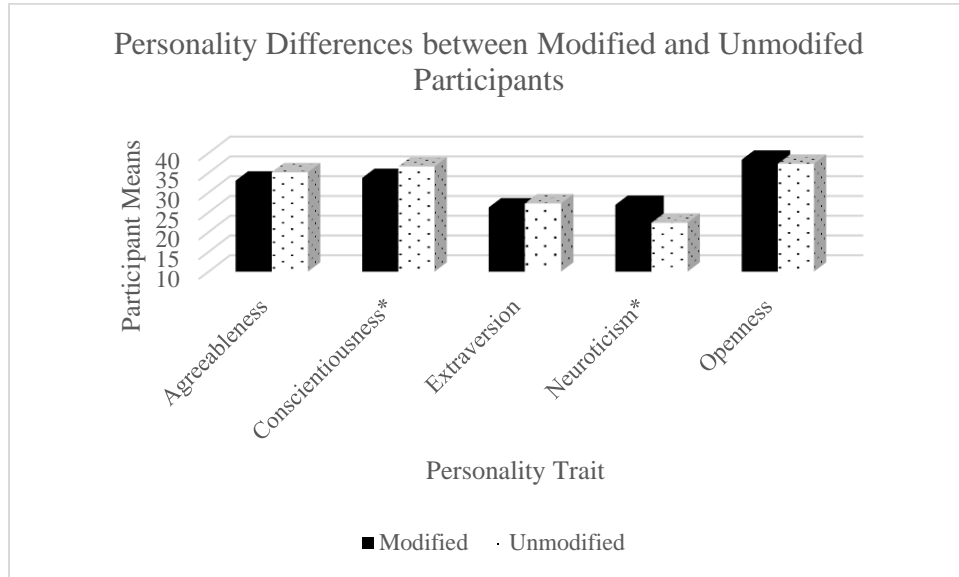
Appendix V: Variable Mean Comparison

Table 2
Comparison of Variables

Variables	Total Sample (<i>n</i> = 94) M(<i>SD</i>)
Agreeableness ($t(92)=1.55, p=0.125$)	
Modified	33.04 (6.48)
Unmodified	35.14 (6.64)
Conscientiousness ($t(92)=2.40, p=0.018$)*	
Modified	33.71 (6.59)
Unmodified	36.60 (4.77)
Extraversion ($t(92)=0.72, p=0.475$)	
Modified	26.25 (7.52)
Unmodified	27.26 (5.69)
Neuroticism ($t(92)=-4.04, p=0.000$)*	
Modified	26.88 (5.15)
Unmodified	22.37 (5.67)
Openness (to experience) ($t(92)=-0.90, p=0.368$)	
Modified	38.33 (5.16)
Unmodified	37.30 (5.89)

Note. Modified and unmodified individuals differed from one another on conscientiousness and neuroticism, but not the other three personality variables.

Appendix VI: Modified vs. Unmodified Participant Means



Note. All variable means shown are based on descriptive means of the sample. Asterisks indicate which personality traits between modified and unmodified participants are statistically significant.


Appendix VII: IRB Approval Letter



Institutional Review Board

328 Webb Hall
Murray, KY 42071-3318
270-809-2916 • msu.ibr@murraystate.edu

TO: Amanda Joyce, Psychology

FROM: Jonathan Baskin, IRB Coordinator 

DATE: 5/14/2020

RE: Human Subjects Protocol I.D. – IRB # 20-236

The IRB has completed its review of your student's Level 1 protocol entitled *Body Modification and Self-Assessment*. After review and consideration, the IRB has determined that the research, as described in the protocol form, will be conducted in compliance with Murray State University guidelines for the protection of human participants.

The forms and materials that have been approved for use in this research study are attached to the email containing this letter. These are the forms and materials that must be presented to the subjects. Use of any process or forms other than those approved by the IRB will be considered misconduct in research as stated in the MSU IRB Procedures and Guidelines section 20.3.

Your stated data collection period is from 5/14/2020 to 8/31/2020.

If data collection extends beyond this period, please submit an Amendment to an Approved Protocol form detailing the new data collection period and the reason for the change.

This Level 1 approval is valid until 5/13/2021.

If data collection and analysis extends beyond this date, the research project must be reviewed as a continuation project by the IRB prior to the end of the approval period, 5/13/2021. You must reapply for IRB approval by submitting a Project Update and Closure form (available at murraystate.edu/ibr). You must allow ample time for IRB processing and decision prior to your expiration date, or your research must stop until such time that IRB approval is received. If the research project is completed by the end of the approval period, then a Project Update and Closure form must be submitted for IRB review so that your protocol may be closed. It is your responsibility to submit the appropriate paperwork in a timely manner.

The protocol is approved. You may begin data collection now.

Opportunity
afforded

murraystate.edu

References

- Bail, L., Eley, D.S., Desbrow, B., Lee, P., & Ferguson, M. (2015). A cross-sectional exploration of the personality traits of dietitians. *Journal of Human Nutrition & Dietetics*, 28(5), 502-509. <https://doi.org/10.1111/jhn.12265>
- Campbell, C., & Deacon, H. (2006). Unraveling the contexts of stigma: from internalization to resistance to change. *Journal of Community & Applied Social Psychology*, 16(6), 411-417. <https://doi.org/10.1002/casp.901>
- Canada, B., Stephan, Y., Caudroit, J., & Jaconelli, A. (2013). Personality and subjective age among older adults: the mediating role of age-group identification. *Aging & Mental Health*, 17(8), 1037-1043. <https://doi.org/10.1080/13607863.2013.807420>
- Corrigan, P.W., Schmidt, A., Bink, A.B., Nieweglowski, K., Al-Khoujia, M.A., Qin, S., & Discont, S. (2017). Changing public stigma with continuum beliefs. *Journal of Mental Health*, 26(5), 411-418. <https://doi.org/10.1080/09638237.2016.1207224>
- Eryilmaz, A. (2014). Research: Relationship of peace attitudes with personality traits, gender, and age groups. *Dusunen Adam: Journal of Psychiatry & Neurological Sciences*, 27(2), 138-146. <https://doi.org/10.5350/DAJPN2014270206>
- Forbes, G. B. (2001) College students with tattoos and piercings: Motives, family experiences, personality factors, and perception by others. *Psychological Reports*, 89(3), 774. <https://doi.org/10.2466/pr0.2001.89.3.774>
- Giles-Gorniak, A. N., Vandehey, M. A., & Stiles, B. L. (2016). Understanding differences in mental health history and behavioral choices in a community sample of individuals with

- and without body modifications. *Deviant Behavior*, 37(8), 852–860.
<https://doi.org/10.1080/01639625.2015.1060798>
- Guenole, N., & Chernyshenko, O. S. (2005). The suitability of Goldberg's big five IPIP personality makers in New Zealand: A dimensionality, bias, and criterion validity evaluation. *New Zealand Journal of Psychology*, 34(2), 86-96.
- Hicinbothem, J., Gonsalves, S., & Lester, D. (2006). Body modification and suicidal behavior. *Death Studies*, 30(4), 351-363. <https://doi.org/10.1080/07481180600553419>
- Hill, B. M., Ogletree, S. M., & McCrary, K. M/ (2016). Body modifications in college students: Considering gender, self-esteem, body appreciation, and reasons for tattoos. *College Student Journal*, 50(2), 246-252.
- Hong, B., & Lee, H. (2017) Self-esteem, propensity for sensation seeking, and risk behaviour among adults with tattoos and piercings. *Journal of Public Health Research*, 6(3), 153-163. <https://doi.org/10.4081/jphr.2017.1107>
- Hopwood, C. J., Flato, C. G., Ambwani, S., Garland, B. H., & Morey, L. C. (2009). A comparison of Latino and Anglo socially desirable responding. *Journal of Clinical Psychology*, 65(7), 769-780. <https://doi.org/10.1002/jclp.20584>
- John, O. P., & Srivastava, S. (1999). The big-five trait taxonomy: History, measurement, and theoretical perspectives. In L.A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102-138). New York Guildford Press.
- Jones, S. (2009). Tattoo info. Retrieved from <http://www.tattooinfo.net/Scripts/default.asp>
- Keagy, C. D. (2017). Institutional constructions of medical stigma and its perception by multiply body-modified individuals seek treatment. *Deviant Behavior*, 38(5), 593-604.
<https://doi.org/10.1080/01639625.2016.1197582>

- Koch, J., Roberts, A., Armstrong, M., Owen, D. (2004). Correlations of religious belief and practice with college students' tattoo-related behavior. *Psychological Reports*, 94(2), 425-430. <https://doi.org/10.2466/pr0.94.2.425-430>
- Koch, J., Roberts, A., Harms Cannon, J. Armstrong, M., & Owen, D. (2005). College students, tattooing, and the health belief model: Extending social psychological perspectives on youth culture and deviance. *Sociological Spectrum*, 25(1), 79-102. <https://doi.org/10.1080/027321790500121>
- Kramer, R. J. (2006). Recent developments in governmental operations and liability generation y: Tattoos, piercings, and other issues for the private and public employer. *Urban Lawyer*, 38(3), 593-611.
- Link, B., & Hatzenbuehler, M. L., (2016). Stigma as an unrecognized determinant of population health: research and policy implications. *Journal of Health Politics, Policy & Law*, 41(4), 653-673. <https://doi.org/10.1215/03616878-3620869>
- Lefever, S., Dal, M., & Matthíasdóttir, Á. (2007). Online data collection in academic research: advantages and limitations. *British Journal of Educational Technology*, 38(4), 574–582. <https://doi.org/10.1111/j.1467-8535.2006.00638.x>
- Lumen Learning, 2017. "Personality" Retrieved Jan, 21, 2021 (<https://courses.lumenlearning.com/boundless-management/chapter/personality/>).
- Martin, B. A., & Dula, C. S. (2010). More than skin deep: Perceptions of, and stigma against, tattoos. *College Student Journal*, 44(1), 200-206.
- Martino, S., & Lester, D. (2011). Perceptions of visible piercings: A pilot study. *Psychological Reports*, 109(3), 755-758. <https://doi.org/10.2466/07.PR0.109.6.755-758>

- Morizot, J. (2014). Construct validity of adolescents' self-reported big five personality traits: Importance of conceptual breadth and initial validation of a short measure. *Assessment, 21*(5), 580-606. <https://doi.org/10.1177/1073191114524015>
- Nathanson, C., Paulhus, D., & Williams, K. (2006). Personality and misconduct correlates of body modification and other cultural deviance markers. *Journal of Research in Personality, 40*(5), 779-802. <https://doi.org/10.1016/j.jrp.2005.09.002>
- O'keefe, D. F., Kelloway, E. K., & Francis, R. (2012). Introducing the OCEAN.20: A 20-item five-factor personality measure based on the trait self-descriptive inventory. *Military Psychology (Taylor & Francis Ltd), 24*(5), 433-460. <https://doi.org/10.1080/08995605.2012.716265>
- Pekar., J. Skolarczyk, J., Labadz, D., Katarzyna, C., & Nieradko-Iwanickia, B. (2017) Popularity and knowledge concerning complications of body modifications among young adults. *Polish Journal of Public Health, 127*(2), 71-73. <https://doi.org/10.1515/pjph-2017-0015>
- Perper, M., Aldahan, A. S., Tsatalis, J. P., & Nouri, K. (2017). Modifications of body surface: Piercings, tattoos, and scarification. *Internal Journal of Dermatology, 56*(3), 351-53. <https://doi.org/10.1111/ijd.13539>
- Preston, D. (2018, Dec 14). *16 cancelled tattoo tv shows that you should binge watch this weekend*. Inked. <https://www.inkedmag.com/tattoo-artists/16-canceled-tattoo-tv-shows-you-should-binge-watch-this-weekend>
- Rantanen, J., Metsapelto, R., Feldt, T., Pulkkinen, L., & Kokko, K. (2007). Long-term stability in the big five personality traits in adulthood. *Scandinavian Journal of Psychology, 48*(6), 511-518. <https://doi.org/10.1111/j.1467-9450.2007.00609.x>

- Sagoe, D., Pailesen, S., & Andreaseen, C. S. (2017). Prevalence and correlate of tattooing in Norway: A large-scale cross-sectional study. *Scandinavian Journal of Psychology, 56*(6), 562-570. <https://doi.org/10.1111/sjop.12399>
- Samyuktha, P. S., Devi, R. G., & Priya A. J., (2018). A survey on awareness and perception about tattoos among college students. *Drug Invention Today, 10*, 2705-2708.
- Schildkrout, E. (2004). Inscribing the body. *Annual Review of Anthropology, 33*(1), 319-344. <https://doi.org/10.1146/annurev.anthro.33.070203.143947>
- Search, K. R., Tolle, S. L., McCombs, G. B., & Arndt, A. (2018). A study of visible tattoos in entry-level dental hygiene education programs. *Journal of Dental Hygiene, 92*(1), 6-15.
- Skegg, K., Nada-Raja, S., Paul, C., & Skegg, D. (2007). Body piercing, personality, and sexual behavior. *Archives of Sexual Behavior, 36*(1), 47-54. <https://doi.org/10.1007/s10508-006-9087-6>
- Skoda, K., Oswald, F., Brown, K., Hesse, C., & Pedersen, C. L. (2020). Showing skin: Tattoo visibility status, egalitarianism, and personality are predictors of sexual openness among women. *Sexuality & Culture, 24*(6), 1935-1956. <https://doi.org/10.1007/s12119-020-09729-1>
- Soto, C. J., & John, O. P. (2009). Ten facet scales for the big five inventory: Convergence with NEO PI-R facets, self-peer agreement, and discriminant validity. *Journal of Research in Personality, 43*(1), 84-90. <https://doi.org/10.1016/j.jrp.2008.10.002>
- Spaans, M., Molendijk, M. L., de Beurs, E., Rinne, T., & Spinhoven, P. (2017). Self-reported personality traits in forensic populations: a meta-analysis. *Psychology, Crime & Law, 23*(1), 56-78. <https://doi.org/10.1080/1068316X.2016.1220555>

- Stirn, A., Hinz, A., & Brahler, E. (2006). Prevalence of tattooing and body piercing in Germany and perception of health, mental disorders, and sensation seeking among tattooed and body-pierced individuals. *Journal of Psychosomatic Research, 60*(5), 531-534.
<https://doi.org/10.1016/j.jpsychores.2005.09.002>
- Swami, V. (2012). Written on the body? Individual differences between British adults who do and do not obtain a first tattoo. *Scandinavian Journal of Psychology, 53*(5), 407-412.
<https://doi.org/10.1111/j.1467-9450.2012.00960.x>
- Swami, V., Pietschnig, J., Bertil, B., Nader, I., Stieger, S., & Voracek, M. (2012). Personality differences between tattooed and non-tattooed individuals. *Psychological Reports, 111*(1) 97-106. <https://doi.org/10.2466/09.07.21.PR0.111.4.97-106>
- Sweetman, P. (1999). Anchoring the (postmodern) self? Body modification, fashion, and identity. *Body & Society, 5*(2/3), 51. <https://doi.org/10.1177/1357034X99005002004>
- Tate, J., & Shelton, B. L. (2008). Personality correlates of tattooing and body piercing in a college sample: The kids are alright. *Personality & Individual Differences, 45*(4), 281-285. <https://doi.org/10.1016/j.paid.2008.04.011>
- Uliaszek, A., Zinbarg, R., Mineka, S., Craske, M., Sutton, J., Griffith, J., Rose, R., Waters, A., & Hammen, C. (2010). The role of neuroticism and extraversion in the stress-anxiety and stress-depression relationships. *Anxiety, Stress, & Coping, 23*(4), 363-381. <https://doi.org/10.1080/10615800903377264>
- Varvel, T., Adams, S. G., Pridie, S. J., & Ruiz Ulloa, B. C. (2004). Team effectiveness and individual Myers-Briggs personality dimensions. *Journal of Management in Engineering, 20*(4), 141-146. [https://doi.org/10.1061/\(ASCE\)0742-597X\(2004\)20:4\(141\)](https://doi.org/10.1061/(ASCE)0742-597X(2004)20:4(141))

Williams, D. J., Thomas, J., & Christensen, C. (2014). "You need to cover your tattoos!";

Reconsidering standards of professional appearance in social work. *Social Work, 59*(4),

373-375. <https://doi.org/10.1093/sw/swu025>

Wohlrab, S., Stahl, J., Rammsayer, T., & Kappeler, P. M. (2007). Differences in personality

characteristics between body-modified and non-modified individuals: associations with

individual personality traits and their possible evolutionary implications. *European*

Journal of Personality, 21(7), 931-951. <https://doi.org/10.1002/per.642>