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The Impact of Disability Status, Proximity to People with Disabilities, and Personality  
Factors on Attitudes toward People with Disabilities

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## Abstract

The Impact of Disability Status, Proximity to People with Disabilities, and Personality

Factors on Attitudes toward People with Disabilities

By Danielle Koslow

Research indicates that many individuals hold negative attitudes toward people with disabilities, but very little was known about if or how these attitudes may vary within the disability community itself. Personality factors and proximity may play a role in determining attitudes toward people with disabilities as well. The current study examined the extent to which having a disability, the personality traits of openness to experience, agreeableness, and extraversion, and proximity to people with disabilities predicted one's attitudes toward people with disabilities. A sample of 100 Emory University students took part in the study, which consisted of a series of questionnaires related to attitudes toward people with disabilities, contact with people with disabilities, and personality factors. Individuals who were more extraverted were found to have more positive attitudes toward people with disabilities. No direct association was found between openness or agreeableness with attitudes toward people with disabilities. A bootstrapping procedure was performed to compensate for a low number of participants with disabilities in order to compare attitudes toward people with disabilities from disabled and nondisabled populations; this analysis was not significant. Contrary to predictions, no significant correlation was found between proximity toward people with disabilities and attitudes toward people with disabilities. More work needs to be done to better understand the causes of attitudes toward people with disabilities.

*Keywords: Disability, attitudes, personality factors, proximity*

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## Introduction

A disability is defined by the Americans with Disabilities Act as, “a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment” (A Guide to Disability Rights Laws, 2020). The Centers for Disease Control and Prevention (CDC) defines disability as any condition of the body and mind that makes certain activities and interacting with the world more difficult (Disability and health overview, 2020). According to the CDC, approximately twenty-five percent of the United States’ population is disabled (CDC: 1 in 4 US adults live with a disability, 2018). Individuals with disabilities have been found as a whole to be at heightened risks for depression and lower life satisfaction (Daley et al., 2018). People who identify as disabled are more likely than their nondisabled peers to suffer from psychiatric disorders such as major depressive disorder, generalized anxiety disorder, posttraumatic-stress disorder, and substance abuse disorder (Turner et al., 2006). The prevalence of mental health issues is higher still for females and individuals of Hispanic descent within the disability community. One proposed theory is that the chronic stress that comes with having a disability could play a part in increasing the likelihood for psychiatric disorders (Turner & McLean, 1989). It is critically important to understand the attitudes toward people with disabilities held by individuals *with* disabilities in order to better comprehend the impact of disability on mental health. Unfortunately, the direct experiences of members of the disability community are grossly underrepresented in psychological research.

### **Perceptions of the Disability Community**

The vast majority of research surrounding attitudes toward people with disabilities to date has focused on nondisabled individuals' attitudes toward and perceptions of people with disabilities. Such studies have found that nondisabled individuals tend to think more negatively of people with disabilities than of their nondisabled peers (e.g., Dovidio et al., 2015; Harder et al., 2019; Olkin et al., 2019; Rohmer & Louvet, 2016; Katz et al., 1977).

One of the most extreme examples of the negative attitudes held by the nondisabled toward people with disabilities was shown by a study conducted by Katz and colleagues (1977). This study had nondisabled participants administer a cognitive task to a person they believed was another participant, but was actually a confederate. Participants were randomly assigned to be partnered with a confederate who was either in an ordinary chair or in a wheelchair. If the confederate gave an incorrect answer during the task, the participant dispensed what was described to them by the experimenter as a very loud and painful noise or a mild noise to the confederate through headphones. The participants also completed scales rating their feelings toward the confederate before and after the study, as well as reported their general feelings toward the physically handicapped. Katz and colleagues (1977) discovered that participants rated the confederate in the wheelchair lower after administering the task than before the task. Interestingly, ambivalence— or conflicted feelings and cognitions toward the disability community— was found to be the most significant factor impacting the participants' criticism of the wheelchair-using confederate after administering the task. Katz and colleagues (1977) theorized that this derogation was the participants' way of reducing their guilt after harming a person with a disability. That is, the participant reduced their



guilt by convincing themselves that the person with a disability was not a good partner for the activity, and that they deserved the painfully loud noise.

Ambivalence was identified as a factor impacting attitudes toward disability in a meta-analysis by Dovidio and colleagues (2015). They found that negative attitudes held by nondisabled individuals toward people with disabilities were based on ambivalent orientations toward the disabled. This meant that nondisabled people would support the disabled in hypothetical situations and support businesses that help individuals with disabilities, but would often have negative reactions toward people with disabilities (e.g., anxiety in conversations with them, or avoiding them altogether). These attitudes were not based in any explicit bias toward people with disabilities, but were engrained by other means, such as anxiety caused by interactions with people with disabilities (Dovidio et al., 2015).

The findings of the previous studies have been further corroborated by Harder and colleagues' (2019) and Rohmer and Louvet's (2016) examinations of implicit and explicit attitudes toward disability using the Disability Implicit Association Test (Vaughn & Doyle, 2011). Harder and colleagues (2019) found that nondisabled people, men, people with low educational attainment and those with no close relationships with disabled individuals displayed the most implicit and explicit prejudice toward the disabled, while women, people with high educational attainment, and those who have close relationships with people with disabilities are more likely to show warmth to people with disabilities.

**Potential Moderators of Attitudes toward People with Disabilities***Proximity*

As suggested by Harder and colleagues' (2019) finding that a lack of closeness was predictive of prejudice against persons with disabilities, a potential moderating factor in how non-disabled individuals view people with disabilities is proximity to those with disabilities. Barr and Bracchitta (2012) discovered a positive correlation between having close relationships with people with disabilities and having more positive attitudes toward people with disabilities. They compared the attitudes toward people with disabilities of individuals who had different types of relationships with people with disabilities (e.g., relatives, classmates, friends, contacts through hobbies). They found that nondisabled people who had close friendships with people with disabilities had more positive attitudes toward people with disabilities than individuals who are relatives of people with disabilities. Thus, the nature of a close relationship with a person with a disability may impact individual attitudes toward people with disabilities. Interestingly, the type of relationship that resulted in the most optimistic attitudes toward people with disabilities was for individuals who had contact with people with disabilities through a shared hobby or activity. Barr and Bracchitta (2012) attributed this to the fact that friendship and mutually enjoyable activities are voluntary and allow nondisabled individuals to see the abilities of people with disabilities. Familial relationships can be limited to specific social settings that do not allow for the display of the strengths of people with disabilities (Barr & Bracchitta, 2012).

Research conducted by Friedman (2019) corroborated and extended the work done by Barr and Bracchitta (2012). After administering the Disability Implicit

Association Test (Vaughn & Doyle, 2011) and measures of explicit bias toward people with disabilities, Friedman (2019) found that family members of people with disabilities appear to have less implicit and explicit bias toward people with disabilities than people who do not know a person with a disability well. Further, if family members had disabilities themselves, they displayed less implicit and explicit bias toward people with disabilities than did nondisabled family members of disabled individuals (Friedman, 2019). This research indicated that proximity to people with disabilities may shape attitudes toward disability among both non-disabled people and those with disabilities.

### *Personality*

Personality factors may also be meaningful predictors of attitudes toward people with disabilities. A widely used and well-validated theoretical model of personality is the HEXACO model (Lee & Ashton, 2009). This model is comprised of six personality dimensions: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience (Lee & Ashton, 2009). People who have high levels of honesty-humility are often humble and do not care about rising in social status. Those who exhibit high emotionality are typically anxious, highly empathetic, and get attached to others easily. Individuals with high extraversion feel energized by being around other people in social situations. Those high in agreeableness are warm, friendly, and inclined to cooperate with others. Highly conscientious individuals strive toward perfection and keep their lives organized. Finally, people who are high on the openness trait are fascinated by people who are different from themselves and in creating unique experiences for themselves (Lee & Ashton, 2009). The HEXACO Personality Index has been found to predict many socially relevant outcomes, including prosocial behavior in

social decision making, and political ideology and voting patterns (Van Doesum & Van Lange, 2013; Chirumbolo & Leone, 2010). Given this, it stands to reason that individual differences in these factors may shape the attitudes held toward people with disabilities, and some recent empirical work speaks directly to the applicability of the HEXACO model to predict attitudes toward disabilities.

One study conducted by Anglim and colleagues (2019) assessed attitudes toward workplace diversity based on HEXACO personality factors. They measured how the HEXACO personality factors would predict attitudes toward women, foreign, disabled, and cognitively impaired employees in the workplace, finding that attitudes toward coworkers with disability were more positive for individuals who were high on honesty-humility, extraversion, agreeableness, and openness to experience. The strongest of these factors toward accepting diversity in the workplace were agreeableness and openness to experience (Anglim et al., 2019). Attitudes toward diversity—specifically toward people with disabilities—in the workplace could reflect attitudes toward people with disabilities in everyday life.

Openness and agreeableness were further explored for their ability to predict attitudes toward people with disabilities in a study by Page and Islam (2015). This study used the Five Factor Model of Personality (John et al., 2008), a similar model and theoretical precursor to the HEXACO Model of Personality, and scales on attitudes toward people with intellectual disabilities. They found that people high on openness and agreeableness had more positive attitudes toward individuals with intellectual disabilities (Page & Islam, 2015). Page and Islam's (2015) use of the Five Factor Model along with Anglim and colleague's (2019) significant results showed that the traits of agreeableness

and openness span across models as important predictors of attitudes toward people with disabilities.

Keller and Siegrist (2010) studied how psychological resources (e.g. self-esteem, liking people, belief in a just world) and personality factors may influence attitudes toward people with disabilities. The study consisted of self-report data from questionnaires on life satisfaction, attitudes toward people with disabilities, and the Five Factor Model of Personality (John et al., 2005). Keller and Siegrist (2010) found that positive attitudes toward people with disabilities could be predicted by high extraversion and openness, whereas negative attitudes were associated with high neuroticism. The psychological resources of liking people and belief in a just world also correlated with more positive attitudes toward people with disabilities. Interestingly, they also found that attitudes toward disability were more negative among older individuals and were more positive among those who have higher educational attainment (Keller & Siegrist, 2010).

### **Views from Within the Disability Community**

There is comparatively little work investigating the attitudes toward disability that exist *within* the disabled community itself. What little research has been conducted in this area to date has yielded some very interesting results. For example, Harder and colleagues (2019) discovered that people with disabilities whom they considered to be short-term (i.e., those who expected their disability to persist for less than ten years) had more biases toward all people with disabilities than the participants with long-term disabilities (i.e., those who expected their disability to persist for more than ten years). This could be due to the former group considering themselves to be nondisabled and injured rather than as disabled (Harder et al., 2019). If people with short-term disabilities

do not see themselves as disabled, then the difference could be rooted in divergent perspectives of identity and group membership. Those with short-term disabilities may not see their disability as being an integral part of their identity and so may not consider themselves to be part of the disability community. People with long-term disabilities may be more likely to embrace their disability as part of their identity and create stronger roots to the disability community (Harder et al., 2019). This shows that there are differences in how the disabled population views disability, and many of these differences have not yet been meaningfully explored.

Importantly, work within social psychology suggests that individuals with disabilities are likely not only the recipients of negative evaluations from others but also may play an active (though largely unintentional) role in perpetuating negative attitudes toward the disability community. Specifically, social identity theory (Tajfel & Turner, 1986) posits that group distinctions, once made, are readily internalized by individual members – i.e., one begins to identify more readily with one group over another. There is a great deal of work related to both group dynamics and social identity theory that demonstrates the ease with which individuals come to identify with a group to which they feel connected (e.g., Sherif, 1956). This in turn has implications for both personal self-esteem and evaluations of individuals seen as in-group versus outgroup members (e.g., Tajfel & Turner, 1986; Fein & Spencer, 1997). In the context of the current research question: If nondisabled people view people with disabilities as part of their out-group, then they may evaluate the latter more negatively, as would be in keeping with the phenomena of in-group favoritism and outgroup derogation (Daley et al., 2018).

Based on this set of findings, it seems reasonable to suspect that social identities and subsequent group attitudes could differentially affect nondisabled versus disabled individuals. Those with disabilities may be more easily identified as “different than” by their nondisabled peers, and are therefore more likely to be evaluated more negatively.

### **Current Study**

Building on past literature, the current study investigated if and how individual differences in attitudes toward people with disabilities can be predicted by factors like having a disability, proximity to people with disabilities, and personality traits.

The current study built off prior research and sought to fill a critical gap in the existing literature. By directly examining how attitudes toward disability may differ for those with and without disabilities, the proposed study was designed to shed much-needed light on if/how psychological experiences may differ for people within versus outside of the disability community. This more fine-grained distinction will afford a more nuanced understanding of the differential role that attitudes may play in the psychological experiences of individuals with disabilities.

### **Hypotheses**

1. If someone has a disability, then they are more likely to have positive attitudes toward people with disabilities than nondisabled individuals. This prediction is drawn from Harder and colleagues' (2019) research on the attitudes of people with long-term versus short-term disabilities, as well as the research of Daley and colleagues (2018) on the sense of belonging and life satisfaction of youths with disabilities.

2. If someone has close contact with a person with a disability, then they are more likely to have positive attitudes toward people with disabilities than someone who does not interact regularly with people with disabilities. This hypothesis is based on previous research indicating that individuals in closer proximity to people with disabilities have more positive attitudes toward people with disabilities (Harder et al., 2019; Barr & Bracchitta, 2012; Friedman, 2019).

### 3. Personality Factor Hypotheses

- a. If someone is high on the trait of openness to experience, then they are more likely to have positive attitudes toward people with disabilities. Past work suggests that high levels of openness are associated with more positive attitudes toward people with disabilities (Page & Islam, 2015; Anglim et al., 2019; Lee & Ashton, 2009; Keller & Siegrist, 2010).
- b. If someone is high on the trait of agreeableness, then they are more likely to have positive attitudes toward people with disabilities. This hypothesis was drawn from prior research suggesting that high levels of agreeableness can be predictive of more positive attitudes toward people with disabilities (Page & Islam, 2015; Anglim et al., 2019; Lee & Ashton, 2009; Keller & Siegrist, 2010).
- c. If someone is high on the trait of extraversion, then they are more likely to have positive attitudes toward people with disabilities. This prediction is based on prior research suggesting that high levels of extraversion are associated with more positive attitudes toward people with disabilities (Anglim et al., 2019; Lee & Ashton, 2009; Keller & Siegrist, 2010).



## Methods

### Participants

One hundred students from Emory University were recruited to participate in this study from two samples. The first sample was recruited through the psychology department's SONA system, which enables students to choose studies to participate in exchange for research credit that counts toward an introductory psychology course requirement. The second sample was recruited via Emory University Listservs and Accommodate, the Department of Accessibility Services' website, in a targeted attempt to recruit participants with disabilities. Participants recruited through the SONA system received one credit for their classes, and participants recruited outside of SONA were entered into a raffle for one of three \$5 Amazon gift cards. To take part in the study, participants had to be 18 to 25 years old and fluent in English. After eliminating responses from participants who only partially completed the questionnaires or who were missing data for key variables, the final sample for analyses consisted of ninety-four participants. Eighty-five students came from the SONA system, and nine came from Accommodate and other Emory University Listservs. Descriptive information for the sample is provided in Table 1. In general, the sample consisted of mostly women (around two thirds of the participants were women) and was primarily comprised of individuals who identified as White or Asian/Pacific Islander.

### Design

The current study was a cross-sectional, correlational design. The study was a between-subjects design that utilizes self-report questionnaires to collect data. The survey was administered via Qualtrics, an online survey platform. The independent variables were having a disability, proximity to people with disabilities, and the HEXACO personality traits of

agreeableness, openness, and extraversion. Attitudes toward disability was the dependent variable, operationalized as beliefs, emotions and hypothetical actions surrounding disability. Disability was intentionally not defined in the survey in order to allow participants to decide for themselves how to construe the term; this was also done to ensure the widest range of people with disabilities took part in the study.

### **Measures of Primary Variables**

#### *Attitudes Toward People with Disabilities*

To assess attitudes towards disability, I used the Multidimensional Attitudes Scale towards Persons with Disabilities (MASPD; Fidler, Vilchinsky, & Werner, 2007– see Appendix A). Participants are asked to imagine a hypothetical encounter with a person who is described as using a wheelchair, and they then provide information about their affective, cognitive, and behavioral responses to that encounter. The thirty-four item scale is assessed on a 5 point Likert scale ranging from 1 (“not at all”) to 5 (“very much”). Higher scores on this scale indicate more negative feelings toward people with disabilities. The MASPD has three sections. The first measures affect, where participants rate the feelings they had toward people with disabilities.<sup>1</sup> Some of the affect statements include rating feelings of “Tension”, “Calmness” and “Upset” when around people with disabilities<sup>1</sup>. The second portion of the exam relates to cognitions participants have toward people with disabilities. It asks participants to state the degree to which they agree with statements regarding people with disabilities such as, “They seems to be an interesting person” and “Why not get to know them better?”. The final section of the test regarded the participants’ likelihood of committing certain actions around people with disabilities, such as, “Move away” or “Start a conversation”. After reversing designated items,

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<sup>1</sup> Four items were unintentionally dropped from this portion of the survey during set-up in Qualtrics.

scale reliabilities were run; scale demonstrated sufficient interitem reliability ( $\alpha=.88$ ) so a composite variable was created by averaging scale items. Finally, the original scoring of MASPD is such that higher numbers signify more negative attitudes toward people with disabilities. For ease of interpretation in the context of the current study, the composite MASPD variable was reversed, such that higher scores indicated more positive attitudes (Findler et al., 2007).

### *Proximity*

The Contact with Disabled Persons Scale (CDP; Yunker & Hurley, 1987 – see Appendix B) is a 20-item scale that is measured on a five point Likert Scale from 1 (Never) to 5 (Very Often). It quantifies the interactions one has with people with disabilities, observing three factors: General Interpersonal Contact, Positive Contact Experiences, and Negative Contact Experiences. Of note, the CDP focuses primarily on contact with people with physical disabilities. The scale demonstrated strong inter-item reliability ( $\alpha = 0.93$ ); thus, a mean composite score was calculated by averaging the scale items. Higher scores indicate closer proximity to (i.e., more contact with) people with disabilities.

### *Personality Traits*

The HEXACO-60 Personality Inventory (Ashton & Lee, 2009 - see Appendix C) is a 60-item scale that measures personality characteristics of participants. Although the traits of agreeableness, openness, and extraversion were the focus of the current study, participants completed all six HEXACO subscales. After reverse coding necessary items, we ran reliability analyses for the variables, which were: agreeableness ( $\alpha=.70$ ), openness ( $\alpha=.75$ ), and extraversion ( $\alpha=0.83$ ). Since all three scales demonstrated sufficient inter-item reliability, three

composite variables were created by averaging the items for each scale. Higher scores on each variable indicate higher levels of each trait.

### *Demographics*

Participants filled out a self-report survey (See Appendix D) that included questions about age, gender, race, and disability status.

### **Procedure**

The participants of this study were college students who have been recruited from Emory University Introduction to Psychology courses via the SONA system, Emory University's Department of Accessibility Services and Emory Listservs. Participants from the SONA system signed up to take this survey for credit on the SONA Website, and participants from outside of SONA received emails with links to the study or found the study on the Department of Accessibility Services' website. All participants first had to read the informed consent form. If they consented to the study, they took the questionnaires discussed above (See Appendices A, B, C, and D). After completing the survey, the participants read a debriefing page explaining the purpose of the study along with the researcher's contact information should they have further questions. Participants from the SONA system received credit for their participation, and participants from the DAS and Listservs through Emory were entered into a raffle for an Amazon Gift Card.

## **Results**

### **Overall Descriptives for Measures**

Descriptive statistics for the primary variables of interest are presented in Table 2. Before proceeding with additional analyses, it was necessary to ensure that the data met the assumptions for linear regression. All variables of interest met the assumptions of linearity, normality, and homoscedasticity, making it appropriate to run analyses with these data in their original form.

## **Tests on Main Hypotheses**

### *Attitudes toward People with Disabilities*

We hypothesized that people with disabilities would have more positive attitudes toward others with disabilities than nondisabled individuals. Since only 13 participants with disabilities completed the study, unfortunately it was not possible to conduct the intended direct comparison of attitudes toward people with disabilities for those with versus without disabilities themselves. In an attempt to address this deficiency, a bootstrapping procedure was employed as part of the linear regression predicting attitudes from whether or not individuals had disabilities. The results of the bootstrapped regression are reported in Table 3. The overall model explained only 2.3% of the variance in attitudes and was not statistically significant  $F(1, 94)=2.197, p=.142$ . It was found that an individual's status as either disabled or not did not significantly predict attitudes toward people with disabilities ( $\beta=.151, t=1.482, p=.142$ ).

### *Proximity*

We hypothesized that having close relationships with people with disabilities would create more positive attitudes toward people with disabilities. A simple linear regression was carried out to test if proximity to people with disabilities significantly predicted attitudes toward people with disabilities. The results of the regression are presented in Table 4. The overall model explained only 1.6% of the variance and that the model was not significant  $F(1, 94)=1.497, p=.224$ . It was found that proximity to people with disabilities did not significantly predict attitudes toward people with disabilities ( $\beta=.083, t=1.224, p=.224$ ).

### *Personality Factors*

We ran three separate simple linear regressions to see if the personality traits of

agreeableness, openness to experience, and/or extraversion significantly predicted attitudes toward people with disabilities.

A simple linear regression was carried out to test if agreeableness significantly predicted attitudes toward people with disabilities. The results of the regression (presented in Table 5) indicated that the model explained 2.4% of the variance and was not significant  $F(1, 94)=2.269$ ,  $p=.135$ . It was found that agreeableness scores did not significantly predict attitudes toward people with disabilities ( $\beta=.154$ ,  $t=1.506$ ,  $p=.135$ ).

A simple linear regression was carried out to test if openness significantly predicted attitudes toward people with disabilities. The results of the regression are presented in Table 6. The overall model explained only 0.1% of the variance in attitudes and was not significant  $F(1, 94)=0.94$ ,  $p=.759$ . It was found that openness scores did not significantly predict attitudes toward people with disabilities ( $\beta=-.032$ ,  $t=-.307$ ,  $p=.759$ ).

A simple linear regression was carried out to test if extraversion significantly predicted attitudes toward people with disabilities. The results of the regression are reported in Table 7. This model explained 5.8% of the variance in attitudes toward persons with disabilities and was statistically significant  $F(1, 94)=5.806$ ,  $p=.018$ . It was found that extraversion scores significantly and positively predicted attitudes toward people with disabilities ( $\beta=.241$ ,  $t=2.410$ ,  $p=.018$ ).

### **Discussion**

The current study intended to address the relationship between having a disability, proximity to people with disabilities, and personality factors with attitudes toward people with disabilities. We tested three hypotheses. The first was that people with disabilities would have more positive attitudes toward people with disabilities than would nondisabled individuals. The

second was that people who had closer personal relationships with people with disabilities would have more positive attitudes toward people with disabilities. The third was that people who were high on the HEXACO traits of openness to experience, agreeableness and extraversion would have more positive attitudes toward people with disabilities.

Unfortunately, we did not have enough data to run traditional/planned analyses on the first hypothesis due to a low number of people with disabilities signing up for the study (n=13). When bootstrapping procedures were implemented to address this shortcoming, no significant differences in attitudes were found for participants with versus without disabilities. Thus, the first hypothesis was not supported in the current study. In addition, no significant association was found between proximity and attitudes toward people with disabilities, which does not support the second hypothesis. Finally, in terms of the hypothesized influence of agreeableness, openness, and extraversion on attitudes toward people with disabilities, only one – extraversion – was found to be significant. As previous studies have found evidence that both agreeableness and openness to experience correlate significantly with attitudes toward people with disabilities (Page & Islam, 2015; Anglim et al., 2019; Lee & Ashton, 2009; Keller & Siegrist, 2010), the non-significant results in the current study may be due to the low sample size.

The current study found that extraversion significantly predicted attitudes toward people with disabilities. In keeping with previous research (Keller & Siegrist, 2010; Anglim et al., 2019), those higher in extraversion reported more positive attitudes toward people with disabilities. According to Ashton and Lee (2009), people who score high on extraversion find social interactions enjoyable. Interestingly, there are multiple items on the MASPD (i.e., attitudes measure used in the current study) that address social interactions with people with disabilities. One item in particular states, “I enjoy meeting new people”, which is very similar to the items on

the Extraversion Subscale of the HEXACO-60. Thus, it makes sense that extraverts would score higher on certain areas of the Multidimensional Attitudes toward Persons with Disabilities Scale (Findler et al., 2007).

### **Strengths**

The goal of this study was to determine what factors may influence individuals' attitudes toward disabilities. The current study built on past research involving personality and attitudes toward disability, and was able to find further evidence for one widely observed trait, extraversion, in predicting attitudes toward people with disabilities.

This study is one of relatively few that sought to incorporate data directly from the disability community itself in order to fill critical gaps in the literature. People with disabilities often feel excluded from many aspects of life (Daley et al., 2018), and the lack of primary data from people with disabilities in psychological research suggests that their opinions are not often solicited. The current study's intentional targeting of this population allowed for people with disabilities to participate in research with direct application to their lives. Although the current study had insufficient data to robustly examine the attitudes of people with disabilities, it did allow for the voices of some members of the disabled community to be heard, which is valuable in and of itself.

Perhaps one of the greatest strengths of this survey was its online format. Participants were able to take this study whenever they wanted, which made it more accessible to people with disabilities who may not be able to physically come to a lab at a specific time. As many people with disabilities may be at a greater risk for infection, this online format was especially beneficial now, during the COVID-19 pandemic. As many students are living far from campus,



the current study was also easily accessible to students who are doing remote instruction from home.

### **Limitations**

The most significant limitation of the current study was the low number of individuals with disabilities who participated. While we aimed to recruit 125 participants with disabilities, we only received survey responses from thirteen. Because of this limitation, we were unable to run the planned statistical tests comparing the attitudes toward people with disabilities between the disabled and nondisabled individuals. We were able to at least partially address this shortcoming via the use of a bootstrapping procedure; nonetheless, the small cohort of persons with disabilities limits our ability to draw strong conclusions from the data collected. The current study did incorporate targeted outreach and recruiting across various platforms at Emory University in an effort to obtain participants with disabilities, including the Department of Accessibility Services' website (Accommodate), the Disability Studies Initiative, and the Scholarly Inquiry and Research Experience Program. However, there was a time constraint for data collection of approximately three weeks, which likely contributed to the low number of participants with disabilities in the study. In the future, data collection should occur over a longer span of time in order to ensure an adequate sample size of people with disabilities.

Another factor that may have impacted the results was the unintentional omission of four items from the Multidimensional Attitudes Toward Persons with Disabilities Scale, which was the primary measure of the dependent variable. This did not appear to impact the reliability of the scale ( $\alpha=.88$ ), but it would be erroneous to think that exclusion of these items had no impact on the results.

Although we were able to run statistics comparing the impacts of personality factors and proximity to people with disabilities, the sample size was still relatively small (N=94). This likely reduced the statistical power and may have limited our ability to find true effects. The current study was also limited to Emory University students, a top university in Atlanta, Georgia. Our subjects were all highly educated students, which is not representative of the entirety of the United States population. Thus, the views of this sample are likely not indicative of the attitudes toward people with disabilities throughout the country, and even less so for the rest of the world.

Even though the current study was made largely more accessible through its online format, the study itself was not fully accessible to people with disabilities. Having a voiceover option and larger fonts for the visually impaired, and the option of a more accessible font for participants with dyslexia could help make the study more approachable for people with disabilities. In retrospect, it would have been beneficial to confer with people with disabilities to determine what would make the survey most accessible prior to data collection. Future studies should work with the disability community to ensure that all voices from within the community are heard.

Finally, considering the sensitive nature of attitudes toward people with disabilities as a topic of study, social desirability concerns may have led participants to respond in ways that made them appear more positive toward people with disabilities than they actually feel.

### **Future Directions**

First and foremost, future research should directly address the limitations of the current study. It is vitally important for researchers to continue drawing on the lived experiences of the disability community. The direct input of people with disabilities is often excluded from research, leading to a critical gap in the literature examining attitudes toward people with

disabilities. By including the data of more people with disabilities in psychological research, we will not only fill the research gap, but we will help to elevate the voices of those who are frequently silenced.

*A More Nuanced Examination of Attitudes toward and within the Disability Community*

**Invisible vs. Visible Disabilities.** An interesting comparison for future study could be examining the differences in attitudes toward disability between visible and invisible disabilities. Visible disabilities are disabilities that are almost immediately noticeable to others, and invisible disabilities are disabilities that often go unnoticed by others (Olkin et al., 2019). Differences in the lived experiences of people with invisible versus visible disabilities are demonstrated in a study created by Olkin and colleagues (2019) in which different forms of microaggressions against women with invisible and visible disabilities were analyzed. They found that while the women with visible and invisible disabilities both experienced microaggressions in their daily lives, they experienced them in different ways. Women with invisible disabilities typically saw others denying their disability, while women with visible disabilities were more likely to experience invasions of privacy and insults related to their disability. The differences in the perceptions and lived experiences of those with invisible versus visible disabilities may create meaningful differences in their own attitudes toward disability and would thus be fruitful comparisons to examine in future research.

Very few studies to date have examined psychological differences between people with invisible versus visible disabilities. Nario-Redmond and colleagues (2013) found that people with visible disabilities (defined by these researchers as disabilities that can be seen by others at least some of the time) are less likely to try to hide their disability to avert stigma. People with invisible disabilities (defined as disabilities that are hidden

from plain sight) are far more likely to try to minimize the scope of their disabilities to avoid judgment from peers. If people with invisible disabilities are accepted without bias by nondisabled people because it is presumed that they do not have a disability, there is presumably greater pressure to keep up the appearance of not having a disability. As people with visible disabilities may not be able to hide their disability from their peers as easily, they may face more bias from their non-disabled peers. If this is correct, then people with visible disabilities may be more likely to embrace disability as part of their identity.

In addition to differences related to the visibility versus invisibility of disabilities, it is also important to acknowledge and examine possible differences in perceptions of those with physical versus non-physical disabilities. The measures used in the current study tended to focus on attitudes and contact with people with *physical* disabilities (See Appendices A and B). More questionnaires that capture a broader range of disability should be included in future iterations of this study. Not only will this include more voices from the community, but it will also reveal a more nuanced take on how attitudes toward people with disabilities differ within and outside of the disability community.

**Racial Differences.** One future direction that could be interesting to see if racial differences impact attitudes toward people with disabilities. Some evidence from prior work suggests that there may be racial differences in attitudes toward disability: Black Americans had higher implicit prejudice toward people with disabilities, and Asian Americans had higher explicit prejudice toward people with disabilities (Harder et al, 2019).

**Disability throughout the Lifetime.** Researchers should also utilize a larger sample size from more age ranges; preferably in different areas of the country in order to gain a more representative sample. As disabilities are not static and can change throughout one's lifetime, another direction future studies could take would be measuring the participants longitudinally as their disabilities progress or change throughout their lifetimes. This would show how people's attitudes change, if at all, over time.

### **Conclusion**

While the current study serves as an important contribution to the literature, there is still so much work to be done. The current study found evidence that extraversion significantly predicted attitudes toward people with disabilities, in keeping with past work. The information gained from the current study functions as a strong starting point for future research to build upon. Studies like this are crucial to gaining a fuller understanding of attitudes toward people with disabilities.

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Table 1

*Sample Characteristics*

<b>Characteristic</b>	<b>M (SD)</b>	<b>Frequency (%)</b>
Age	19.64 (2.64)	
Gender		
<i>Man</i>		26 (27.66)
<i>Woman</i>		67 (71.28)
<i>Prefer Not to Say</i>		1 (1.06)
Year in School		
<i>Freshman</i>		54 (57.45)
<i>Sophomore</i>		19 (20.21)
<i>Junior</i>		12 (12.77)
<i>Senior</i>		5 (5.32)
<i>Other</i>		4 (4.26)
Ethnicity		
<i>White/Caucasian</i>		41 (43.62)
<i>Hispanic/Latino(a)</i>		9 (9.57)
<i>Black/African American</i>		4 (4.26)
<i>Asian/Pacific Islander</i>		35 (37.23)
<i>Multiracial</i>		4 (4.26)
<i>Prefer not to say</i>		1 (1.06)

Table 2

*Descriptive Statistics for Primary Variables of Interest*

Variable	<i>M (SD)</i>	<i>Min</i>	<i>Max</i>	<i>Skewness</i>	<i>SEsk</i>
Attitudes toward People with Disabilities	3.36 (.45)	2.31	4.47	.027	.246
Proximity	2.13 (.67)	1.05	3.86	.710	.246
Agreeableness	3.27 (.58)	1.60	4.60	-.082	.246
Openness	3.40 (.67)	1.40	4.90	-.169	.246
Extraversion	3.26 (.71)	1.50	5.00	-.036	.246

Table 3

*Bootstrapped Simple Linear Regression Analyses Predicting Attitudes toward People with Disabilities based on Disability Status*

Variable	$\beta$	t	$R^2$
Disability	.151	1.482	.023

\*= p<.05

\*\*=p<.01

Table 4

*Simple Linear Regression Analyses Predicting Attitudes toward People with Disabilities from Proximity to People with Disabilities*

Variable	$\beta$	t	$R^2$
Proximity	.083	1.224	.016

\*= p<.05

\*\*=p<.01

Table 5

*Simple Linear Regression Analyses Predicting Attitudes toward People with Disabilities from Agreeableness*

Variable	$\beta$	t	$R^2$
Agreeableness	.154	1.506	.024

\*= p<.05

\*\*=p<.01

Table 6

*Simple Linear Regression Analyses Predicting Attitudes toward People with Disabilities from Openness*

Variable	$\beta$	t	$R^2$
Openness	-.032	-.307	.001

\*= p<.05

\*\*=p<.01



Table 7

*Simple Linear Regression Analyses Predicting Attitudes toward People with Disabilities from Extraversion*

Variable	$\beta$	t	$R^2$
Extraversion	.241	2.410*	.058

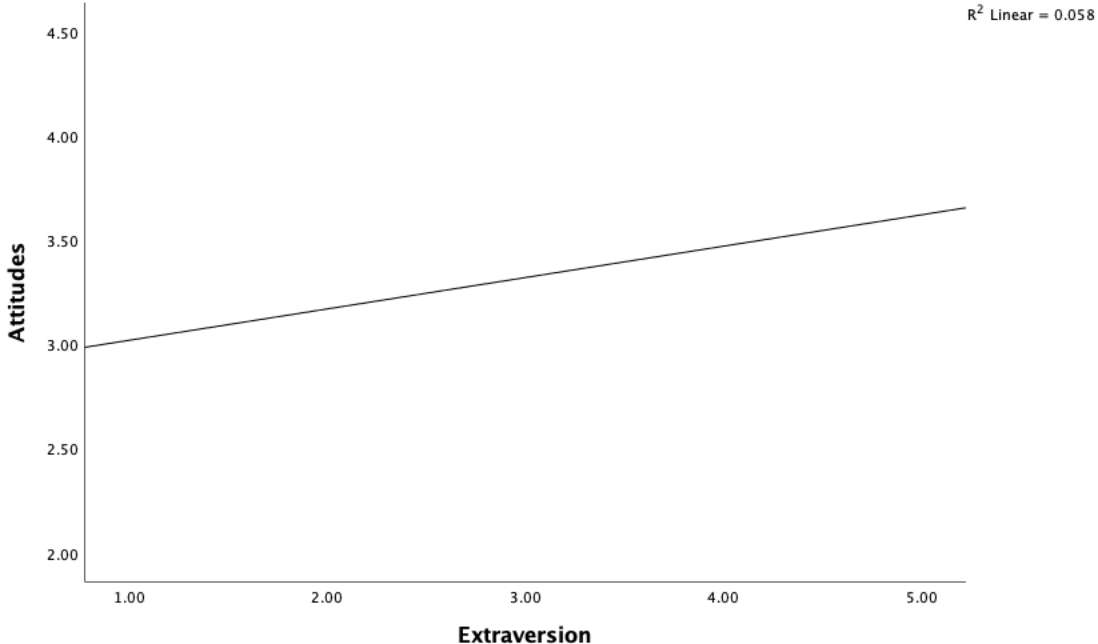
\*= p<.05

\*\*=p<.01

**Figure Captions**

Figure 1. Mean attitudes toward people with disabilities as a function of extraversion.

*Figure 1*



Appendix A

### Multidimensional Attitudes Toward Persons with Disability Scale

*Imagine the following situation. Alex went out for lunch with some friends to a coffee shop . A person in a wheelchair, with whom Alex is not acquainted, enters the coffee shop and joins the group. Alex is introduced to this person, and shortly thereafter, everyone else leaves, with only Alex and the person in the wheelchair remaining alone together at the table. Alex has 15 minutes to wait for their ride. Try to imagine the situation.*

*People experience a variety of emotions when they are involved in such a situation. Below is a list of **possible emotions**, which may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this **emotion** might arise in Alex on a scale from 1 (Not at all likely) to 5 (Very much).*

1. Tension
2. Stress
3. Helplessness
4. Nervousness
5. Shame
6. Relaxation\*
7. Serenity\*
8. Calmness\*
9. Depression+
10. Fear+
11. Upset+
12. Guilt+
13. Shyness
14. Pity
15. Disgust
16. Alertness

*Imagine the following situation. Alex went out for lunch with some friends to a coffee shop . A person in a wheelchair, with whom Alex is not acquainted, enters the coffee shop and joins the group. Alex is introduced to this person, and shortly thereafter, everyone else leaves, with only Alex and the person in the wheelchair remaining alone together at the table. Alex has 15 minutes to wait for their ride. Try to imagine the situation.*

*People experience a variety of cognitions when they are involved in such a situation. Below is a list of **possible thoughts**, which may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this **cognition** might arise in Alex on a scale from 1 (Not at all likely) to 5 (Very much).*

1. They seem to be an interesting person\*
2. They seem like an OK person\*
3. We may get along really well\*
4. They look friendly\*
5. I enjoy meeting new people\*
6. They will enjoy getting to know me\*
7. I can always talk to them about things that interest both of us\*

8. I can make them feel more comfortable\*
9. Why not get to know them better?\*
10. They will appreciate it if I start a conversation\*

*Imagine the following situation. Alex went out for lunch with some friends to a coffee shop . A person in a wheelchair, with whom Alex is not acquainted, enters the coffee shop and joins the group. Alex is introduced to this person, and shortly thereafter, everyone else leaves, with only Alex and the person in the wheelchair remaining alone together at the table. Alex has 15 minutes to wait for their ride. Try to imagine the situation.*

*People experience a variety of behaviors when they are involved in such a situation. Below is a list of **possible behaviors**, which may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this **behavior** might arise in Alex on a scale from 1 (Not at all likely) to 5 (Very much).*

1. Move away
2. Get up and leave
3. Read the newspaper or talk on a cell phone
4. Continue what they were doing
5. Find an excuse to leave
6. Move to another table
7. Initiate a conversation if they don't make the first move\*
8. Start a conversation\*

\*=Reverse Coded

+ =Dropped from study unintentionally

**Please click on the circle indicating your answer to each statement.**

**Use a number from 1 to 5 to indicate the following: 1=*never*; 2=*once or twice*; 3=*a few times*; 4=*often*; 5=*very often* .**

1. How often have you had a long talk with a person who is physically disabled?
2. How often have you had brief conversations with persons who are physically disabled?
3. How often have you eaten a meal with a person who has a physical disability?
4. How often have you contributed money to organizations that help disabled persons?
5. How often have physically disabled persons discussed their lives or problems with you?
6. How often have you discussed your life or problems with a physically disabled person?
7. How often have you tried to help physically disabled persons with their problems?
8. How often have physically disabled persons tried to help you with your problems?
9. How often have you worked with a physically disabled client, student, or patient on the job?
10. How often have you worked with a physically disabled co-worker?
11. How often has a disabled friend visited you in your home?
12. How often have you visited disabled friends in their homes?
13. How often have you met a physically disabled person that you like?
14. How often have you met a physically disabled person that you dislike?
15. How often have you met a disabled person that you admire?
16. How often have you met a disabled person for whom you feel sorry?
17. How often have you been annoyed or disturbed by the behavior of a person with a disability?
18. How often have you been pleased by the behavior of a physically disabled person?
19. How often have you had pleasant experiences interacting with physically disabled persons?
20. How often have you had unpleasant experiences interacting with physically disabled persons?

**Appendix C**  
**HEXACO-60 Personality Index**

On the following pages you will find a series of statements about you. Please read each statement and decide how much you agree or disagree with that statement. Then write your response in the space next to the statement using the following scale:

5 = strongly agree

4 = agree

3 = neutral (neither agree nor disagree)

2 = disagree

1 = strongly disagree

1. I would be quite bored by a visit to an art gallery.\*
2. I plan ahead and organize things, to avoid scrambling at the last minute.
3. I rarely hold a grudge, even against people who have badly wronged me.
4. I feel reasonably satisfied with myself overall.
5. I would feel afraid if I had to travel in bad weather conditions.
6. I wouldn't use flattery to get a raise or promotion at work, even if I thought it wouldn't succeed.
7. I'm interested in learning about the history and politics of other countries.
8. I often push myself very hard when trying to achieve a goal.
9. People sometimes tell me that I am too critical of others.\*
10. I rarely express my opinions in group meetings.\*
11. I sometimes can't help worrying about little things.
12. If I knew that I could never get caught, I would be willing to steal a million dollars.\*
13. I would enjoy creating a work of art, such as a novel, a song, or a painting.
14. When working on something, I don't pay much attention to small details.\*
15. People sometimes tell me that I'm too stubborn.\*
16. I prefer jobs that involve active social interaction to those that involve working alone.
17. When I suffer from a painful experience, I need someone to make me feel comfortable.
18. Having a lot of money is not especially important to me.
19. I think that paying attention to radical ideas is a waste of time.\*
20. I make decisions based on the feeling of the moment rather than on careful thought.\*
21. People think of me as someone who has a quick temper.\*
22. On most days, I feel cheerful and optimistic.
23. I feel like crying when I see other people crying.



24. I think that I am entitled to more respect than the average person is.
25. If I had the opportunity, I would like to attend a classical music concert.
26. When working, I sometimes have difficulties due to being disorganized.\*
27. My attitude toward people who have treated me badly is “forgive and forget.”
28. I feel that I am an unpopular person.\*
29. When it comes to physical danger, I am very fearful.
30. If I want something from someone, I will laugh at that person’s worst jokes.\*
31. I’ve never really enjoyed looking through an encyclopedia.\*
32. I do only the minimum amount of work needed to get by.\*
33. I tend to be lenient in judging other people.
34. In social situations, I’m usually the one who makes the first move.
35. I worry a lot less than most people do.\*
36. I would never accept a bribe, even if it were very large.
37. People have often told me that I have a good imagination.
38. I always try to be accurate in my work, even at the expense of time.
39. I am usually quite flexible in my opinions when people disagree with me.
40. The first thing that I always do in a new place is to make friends.
41. I can handle difficult situations without needing emotional support from anyone else.\*
42. I would get a lot of pleasure from owning expensive luxury goods.\*
43. I like people who have unconventional views.
44. I make a lot of mistakes because I don’t think before I act.\*
45. Most people tend to get angry more quickly than I do.
46. Most people are more upbeat and dynamic than I generally am.\*
47. I feel strong emotions when someone close to me is going away for a long time.
48. I want people to know that I am an important person of high status.\*
49. I don’t think of myself as the artistic or creative type.\*
50. People often call me a perfectionist.
51. Even when people make a lot of mistakes, I rarely say anything negative.
52. I sometimes feel that I am a worthless person.\*
53. Even in an emergency I wouldn’t feel like panicking.\*
54. I wouldn’t pretend to like someone just to get that person to do favors for me.

- 55. I find it boring to discuss philosophy.\*
- 56. I prefer to do whatever comes to mind, rather than stick to a plan.\*
- 57. When people tell me that I'm wrong, my first reaction is to argue with them.\*
- 58. When I'm in a group of people, I'm often the one who speaks on behalf of the group.
- 59. I remain unemotional even in situations where most people get very sentimental.\*
- 60. I'd be tempted to use counterfeit money, if I were sure I could get away with it.\*

\*=Reverse Coded

**Demographics Questionnaire**

Age: \_\_\_\_\_

Gender:

- Man
- Woman
- Other
- Prefer not to say

Ethnicity:

- White, Caucasian, European American
- Hispanic, Latino(a)
- African-American, Black
- Asian, Pacific Islander
- Native American
- Multi-racial
- Prefer not to say
- Other (please list): \_\_\_\_\_

What year are you in college? (if applicable)

- First year
- Second year
- Third year
- Fourth year
- Other (please list): \_\_\_\_\_

Did you sign up for the study via SONA (for research credit)?

- Yes
- No
- Not sure

Do you have a close friend or relative that has a disability?

- Yes
- No
- Not sure

Do you have a disability?

- Yes
- No