

Reimagining Ableism and Disability Stereotypes: The Perception of Mobility Aid Users

by

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Abstract

The perception of people with disabilities can be influenced by a number of factors including the mobility aids they use. In this study, the perception of people with disabilities was assessed by examining the attitudes and stereotypes associated with three types of mobility aid users: a person using a wheelchair, a cane, and an unspecified mobility aid. A total of 225 participants without disabilities completed an online questionnaire, which included the Multidimensional Attitudes Scale Toward Persons with Disabilities. I discovered that the attitudes towards the unspecified mobility aid condition and the cane condition differed for the affective attitudinal domain, but not for the cognitive or behavioural domains. Further, the level of perceived warmth differed between the unspecified mobility aid and manual wheelchair conditions and the level of perceived competence differed between all three conditions. Overall, this study developed an understanding of how attitudes and stereotypes differ due to mobility aids.

Keywords: ableism, attitudes, disability, mobility aids, stereotypes

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	vi
List of Figures.....	vii
List of Appendices.....	viii
The Perception of Mobility Aid Users.....	1
Defining Disability.....	2
The International Classification of Functioning, Disability and Health.....	5
The Multidimensionality of Attitudes.....	7
Prejudice.....	8
Prejudice Towards People with Disabilities.....	10
Individual Differences Influence Ableist Attitudes.....	11
Self-stigmatization in People with Disabilities.....	18
Summary of Attitudes Towards People with Disabilities.....	19
Stereotypes.....	19
The Knowledge Function.....	19
The Justification Function.....	20
Stereotypes in the Context of Warmth and Competence.....	21
The Impact of Stereotypes.....	21
Stereotypes of People with Disabilities.....	22
The Stereotype Content Model.....	23
Summary of Stereotypes Associated with People with Disabilities.....	27
Wearable Devices.....	28
Wearable Devices and Disability.....	29
The SCM and Wearable Technology.....	30
Disability Status and Devices.....	32
Mobility Aid Use by People with Disabilities.....	32
The User’s Attitudes Towards Their Mobility Aid.....	33
The Current Study.....	34
Hypotheses.....	35
Gender.....	35
Age.....	35
Personality.....	36
Social Dominance Orientation, Self-Esteem, and Contact.....	37
Attitudes Towards People with Disabilities Using Different Mobility Aids.....	37
Stereotypes of People with Disabilities Using Different Mobility Aids.....	39
Method.....	40
Recruitment.....	40
Participants.....	41
Measures.....	43

The Big Five Inventory–2 Short Form (BFI-2-S; Soto & John, 2017)	45
Social Dominance Orientation Scale (SDO ₇ Scale; Ho et al., 2015).....	45
Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965).....	45
Contact With Disabled Persons Scale (CDP; Yunker & Hurley, 1987).....	46
The MAS (Findler et al., 2007)	46
Competence and Warmth Scales (Fiske et al., 2002)	47
Procedure	48
Results.....	49
Data Conditioning Procedures	49
Hypothesis 1: The Effects of Gender on Attitudes	60
Hypothesis 2: The Effects of Gender on Stereotypes	61
Hypothesis 4: The Effects of Age on Stereotypes	65
Hypothesis 5 – Hypothesis 9: The Influence of Personality.....	67
Hypotheses 10 – 12: The Influence of Psychological Resources	71
Hierarchical Regressions to Assess Potential Predictor Variables	74
Hypotheses 13 – 15: Attitudes Towards Mobility Aid Users.....	80
Hypotheses 16 and 17: Stereotypes Associated with Mobility Aid Users	86
Discussion.....	90
The Effects of Disability Status	92
The Influence of Gender on Attitudes and Stereotypes.....	94
The Influence of Age on Attitudes and Stereotypes	96
The Influence of Personality.....	97
The Influence of Psychological Resources.....	99
The Effect of Attitudes: Affective, Cognitive, and Behavioural Domains.....	103
Stereotypes Associated with Mobility Aid Users	106
Future Research	110
Conclusions.....	113
References.....	115
Curriculum Vitae	

List of Tables

Table 1	15
Table 2	42
Table 3	44
Table 4	54
Table 5	59
Table 6	60
Table 7	62
Table 8	64
Table 9	66
Table 10	71
Table 11	72
Table 12	80
Table 13	81
Table 14	83
Table 15	86
Table 16	91

List of Figures

Figure 1	25
Figure 2	26
Figure 3	82
Figure 4	84
Figure 5	88
Figure 6	89

List of Appendices

Appendix A: Demographics	130
Appendix B: The Big Five Inventory–2 Short Form.....	131
Appendix C: Social Dominance Orientation Scale.....	133
Appendix D: Rosenberg Self-Esteem Scale	134
Appendix E: Contact With Disabled Persons Scale	135
Appendix F: The MAS (unspecified mobility aid condition).....	136
Appendix G: The MAS (cane condition).....	138
Appendix H: The MAS (manual wheelchair condition).....	140
Appendix I: Competence and Warmth Scales (unspecified mobility aid condition)	142
Appendix J: Competence and Warmth Scales (cane condition).....	143
Appendix K: Competence and Warmth Scales (manual wheelchair condition)	144
Appendix L: Introduction for Participants.....	145
Appendix M: Consent Form	147
Appendix N: Debriefing Form.....	149
Appendix O: Washington Group Short Set on Functioning.....	152

Reimagining Ableism and Disability Stereotypes:

The Perception of Mobility Aid Users

Since its development, the field of social psychology has covered topics ranging from attitude formation, prejudices and stereotypes, and intergroup relationships (Allport, 1935; Asch, 1955; Haney et al., 1973). These theories have been applied to a range of social groups including people with disabilities (Allport, 1935; Boccato et al., 2015; Breckler, 1984). The discrimination people with disabilities experience because of their disability is referred to as ableism (Bogart & Dunn, 2019). The APA defines ableism as, “discrimination against individuals with disabilities or the tendency to be prejudiced against and to stereotype them negatively as, for example, less intelligent, non-productive, or dependent on others” (APA, n.d.a). Although ableism is now recognized as a form of discrimination, in the past it may have been beneficial to humankind to prevent the unnecessary spread of disease among healthy individuals (Oaten et al., 2009; Oaten et al., 2011; Park et al., 2003).

Disease-avoidance processes include the initial repulsion towards individuals who look or behave differently than the norm of the group and the resulting behaviours from that initial repulsion (Hodson & Costello, 2007; Tybur et al., 2013). Disease-avoidance processes may have contributed to the survival of humankind at the group level by preventing the spread of disease to healthy individuals; however, these processes were harmful to specific individuals who were incorrectly assumed to be infectious, such as people with physical, observable disabilities (Oaten et al., 2009; Oaten et al., 2011). Given the advances in modern medical technology, humans no longer rely on their sensory systems and rudimentary medical procedures to detect

disease. These medical advancements allow for easier and more accurate differentiation between transmittable diseases and non-transmittable conditions, such as disabilities.

Although these advances should have resulted in the elimination of ableist attitudes and the resulting discrimination, ableism persists (Bogart & Dunn, 2019; Park et al., 2003).

Defining Disability

Over time, there have been a variety of models used to conceptualize disability (Livneh, 1982; Olkin, 2002). The earliest identified model of disability was the moral model, which originated as early as the 18th century and was associated with the belief that people with disabilities had acquired their disability as the result of a moral wrongdoing or the person with a disability's failure to remain faithful to their spiritual and religious beliefs (Hahn, 1988; Livneh, 1982; Olkin, 2002). The moral model of disability often led to shame and isolation for individuals with disabilities, as people without disabilities would distance themselves from people with disabilities to avoid being associated with their sins and being punished as well (Livneh, 1982; Olkin, 2002).

As religion became less prevalent in western societies and the medical field progressed, the model of disability adapted to reflect these medical advancements (Olkin, 2002). The medical model of disability emerged in the mid-19th century in western societies such as Canada and the United States. Under this model, the individual's disability was considered a bodily defect (i.e., the result of a genetic anomaly or an unhealthy habit or behaviour) rather than as a punishment for a sinful behaviour (Olkin, 2002). This model, although less discriminatory than the moral model, implied that people with disabilities were defective and required correction in order to be perceived as equals to their non-disabled counterparts (Brisenden, 1986).

Following the medical model, the socio-political model of disability emerged around the 1970s and proposed that disability was not due to a bodily defect but rather the result of an interaction between the individual and their environment (Hahn, 1988; Jongbloed & Crichton, 1990). Under this model, people with disabilities were recognized as an oppressed minority group in society, who could benefit from the development or strengthening of laws to prevent the discrimination they experience. This model proposed that the barriers and facilitators in the environment are determined by public policies, which have underlying assumptions about the qualities and capabilities people should have to participate in society; therefore, the barriers to accessibility that people with disabilities encounter are the result of discriminatory policies (Hahn, 1988). For example, if a building must include a staircase but policies do not indicate that it must also have an elevator, the policies that exist allow for the discrimination of people with physical disabilities who cannot climb stairs.

Additionally, the social-political model proposed that the environment is also related to public attitudes (Hahn, 1988). Although the social-political model recognized that public policies play a role in the barriers people with disabilities encounter, it also proposed that it is difficult to separate the public policies from the public attitudes that led to the development (and persistence) of inaccessible environments (Hahn, 1988). For example, if a building was originally built before policies accounted for accessibility but changes have not been made since the development of more inclusive policies, then the original public policies resulted in the inaccessible environment. Subsequently, the public attitudes that allowed the inaccessible design to persist, despite changes in public policies, drive inaccessibility. Public attitudes place a high value on physical

capabilities, which diminishes the perceived value of people with physical disabilities (Hahn, 1988). Therefore, the socio-political model of disability proposed that the exclusion persons with disabilities experience is the result of discriminatory policies and attitudes (Hahn, 1988).

In comparison to the socio-political model, which focuses primarily on the interaction of policies, attitudes, and the environment and their impact on people with disabilities, the social model focuses on the social, economic, and environmental barriers people with disabilities experience (Burchardt, 2004; Olkin, 2002). The environmental barriers identified under the social and socio-political models are aligned and include barriers such as inaccessible infrastructure. Under the social model of disability additional barriers are identified, including the economic disadvantages people with disabilities face. Living with a disability is often accompanied by additional expenses, such as the cost associated with medical equipment and, as a result, even with an equivalent income to people without disabilities, people with disabilities are not able to achieve an equal standard of living due to the additional expenses (Burchardt, 2004). The social model of disability also recognizes the role of society in prioritizing individuals without disabilities; for example, if society prioritized the needs of individuals with disabilities, the norm would be to have ramps to enter all buildings; instead, stairs are the default infrastructure. The social component of the social model of disability also encompasses the attitudes that lead the discrimination of individuals with disabilities.

The social model of disability, which emerged in the late 20th century, also distinguishes between impairment and disability, in which impairment is defined by the

condition of the body and mind and disability is focused on the limitation(s) individuals experience when attempting to participate in their community (Burchardt, 2004). As a result, this model suggests that society imposes disability based on the barriers that restrict people with disabilities from full participation in society (Olkin, 2002). The social model is now one of the most common models of disability; however, other models are still observed in different cultures (Haegele & Hodge, 2016; Olkin, 2002).

The social model of disability has some benefits when compared to other models of disability (Burchardt, 2004). Whereas older models, such as the medical model, focused on the individual, the social model places greater emphasis on society's role in the experience of disability (Burchardt, 2004; Olkin, 2002). The social model suggests a larger effort is necessary to change society's impacts on people with disabilities, which has led to the emphasis for organizations led by people with disabilities to direct the movement, as they are the experts on the impacts of their disabilities (Burchardt, 2004).

The International Classification of Functioning, Disability and Health

Although the population level focus of the social model of disability has benefits in comparison to the medical model, it neglects the individual level of disability. The World Health Organization (WHO) developed the International Classification of Functioning, Disability and Health (ICF) to help define disability on both the individual and societal level (Stucki, 2005; World Health Organization, 2001). This classification system has four components to capture the concept of disability in its entirety (World Health Organization, 2001).

The first component of the ICF focuses on the human body's functions and structure, which are impaired due to disability (World Health Organization, 2001). The

second component describes activities on the individual level and the limitations that a person with a disability experiences when attempting to complete specific activities. The third component describes the participation and involvement of the person with a disability as they function within society. The fourth and final component identifies the environmental factors (which can act as facilitators or restrictors) that can impact the experiences of a person with a disability. This comprehensive framework includes participation and environmental factors as important components that can impact a person with a disability's functioning, which previous models, such as the medical model of disability, did not include (World Health Organization, 2001).

The ICF has been implemented internationally for a variety of reasons (Stucki, 2005). First, the ICF has been accepted by the World Health Assembly, whereas classification systems before the ICF were not accepted. As a result, the member states belonging to the World Health Assembly are now asked to implement the ICF, resulting in more widespread use of this classification system. Second, this classification system can be used in a variety of settings, including healthcare, social affairs, labour sectors, and education systems. Third, this model is not exclusively applicable to western cultures, but can be applied across the globe, regardless of cultural differences. Fourth, the ICF does not focus exclusively on the social or medical models but is an integration of both medical and social perspectives that is applicable across the lifespan.

Questionnaires developed based on the ICF ask participants to rank the degree of difficulty they have performing specific tasks. This type of questioning allows participants to indicate their level of impairment while also focusing on their overall functioning, which may be influenced by their social environment. As an integration of

both medical and social models of disability, the ICF can be applicable to the physical and social environment as well as the medical components that contribute to the experiences of people with disabilities. Therefore, this bio-psycho-social model may be more useful to explain and evaluate the experiences of people with disabilities (Stucki, 2005).

An additional benefit of the ICF is its practical applications (Stucki, 2005). The ICF is a large classification system, comprised of over 1400 categories; however, tools have been developed based on the ICF that can be used in clinical settings. For example, the WHODAS II exists in two formats (12 or 36 questions) and includes six domains: understanding and communicating, getting around, self-care, getting along with others, household and work activities, and participation in society (Stucki, 2005). Therefore, the ICF can be used as a unifying framework that can be used across academic and professional fields, leading to increased consistency of the study of disability across disciplines (Stucki, 2005). The current study focused primarily on the social impacts of disability (e.g., the attitudes and stereotypes associated with people with disabilities); however, the possible health implications of this research (e.g., reducing the stigma surrounding mobility aids use to increase the uptake of mobility aid use and improve overall wellness) were discussed.

The Multidimensionality of Attitudes

Social psychologists have acknowledged the importance of understanding attitudes and the factors that contribute to attitude formation for decades (Allport, 1935). The tripartite model that led to the current understanding of attitudes can be traced back as early as the Greek philosophers (Breckler, 1984). Although they did not use the same

terminology that is now used, early philosophers recognized that attitudes are comprised of three components: feeling, acting, and knowing. As the field of social psychology developed, the understanding of attitudes developed as well, leading to what is now known as the multicomponent model, otherwise known as the ABC model (Breckler, 1984). Much like early philosophers' theories, the ABC model is composed of three parts: the affective (A), behavioural (B), and cognitive (C) components (Breckler, 1984). The affective component is comprised of feelings and emotions that can impact beliefs and behaviours, whereas the cognitive component describes the beliefs and thoughts a person may have, which can be either positive or negative. The behavioural component is the resulting behaviours that can be observed due to the underlying emotions and beliefs (Breckler, 1984). These three parts can inform the perception of others, including prejudices and stereotypes.

Prejudice

When the attitudes towards a specific group are largely negative, prejudice occurs. More specifically, the APA Dictionary of Psychology (n.d.b) defines prejudice as, “a negative attitude towards another person or group formed in advance of any experience with that person or group.” Early research examining individuals' attitudes focused on assessing attitudes towards other cultural groups (i.e., the in-group's attitudes towards an out-group). Researchers theorized that these attitudes were grounded in “ethnocentrism”, which involves using one's own culture to make judgments about other cultures; furthermore, it was theorized that ethnocentrism was the result of loyalty to the individual's in-group and hatred for out-groups (Sumner, 1906). In his classic book *The Nature of Prejudice*, Allport (1954), acknowledged that although in-group positivity and

out-group negativity may be related, they are not necessarily directly correlated.

Allport's acknowledgement would eventually lead to the understanding that prejudices are often complex and are rarely exclusively positive or exclusively negative.

Nevertheless, theories based on in-group positivity and out-group hatred persisted. For example, Pettigrew and Meertens (1995) theorized that attitudes of others are comprised of two components. First, prejudice is typically due to a perceived threat of the out-group and, as a result, a desire to reject them from the group. Second, prejudice often results in the opposition of close contact with the out-group (Pettigrew & Meertens, 1995); however, although Pettigrew and Meertens maintained that prejudices towards others are rooted in out-group hatred, they made a distinction between hostile and subtle forms of prejudices. This distinction suggested that although hostile forms of prejudice may be related to the in-group's hatred towards the out-group, more subtle forms of prejudice are composed of three components: defense of traditional values, exaggeration of differences, and denial of positive emotions. In the context of culture, defense of traditional values involves thoughts or behaviours that preserve one's cultural beliefs, whereas the exaggeration of differences involves placing greater emphasis on the differences between one's culture and other cultures. If any positive emotions arise, these emotions are denied in order to preserve one's personal beliefs about their culture (Pettigrew & Meertens, 1995). This aligned with Allport's theory (1954) as well as Brewer's theory (1999) that prejudices of others are the result of preferential treatment of the in-group one belongs to, rather than direct hatred towards the out-group.

Prejudice Towards People with Disabilities

Previously, the study of attitudes towards people with disabilities focused primarily on the behaviours exhibited by non-disabled people when interacting with people with disabilities (Dunn, 2019). Newer research has examined the underlying attitudes towards disability using theories derived from the field of social psychology (Barreto & Ellemers, 2005; Friedman, 2018). For example, Friedman (2018) examined the implicit and explicit prejudices towards people with disabilities, which Friedman describes as “aversive ableism.” Although participants are often aware of their explicit prejudices, participants are often unaware of their implicit prejudices and these can frequently be the motivating factors of more subtle forms of prejudice (Friedman, 2018; Greenwalk et al., 1998).

Using the Disability Attitudes Implicit Association Test (DA-IAT; Greenwald et al., 1998) to assess implicit prejudices and the Symbolic Ableism Scale (SAS; Friedman & Awsumb, 2019) to assess explicit prejudices, Friedman modeled the prevalence of prejudice attitudes in a dichotomous manner. The implicit prejudices of abled-bodied participants were detected by presenting symbols representing people with disabilities and people without disabilities along with stimulus words representing “good” and “bad” characteristics. In implicit association, tasks that result in smaller reaction times indicate stronger associations and tasks that result in larger reactions times indicate weaker associations. This resulted in four different classifications: 1) Symbolic ableism, which was associated with high explicit and high implicit prejudices (6% of participants); 2) Principled conservatism, which was associated with high explicit and low implicit prejudices (2% of participants); 3) Aversive ableism, which was associated

with low explicit and high implicit prejudices (54% of participants); and, 4) Truly low prejudices, which was associated with low explicit and low implicit prejudices (38% of participants). These findings suggest that although almost all participants had low explicit prejudices (92% of participants), the majority still had high implicit prejudices (60% of participants) that participants were likely unaware of.

Glick and Fiske (1997) described two subgroups of attitudes that can promote discriminatory behaviours: hostile and benevolent attitudes. Initially focusing on these attitudes in the context of sexism, hostile sexism was defined as a justification of male superiority, in which individuals maintain traditional gender roles and focus on women as mere sexual objects. In comparison, benevolent sexism recognizes the importance of women and men's reliance on women; however, it maintains the traditional gender roles (Glick & Fiske, 1997). Whereas benevolent sexism may appear less harmful than hostile sexism, it may be more harmful as it promotes the acceptance of sexist attitudes in more socially acceptable ways, which makes it more difficult to reject than hostile forms of sexism (Glick & Fiske, 1997). Similarly, benevolent ableism appears harmless, but may be more persistent than hostile forms of ableism (Barreto & Ellemers, 2005; Glick & Fiske, 1997; Nario-Redmond et al., 2019).

Individual Differences Influence Ableist Attitudes

In addition to the general theories developed to explain the formation, maintenance, function, and impact of prejudicial attitudes that relate to ableism, there are a number of factors that differ on the individual level that have the potential to influence attitudes towards people with disabilities, including gender, personality traits, and psychological resources.

Gender. Studies examining the effect of gender on the attitudes towards people with disabilities show conflicting results (Au & Man, 2006; Girli et al., 2016; Yorke et al., 2017). The majority of studies indicate that women have more positive attitudes towards people with physical disabilities (Au & Man, 2006; Yorke et al., 2017); however, some studies indicate that gender does not have an impact on attitudes towards people with disabilities (Kritsotakis et al., 2017; Tervo et al., 2004). To add to the conflicting results, some studies show that men have more positive attitudes than women (Girli et al., 2016). Scior et al. (2010) discovered an initial statistically significant effect on attitudes due to gender differences; however, after other socio-demographic variables were accounted for, gender differences did not have a statistically significant effect on attitudes towards individuals with intellectual disabilities. Therefore, the discrepancies between studies surrounding gender may be due to a lack of consistency in the demographic variables researchers account for (Girli et al., 2016; Scior et al., 2010).

Vilchinsky, Werner, et al. (2010) examined the attitudes of individuals who did *not* have a disability towards men and women with and without disabilities. Their study included four conditions evaluating interactions with (1) men without disabilities, (2) men with disabilities, (3) women without disabilities, and (4) women with disabilities. Results indicated that visualizing interactions with a non-disabled woman caused the most interpersonal stress in men; in comparison, visualizing interactions with a non-disabled man caused the most interpersonal stress in women. One possible explanation for elevated interpersonal stress in the non-disabled conditions was that the participants viewed the individuals with disabilities as less threatening than their non-disabled counterparts (Vilchinsky, Werner, et al., 2010). Regardless of the gender of the person

with a disability, the participants showed more positive cognitions and fewer distancing behaviours towards the person with a disability than towards the person without a disability; however, there were still underlying negative emotions towards the person with a disability, likely due to societal influences that inhibit participants from acting on their negative emotions (Vilchinsky, Werner, et al., 2010).

Although the research investigating gender is inconsistent, gender can have real-world applications, particularly given that the gender of the person with a disability as well as the gender of the observer have the potential to influence attitudes (Vilchinsky, Findler, et al., 2010). Lindsay and colleagues (2018) conducted a systematic review of the impact of gender on employment in young adults with a disability. Inclusion criteria for articles in this review included: youth and young adults under the age of 30; having a disability; published between 1995 and 2016; and included at least one finding related to gender and employment. This review excluded articles that were opinion or non-empirical articles or dissertations, focused on occupational injury, focused on others' opinions of the youth's experiences, and/or studies that only included gender as one of the participants' characteristics (Lindsay et al., 2018). Following these inclusion and exclusion criteria, 48 articles were included in this review (Lindsay et al., 2018). A large number of the articles ($n = 21$) identified that men with disabilities had better employment opportunities than women with disabilities ($n = 8$); however, the studies that found that women had better employment opportunities than men focused on specific types of disabilities including acquired brain injuries, burn survivors, spinal cord injuries, stuttering, mobility impairments, and autism (Lindsay et al., 2018). Only one study focused on disability more generally found that women with disabilities had better

employment opportunities than men (Lindsay et al., 2018; Myklebust & Båtevik, 2014). The employment rates for men with disabilities (50% - 76.5%) were also higher than women with disabilities (1% - 27%). Lindsay et al. suggested that one reason for this may be because women with disabilities do not receive adequate employment and career development in comparison with men with disabilities (also see Powers et al., 2008). Therefore, having a better understanding of the role of gender on the formation of attitudes towards people with disabilities may be beneficial to the quality of life of people with disabilities and their ability to participate in society, such as finding employment (Lindsay et al., 2018).

Personality. Although social psychology can explain specific aspects of prejudice, Ekehammar and Akrami (2007) proposed that personality can also help predict the likelihood of someone having prejudiced attitudes. The five-factor model of personality, a model commonly used to describe specific personality traits, is comprised of five personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (McCrae & Costa, 1987; see Table 1).

Table 1*Traits in the Five-Factor Model of Personality and Corresponding Characteristics*

Traits	Characteristics Associated with High Levels	Characteristics Associated with Low Levels
Openness to experience	Curious, willing to try new things	Pragmatic, close-minded
Conscientiousness	Self-disciplined, prepared, reliable	Unfocused, spontaneous, unreliable
Extraversion	Dominant in social situations, comfortable interacting with others	Quiet around others, reserved
Agreeableness	Considerate, trustworthy, generous	Suspicious, uncooperative, unfriendly
Neuroticism	Angry, anxious, low tolerance with stress	Calm, emotionally stable, relaxed

Ekehammar and Akrami (2007) proposed that agreeableness and openness to experience are generally recognized as the most influential personality factors in predicting prejudice, with higher levels of agreeableness and openness being associated with less prejudice. In addition, they reported that higher levels of extraversion were associated with fewer prejudicial attitudes. Crawford and Brandt (2019) proposed that the relationship between personality traits and prejudice was related to the status of the person to whom the prejudice was directed. In situations involving narrow generalized prejudice (i.e., when the prejudice was directed towards low-status individuals), openness and agreeableness were effective predictors of prejudice. When the prejudice was more generalized, agreeableness was the sole predictor of prejudice. Therefore, the

relationship between personality and prejudice attitudes may also be related to status (Crawford & Brandt, 2019).

Studies examining the role of personality and prejudice directed specifically towards people with disabilities have shown similar results as studies examining general prejudicial attitudes (Crawford & Brandt, 2019; Ekehammar & Akrami, 2007). Older research had established that extraversion, agreeableness, and openness to new experiences are generally associated with more positive attitudes towards people with disabilities; in addition, some studies identified that higher levels of neuroticism are associated with more prejudiced attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991). In a more recent study, Keller and Siegrist (2010) reported that extraversion and openness were inversely correlated with negative attitudes towards people with disabilities (i.e., higher scores in these domains were associated with fewer negative attitudes). Neuroticism was also found to have a positive relationship with negative attitudes (i.e., higher scores in this domain was associated with more negative attitudes; Keller & Siegrist, 2010). Therefore, the role of personality traits in the formation of prejudice attitudes towards people with disabilities requires further examination to determine if the findings detected by Keller and Siegrist (2010) are replicable in additional samples, particularly in regards to neuroticism, which has not been identified as a predictor of generalized prejudice (Ekehammar & Akrami, 2007).

Psychological Resources. In addition to examining the influence of specific personality traits on attitudes, Keller and Siegrist (2010) examined the impact of five different psychological resources including high self-esteem, goal pursuit, satisfaction with life, liking people, and belief in a just world. High self-esteem was proposed to

serve as a protective factor against the potential stress and uncertainty interacting with people with disabilities would cause. Goal pursuit was proposed to reduce the uncertainty when interacting with people with disabilities, as people with high levels of goal pursuits are more capable of handling uncertain situations in general. Life satisfaction was proposed to result in more positive interactions with others in general, which would also be applicable to interactions with people with disabilities. Similarly, higher scores on the liking people measure were proposed to result in more positive attitudes towards people with disabilities. Having a belief in a just world was defined as a belief that individuals get what they deserve. As a result, individuals who have high scores in a belief of a just world may have negative perspectives of people in difficult situations, who they believe are deserving of being in difficult situations. Thus, having a belief in a just world may be associated with more negative attitudes towards people with disabilities, as these individuals would believe that people with disabilities are in difficult situations that they deserve to be in (Keller & Siegrist, 2010).

Keller and Siegrist (2010) reported that liking people was inversely associated with negative attitudes towards people with disabilities (i.e., higher scores in this domain was associated with fewer negative attitudes). Belief in a just world was positively correlated with negative attitudes towards people with disabilities (i.e., people who had high levels of belief in a just world had more negative attitudes towards people with disabilities; Keller & Siegrist, 2010). The results of this study also aligned with previous research that has identified that higher self-esteem is correlated with fewer negative attitudes towards people with disabilities (Findler et al., 2007; Keller & Siegrist, 2010).

Self-stigmatization in People with Disabilities

Much like individuals without disabilities, people with disabilities can recognize in-groups and out-groups (Silván-Ferrero et al., 2020). When individuals identify with a group that would typically be identified as the out-group and the prejudices associated with that specific social group, lower self-efficacy and self-esteem can result (Watson & Larson, 2006); however, some individuals become empowered by identifying with out-groups, such as people with disabilities who reject the negative attitudes typically associated with people with disabilities and attempt to overcome the adversity they encounter due to their status (Silván-Ferrero et al., 2020; Watson & Larson, 2006).

In a study comparing attitudes towards disability in caregivers, people with disabilities, and the public, results indicated significant differences across disabled and non-disabled samples (Zheng et al., 2016). People with disabilities had the most positive attitudes towards disability, followed by the public and caregivers, respectively. Additionally, participants who reported having a disability longer than 10 years reported more positive attitudes than people who reported having a disability for less than 10 years. Caregivers who had been working with people with disabilities for longer periods of time reported more negative attitudes compared with caregivers who had been working with people with disabilities for shorter periods of time (Zheng et al., 2016). Therefore, identifying as a person with a disability likely served as a protective factor against elevated negative attitudes towards people with disabilities for the participants with disabilities in this study.

Summary of Attitudes Towards People with Disabilities

Although the negative attitudes towards people with disabilities are now observed more commonly in subtle, benevolent forms, negative attitudes continue to persist (Barreto & Ellemers, 2005; Glick & Fiske, 1997; Nieminen, 2022; Ressa, 2022). Theories related to attitudes have been examined in the context of disability; however, attitudes are complex and may be the result of both explicit and implicit biases (Nario-Redmond et al., 2017). Adding to the complexity associated with attitudes, many individual differences (e.g., gender, personality traits, psychological resources) influence attitudes towards people with disabilities (Keller & Siegrist, 2010; Vilchinsky, Findler, et al., 2010; Vilchinsky, Werner, et al., 2010). Therefore, more research is necessary to examine the various factors that contribute to construct of ableist attitudes.

Stereotypes

Much like prejudice, stereotypes are generally negative; however, stereotypes are a useful function of human cognition that allow for quick interpretation without having to interpret each aspect of every individual (Crandall et al., 2011). The APA describes stereotypes as, “a set of cognitive generalization (e.g., beliefs, expectations) about the qualities and characteristics of the members of a group or social category” (APA, n.d.c). Although these generalizations about others are not necessarily accurate and are often negative, they can serve two functions that may be beneficial to humans: knowledge and justification (Crandall et al., 2011).

The Knowledge Function

Theories regarding schemas have suggested that stereotypes provide a mental framework that simplifies processing for the human brain (Macrae et al., 1994). As a

result, humans can make assumptions about people without needing to perceive each individual characteristics of every person they encounter (Crandall et al., 2011). To test this theory, Macrae et al. (1994) presented participants with two tasks: forming impressions of a specific target based on traits that were presented using a computer screen and monitoring information on a tape-recording. In one condition, participants were presented with a label to describe the target, which the researchers predicted would allow participants to perform better on the primary task, while also monitoring information on a tape-recording. In the second condition, participants were not presented with a label for their target. Results indicated that the condition with the label to describe the target resulted in enhanced performance on the primary task (i.e., forming impressions on the specified target), which was most likely due to the reduction in strain on the participants' processing resources due to the use of stereotypes (Macrae et al., 1994).

The Justification Function

The secondary function of stereotypes is to provide justification, or to explain why groups of people behave and/or are treated the way that they are (Crandall et al., 2011). There are three different categories of justification including ego-justification, group-justification, and system justification (Jost & Banaji, 1994). Ego-justification suggests that stereotypes are formed to protect one's own beliefs or actions; similarly, group-justification suggests that stereotypes are formed to protect the beliefs and actions of the in-group. System-justification does not necessarily protect the individual or group's beliefs; rather, it can be used to justify the social systems in place, even if they are not beneficial to the individual (Jost & Banaji, 1994).

Stereotypes in the Context of Warmth and Competence

In earlier studies examining stereotypes, Asch (1946) made note of a trend within the relationship between warmth and competence, which has informed a more recent theory related to stereotypes. For example, an intelligent person who is perceived as being warm might be described as wise, whereas an intelligent person who is perceived as being cold might be described as sly. In this example, the respective level of intelligence is unchanged, but due to the influence of perceived warmth, the overall perception of the individual changes. Similarly, people who are poor and people who are rich have similar levels of perceived warmth; however, their status influences their overall perception. People who are poor are perceived as deserving pity and sympathy whereas people who are rich are perceived with admiration (Fiske et al., 2002).

The Impact of Stereotypes

Although stereotypes can be helpful to the observer, the stereotyped individual can be negatively impacted by their associated stereotypes (Shapiro & Neuberg, 2007; Smith & Postmes, 2011). One negative effect that can occur is stereotype threat. Shapiro and Neuberg (2007) identified several studies that examined the negative impacts of the stereotype threat, which can result in underperformance on specific tasks, a reduction in self-efficacy in a specific task, reduced aspirations, and even different career choices. In addition, these behaviours can result in a process known as the self-fulfilling prophecy, which occurs when the stereotyped individuals' behaviour changes in a way that confirms the observer's beliefs (Fiske, 1998; Snyder et al., 1977). As a result, experiences of stereotype threat can result in negative psychological well-being (e.g.,

increased anxiety) as well as negative health outcomes (e.g., elevated blood pressure; Shapiro & Neuberg, 2007).

Stereotypes of People with Disabilities

As a result of the prejudices towards their social group, people with disabilities are associated with specific stereotypes (Fiske et al., 2002). The initial studies exploring the perception of people with disabilities noted some important trends that have been influential to the current understanding of attitudes towards people with disabilities (de Laat et al., 2013; Weinberg-Asher, 1976). For example, in their study examining how non-disabled people perceive disabled people, Weinberg-Asher (1976) asked students to report their perceptions of one of their fellow classmates. The students were divided into one of the three groups, depending on which classmate they were assigned (a classmate who was described as a disabled person, a classmate who the student would like, or a classmate who is not described – otherwise known as the “undescribed person”).

When comparing the characteristics associated with the classmates, the disabled person and the liked person were perceived as being more moral and courageous than the undescribed person (Weinberg-Asher, 1976); however, the disabled person was viewed as having lower self-confidence and the liked person was perceived as being better adjusted and more similar to the classmates who were reporting their perceptions. The disabled person and the undescribed person were perceived to be more selfish, self-pitying, and frustrated with life; in comparison, the liked person was perceived as being more honest and more creative (Weinberg-Asher, 1976).

The disabled condition in Weinberg-Asher’s study (1976) included three additional conditions: a person in a wheelchair; a person who was blind; and a person

who was deaf. Unlike the comparisons between the disabled, liked, and undescribed conditions, there were very few differences in the descriptions of individuals who were blind, deaf, or in a wheelchair. Specifically, of the 29 personality and attitude dimensions included in the study, the classmates with disabilities received similar ratings on 27 items; however, there were two distinct differences. The person who was deaf was seen as less dependent than the other individuals who were disabled. The person in the wheelchair was seen as being less attractive than their non-disabled classmates and their classmates with other forms of disabilities (Weinberg-Asher, 1976). Although this study was conducted using college student participants, which limited its applicability to other populations, it initiated the discussion of stereotypes associated with different types of disabilities. Additionally, the researchers did not mention a correction for multiple comparisons, which would have been a limitation of this study given that they performed 29 statistical tests.

The Stereotype Content Model

Fiske et al. (2002) proposed that stereotypes are a function of the specific groups' perceived warmth and competence. They theorized that warmth (i.e., how positively or negatively the stereotyped person is perceived) could be predicted by the individual's level of competition. Specifically, individuals who have higher levels of competition would be perceived as being lower in perceived warmth. Further, they proposed that competence (i.e., the individual's capability) could be predicted by the individual's status, which would indicate that individuals who belong to a group that is stereotyped as having higher status would be perceived as being higher in competence. To create their model, Fiske et al. (2002) measured the perceived levels of warmth and

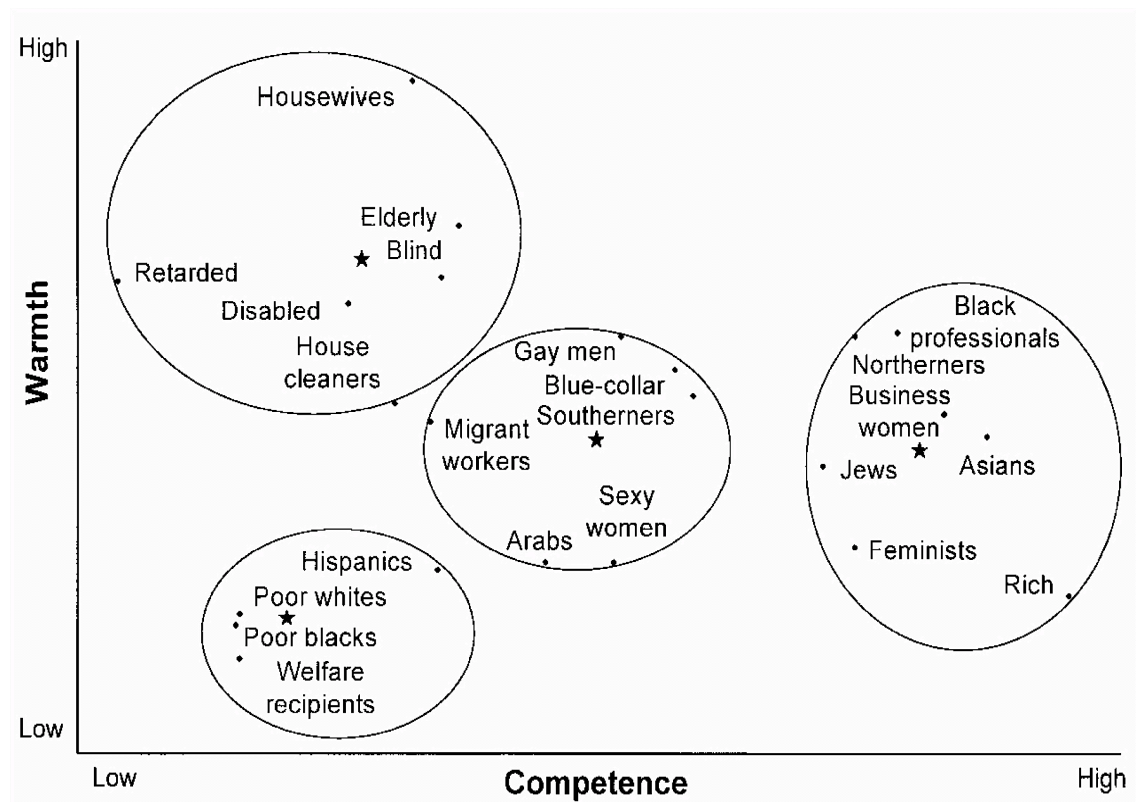
competence towards 23 groups that typically evoked specific stereotypes (e.g., Asians, Jews, elderly people, disabled people) in a student population and a non-student population. The researchers used a group-level procedure in which the average rating across participants for each social group was calculated; subsequently, the mean from this calculation was used to conduct correlational analyses between status and competence as well as competition and warmth. In the non-student sample, correlations were statistically significant between status and competence, $r = .97, p < .001$, and competition and warmth, $r = -.53, p < .01$. In the student sample, correlations were statistically significant between status and competence, $r = .98, p < .001$, as well as competition and warmth, $r = -.68, p < .001$.

In the non-student sample, there was also a statistically significant correlation between competition and competence, $r = .55, p < .05$, which the researchers suggested was due to specific traits included in the competence measures that could also be related to competition: “competitive” and “independent” (Fiske et al., 2002). In a follow-up study, the items included in the warmth and competence scales were revised. In the warmth scale, the researchers added friendly, well-intentioned, and trustworthy and removed tolerance. In the competence scale, they added capable, efficient, and skillful and removed competitive and independent. This second study produced similar results; however, the correlation between competition and competence that was previously observed was no longer statistically significant (Fiske et al., 2002). This adapted questionnaire demonstrated correlations between competition and warmth as well as status and competence. Fiske et al. (2002) suggested this provides support for their initial warmth and competence questionnaires.

Fiske et al.'s model using warmth and competence to conceptualize stereotypes is called the Stereotype Content Model (SCM). Through their development of the SCM, Fiske et al. (2002) were able to identify similarities and differences between specific stereotyped groups based on the clusters they were included in. For example, disabled people were perceived as having high levels of warmth and low levels of competence; therefore, they are included in the upper left cluster (see Figure 1).

Figure 1

A Depiction of a 4-Cluster Model of the Perceived Warmth and Competence of Identified Stereotyped Social Groups (Fiske et al., 2002)



The SCM and Paternalistic Prejudice. In their development of the SCM, Fiske et al. (2002) also identified prejudiced emotions associated with specific stereotyped groups. As hypothesized, people with disabilities were within the paternalistic prejudice group; this group includes low-status, non-competitive groups, who are perceived as having high levels of warmth but low levels of competence (Fiske et al., 2002). Paternalistic prejudice is associated with feelings of pity and sympathy towards the prejudiced group, such as people with disabilities (Fiske et al., 2002; Fiske, 2018). As depicted in Figure 2, the group of interest to this study is the top left quadrant. This group includes elderly people, disabled people, and housewives, who are perceived as being high in warmth and low in competence.

Figure 2

A Description of the Stereotypes Towards Specific Groups as Identified by the Stereotype Content Model (Fiske et al., 2002; Schwind et al., 2019)

		Competence	
		Low	High
Warmth	High	<p>Paternalistic prejudice</p> <p>low status, not competitive pity, sympathy</p> <p>(e.g., elderly people, disabled people, housewives)</p>	<p>Admiration</p> <p>high status, not competitive pride, admiration</p> <p>(e.g., in-group, close allies)</p>
	Low	<p>Contemptuous prejudice</p> <p>low status, competitive contempt, disgust, anger, resentment</p> <p>(e.g., welfare recipients, poor people)</p>	<p>Envious prejudice</p> <p>high status, competitive envy, jealousy</p> <p>(e.g., Asians, Jews, rich people, feminists)</p>

Societal Influence. In an attempt to prevent societal expectations from influencing the results on the SCM, Fiske et al. (2002) designed the statements to focus on society's perception of the targeted social groups rather than focusing on the participant's perspective (e.g., "As viewed by society..."). Kotzur et al. (2020) examined the influence that this wording may have on participants' responses. As hypothesized, focusing on society's perspective resulted in more negative levels of perceived warmth and/or competence. The dimension that was depreciated as the result of the relevant stereotypes associated with the specific social group was further diminished. For example, social groups who were considered to have low competence but high warmth were perceived as being less competent; similarly, social groups that were perceived as being high in competence but low in warmth were perceived as being less warm (Kotzur et al., 2020). Although the SCM will be used for this study, it should be noted that people with disabilities may not be as low in perceived warmth as previous results suggest (Fiske et al., 2002; Fiske, 2018), as the effect of asking participants to focus on society's view of social groups rather their personal view may impact the perception of people with disabilities as well.

Summary of Stereotypes Associated with People with Disabilities

Stereotypes may be helpful for humans to process the world around them; however, stereotypes can also have negative impacts on the stereotyped individuals (Branco et al., 2019; Crandall et al., 2011; Shapiro & Neuberg, 2007). The SCM developed by Fiske et al. (2002) conceptualized stereotypes within the framework of their perceived levels of warmth and competence. People with disabilities are perceived as being high in warmth and low in competence; therefore, they experience paternalistic

prejudice, which is commonly displayed through pitying and sympathizing behaviours (Fiske et al., 2002); however, it is possible that the wording of the statements used in the SCM encourages heightened negative stereotypes, which is a limitation that should be recognized by researchers (Kotzur et al., 2020).

Wearable Devices

Although the stereotypes associated with mobility aid users remain unexamined, the stereotypes associated with other forms of technology and their user have been studied. With the development of technology, “wearable devices” have become popular (Kelly & Gilbert, 2016). Wearable devices can include medical devices (e.g., blood pressure monitors or blood glucose sensor), head worn devices (e.g., EEG headsets of virtual reality) or any other small, computations device that people can wear on their body (Kelly & Gilbert, 2016; Schwind et al., 2019). Although technological developments led to the creation of these devices, their uptake by the public may be dependent on their social acceptance (Kelly & Gilbert, 2016; Profita et al., 2016; Schwind et al., 2019).

To measure the “social wearability” of wearable devices, Kelly and Gilbert (2016) developed the WEARable Acceptability Range (WEAR) Scale that includes 50 questions to assess relevant factors contributing to the social wearability of the devices including their aesthetics, availability, consequences, ergonomics, functionality, judgment, norms, others’ reactions, others’ thoughts, and specific qualities about the device user. For each question, participants rank the degree to which they agree with the statement, ranging from 1 (*Strongly agree*) to 6 (*Strongly disagree*). The development of

this scale presented an opportunity to study the attitudes towards not only the users of specific devices but also the device itself (Kelly & Gilbert, 2016).

Wearable Devices and Disability

Following the development of the WEAR Scale, researchers began to examine the integrated effects between the device and its user. Specifically, Profita and colleagues (2016) examined the impact of disability status on the social wearability of wearable devices, specifically the Google Glass, a hands-free device that can be worn like a pair of glasses and can display information like a smart phone. In the first experiment, participants were shown a video of an actor at a bus stop, using their Google Glass. In one condition, the actress did not use any other accessories; in the other condition, the actor used a white cane and wore sunglasses to indicate a visual impairment. After watching the video, participants responded to 13 statements, which included statements about the interaction (e.g., “It looked awkward when this person was using the wearable computing device”), statements about the user (e.g., “This person seemed independent”), and statements about the device (e.g., “The wearable device seemed useful”). Participants indicated the degree to which they agreed with each statement from a scale of 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). They were also asked, “In general, does your opinion of the social acceptability of using a device like this change if the wearer has a disability?”

The results of this study revealed that participants rated the social wearability of the devices differently based on the disability status of its user (Profita et al., 2016). Notably, interactions with a device-user with a disability were less awkward, more normal, more appropriate, less rude, and less uncomfortable. Additionally, the actor was

perceived as more independent, less nerdy, and was thought to need the device more than the non-disabled user (i.e., the person using the Google glass without using a white cane or wearing sunglasses). The device itself was considered more useful and less unnecessary. The only statement unaffected by disability status from the 13-statement scale was specifically about the user and states, “This person looked cool.” In addition, 40.9% and 18.9% of participants reported that knowing the device-user had a disability would have a positive influence or a strong positive influence, respectively, on the social acceptability of the device. Almost 40% of participants reported that the social acceptability of the device would be unchanged due to the disability status of its user. Fewer than 2% of participants indicated that the disability status of the user would have a negative or strong negative influence on the social acceptability (Profita et al., 2016), suggesting that the perception of technology use is also related to the status of its user.

The SCM and Wearable Technology

To further examine the interaction between the user’s status and the perception of social wearability of wearable devices, Schwind et al. (2019) examined the perception of wearable devices in the context of the SCM. In the first experiment, the researchers examined the perceived levels of warmth and competence of specific device users by manipulating the questions that were previously included in the original SCM (i.e., As viewed by society, how ... are [stereotype] with [device]?”). The devices included in the study were blood pressure monitors, blood glucose sensors, EEG headsets, VR headsets, quadcopters, LED glasses, tablets, and narrative clips. The stereotyped groups included senior citizens, welfare recipients, homeless people, rich people, career women/men, singles, environmentalists, and physicians.

To visualize how the levels of warmth and competence shifted for each stereotyped group with the use of each device, the researchers plotted the results on the SCM map (Schwind et al., 2019). The effect of device use was dependent upon the original perception of the stereotyped groups. For example, senior citizens who wore blood glucose sensors were perceived as less warm than senior citizens who did not wear blood glucose sensors, and physicians were perceived as less competent than physicians who did not wear blood glucose sensors. Therefore, the use of wearable devices did result in changes in the perception of stereotyped individuals; however, that change is not uniform across stereotyped groups (Schwind et al., 2019).

In the second experiment, Schwind et al. (2019) examined the warmth and competence of the devices if any person, regardless of their status, used them. Participants completed the same questionnaires, but eight more devices were added: action cameras, AR glasses, E-readers, fitness trackers, gesture trackers, hearing aids, LED ties, and smartphones. Results indicated that the devices were plotted in different locations in the SCM map than when the user's status was specified, which suggested that the user's status was impacting the perceived warmth and competence associated with the device. The researchers concluded that the relationship between humans and devices may be bidirectional; specifically, there may be stereotypes evoked by the devices that are transferred to their user and the placement of the devices on the SCM may have been determined by the frequency of their usage by specific groups of stereotyped individuals (Schwind et al., 2019). In addition, the relationship was also related to the social acceptability of the devices and the perceived degree of autonomy (or lack thereof) of the person with a disability (i.e., autonomous or constrained).

Disability Status and Devices

Although Schwind and colleagues (2019) did not include disabled people as a stereotyped group, it may be possible to modify the model that has been used to examine the relationship between wearable devices and stereotyped groups to conceptualize the relationship between people with physical disabilities and mobility aids. Given the bidirectional relationship proposed between the stereotyped groups and the use of wearable devices, it is possible that a similar bidirectional relationship exists between people with disabilities and their mobility aids.

Mobility Aid Use by People with Disabilities

One key component that facilitates the participation of people with disabilities in society is the use of mobility aids (Resnik et al., 2009; Stenberg et al., 2016). To assess the prevalence of mobility aid use in Canada, two research groups analyzed the responses on the 2012 Canadian Survey on Disability (CSD; Statistics Canada, 2012). The CSD included all individuals over the age of 15 years old who identified as a person with a disability on the National Household Survey; people who were living in collective living spaces (i.e., long term care homes) and people living on First Nations reserves were excluded (Charette et al., 2018; Smith et al., 2016). In the CSD, walking aids included canes, crutches, walking sticks, and walkers. Overall, 4.1% of the Canadian population reported using at least one walking aid (Charette et al., 2018); 60% of walking aid users were women, and the mean age of respondents was 68.6 years. It should also be noted that although mobility aid use was more common in people above the age of 65 years, people younger than 65 years old still used canes, walking sticks, and crutches; however, walkers were not commonly reported in the younger age

brackets (1.1% in people under the age of 65, compared to 17.9% of people over the age of 65).

In a separate report, Smith et al. (2016) analyzed the use of wheelchairs and scooters. These researchers determined that 1.0% of Canadians reported using a wheelchair (either electric or manual) or a scooter; specifically, 0.7% reported using manual wheelchairs, 0.2% reported using power wheelchairs, and 0.4% reported using scooters (Smith et al., 2016). The mean age of Canadians who reported using a wheelchair/scooter was 65.1 years and mobility aid users were predominantly female (60.7%). Although wheelchair and scooter use were reported more commonly for people older than 75 years of age (4.2%), wheelchair use was reported across all of the age brackets. In comparison, scooter use was rarely reported for the 15-24 age bracket. Therefore, of the wheelchair and scooter options available, the mobility aid that was reported most frequently was the manual wheelchair, which was also reported to be used across age groups.

The User's Attitudes Towards Their Mobility Aid

Despite the use of mobility aids in Canada, the attitudes people with disabilities and older adults have towards their mobility aids are often mixed (Resnik et al., 2009; Stenberg et al., 2016). One qualitative study examined seniors' attitudes towards the use of their mobility aids and results indicated that some seniors had positive attitudes towards mobility aids as they viewed them as helping to maintain their independence and participation in society, but other seniors did not want to use mobility aids for the fear of appearing "old" (Resnik et al., 2009). In a study focused specifically on people who use electric wheelchairs, Stenberg et al. (2016) reported a similar pattern. Although

some wheelchair users described their wheelchair as one of the most important belongings they own, others were scared that they would be permanently associated with their wheelchair (Stenberg et al., 2016). In both studies, persons with a disability reported that they were afraid of how they would be perceived for using their mobility aid, which influenced their willingness to use it; however, research to date has not determined whether this fear is warranted (Resnik et al., 2009; Stenberg et al., 2016).

MacInnis et al. (2019) examined the relationship between authoritarian personality types and social dominance orientation (i.e., support for group dominance and group hierarchies or greater tendencies to hold prejudice attitudes) and attitudes towards older adults who use mobility aids. Older adults who used mobility aids evoked similar degrees of prejudice as older adults who did not use mobility aids, younger adults who used mobility aids, and people with physical disabilities. Although mobility aids were included in this assessment, the mobility aids being used were not specified (MacInnis et al., 2019). MacInnis et al. (2019) also identified that authoritarianism as well as social dominance orientation were significant predictors of negative attitudes towards mobility aid use in older adults.

The Current Study

Given that mobility aids can facilitate the ability of individuals with a disability to participate in society, gaining a better understanding of the attitudes towards the use of mobility aids may be as important as understanding the attitudes towards people with disabilities in general (Profita et al., 2016; Resnik et al., 2009; Schwind et al., 2019; Stenberg et al., 2016). Therefore, this study involves two broad categories of analyses: an assessment of the attitudes towards people with disabilities using different mobility

aids and a conceptualization of the stereotypes towards the use of mobility aids within the framework of the SCM.

Hypotheses

Gender

Research examining the impact of gender on the attitudes and stereotypes associated with people with disabilities is conflicting (Au & Man, 2006; Girli et al., 2016; Kritsotakis et al., 2017; Tervo et al., 2004; Weinberg-Asher, 1976); however, more recent research using the MAS, which was used in the current study, indicated that the gender of the participants did not produce a significant difference on the attitudes towards people with disabilities (Vilchinsky, Werner, et al., 2010). In addition, Fiske et al.'s study (2002) suggested that there are not significant differences in the levels of warmth and competence reported based on the gender of the participants (Fiske et al., 2002). Therefore, it was hypothesized that:

1. The difference in the attitudes towards the people with disabilities using specific mobility aids due to the gender of the participants would *not* be statistically significant (Vilchinsky, Werner, et al., 2010).
2. The difference in the stereotypes associated with the people with disabilities using specific mobility aids due to the gender of the participants would *not* be statistically significant (Fiske et al., 2002).

Age

In their assessment of the attitudes towards older adults and people with disabilities, MacInnis et al. (2019) did not detect any significant effects on the attitudes towards the target groups due to the age of participants. Schwind et al. (2019) also did

not detect any change in the levels of warmth and competence associated with people using wearable devices due to the age of the participants. Therefore, I hypothesized that:

3. The age of the participants would *not* influence attitudinal differences towards people with disabilities using specific mobility aids (MacInnis et al., 2019).
4. The age of the participants would *not* influence the stereotypes associated with people with disabilities using specific mobility aids (Schwind et al., 2019).

Personality

Research examining personality traits and their relationship with the attitudes towards people with disabilities is conflicting (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). Given the research conducted thus far I hypothesized that:

5. People who were higher in Open-Mindedness would have fewer negative attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991).
6. There would *not* be a significant relationship between Conscientiousness and attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010).
7. People who were higher in Extraversion would have fewer negative attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991).
8. People who were higher in Agreeableness would have fewer negative attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991).
9. People who were higher in Negative Emotionality would have more negative attitudes towards people with disabilities (Keller & Siegrist, 2010).

Social Dominance Orientation, Self-Esteem, and Contact

Although they did not specify the type of mobility aids, MacInnis et al. (2019) determined that higher scores in Social Dominance Orientation predicted more negative attitudes towards mobility aid users. Additionally, previous research has indicated that having higher levels of Self-Esteem is associated with fewer negative attitudes towards people with disabilities (Findler et al., 2007; Keller and Siegrist, 2010; Sinclair et al., 2010). Having previous contact with people with disabilities has also been shown to result in fewer negative attitudes towards people with disabilities (Yuker & Hurley, 1987; Zheng et al., 2016). Therefore, I hypothesized that:

10. People who had higher scores in Social Dominance Orientation would have more negative attitudes towards people with disabilities (Ho et al., 2015; MacInnis et al., 2019).
11. People who had higher scores in Self-Esteem would have fewer negative attitudes towards people with disabilities (Findler et al., 2007; Keller & Siegrist, 2010; Sinclair et al., 2010).
12. People who have had more contact with people with disabilities would have fewer negative attitudes towards people with disabilities (Yuker & Hurley, 1987; Zheng et al., 2016).

Attitudes Towards People with Disabilities Using Different Mobility Aids

Attitudes are multidimensional, comprised of affective, cognitive, and behavioural components (Breckler, 1984). To measure all three components, Findler and colleagues (2007) developed the Multidimensional Attitudes Scale Toward Persons with Disabilities (MAS), which includes a subscale for each of the three components of

attitudes. In the MAS, a scenario is presented in which an individual interacts with a person with a disability in a coffee shop. In this scenario, the person with a disability is represented by their use of a wheelchair (Findler et al., 2007). Therefore, by interchanging the mobility aid used to represent disability in the scenario, the attitudes towards the use of specific mobility aids can be examined.

Based on the prevalence of mobility aids reported in the CSD (Statistics Canada, 2012), the mobility aids included in this study were manual wheelchairs and canes, as well as control conditions in which a person has a physical disability but does not have a specified mobility aid (i.e., the unspecified mobility aid condition). Comparisons were made across the three conditions to identify any differences in the affective, cognitive, or behavioural domains of attitudes towards people with disabilities using a manual wheelchair, a cane, or an unspecified mobility aid. The attitudes towards the use of specific mobility aids have not been analyzed previously; therefore, the hypotheses for the attitudes towards the use of specific types of mobility aids were non-directional. It was anticipated that there would be distinct differences across the three different conditions and their associated attitude components. Therefore, the attitude portion of the study had the following hypotheses:

13. Scores across the negative affective component were expected to be significantly more negative for the condition involving a person with a disability using a manual wheelchair compared with the conditions involving a person with a disability using a cane and the unspecified mobility aid condition (Breckler, 1984; Findler et al., 2007).

14. Scores across the cognitive component were expected to be significantly more negative for the condition involving a person with a disability using a manual wheelchair compared to the condition involving a person with a disability using a cane and the unspecified mobility aid condition (Breckler, 1984; Findler et al., 2007).
15. Scores across the behavioural component were expected to be significantly more negative for the condition involving a person with a disability using a manual wheelchair compared to the condition involving a person with a disability using a cane and the unspecified mobility aid condition (Breckler, 1984; Findler et al., 2007).

Stereotypes of People with Disabilities Using Different Mobility Aids

Specific stereotypes are associated with people with disabilities (de Laat et al., 2013; Weinberg-Asher, 1976); specifically, they are typically associated with paternalistic stereotypes (Fiske et al., 2002). In addition, Schwind et al. (2019) proposed that the relationship between stereotyped groups and wearable devices is bidirectional; however, it has not been established if a similar relationship exists between people with disabilities and their mobility aids. In the current study, the framework developed to examine the perception of wearable devices within the SCM was used to determine if the mobility aid used by a person with a disability changes where the person with a disability is categorized within the SCM (i.e., what are their respective levels of warmth and competence). As above, this portion of the study involved three conditions: a person with a disability who is using a manual wheelchair, a person with a disability who is using a cane, and a person with a disability who is using an unspecified mobility aid.

Previous research has not examined this relationship; however, Schwind et al.'s research on the perceived warmth and competence associated with specific wearable devices suggests that the perceived levels of warmth decrease and the perceived levels of competence increase with the use of technology, in this case the mobility aids (Schwind et al., 2019). Therefore, the current study included the following hypotheses:

16. The conditions that include specific mobility aids were expected to produce lower levels of warmth compared to the condition that did not include specified mobility aid use (Fiske et al., 2002; Schwind et al., 2019).
17. The conditions that include specific mobility aids were expected to produce higher levels of competence compared to the condition that did not include specified mobility aid use (Fiske et al., 2002; Schwind et al., 2019).

Method

Recruitment

For the current study, the targeted population was the general adult public, including individuals from a variety of age groups and individuals with and without disabilities. To recruit participants from the student population at the University of New Brunswick (Saint John), the study was posted on SONA, UNBSJ's recruitment system. Students who agreed to participate and were enrolled in participating classes were awarded 0.5 bonus marks for their participation. To increase the diversity of participants, social media sites such as Facebook and Twitter were used to recruit participants from the general public. To target individuals with disabilities, information about the study and how to participate was posted in disability-specific Facebook groups such as Spinal

Cord Injury Recovery & Research Community Organisation, Disability Awareness and Advocacy, Cerebral Palsy Support Group, and Canadian Disability Alliance.

Participants

A total of 281 participants completed the survey package, 225 of which did not identify as having a disability. To begin the survey, participants were asked to answer several demographic questions including their age, sex, gender, ethnicity, education level, if they are currently a student at UNB, and if they identify as a person with a disability (see Appendix A). The descriptive statistics for the participants' general demographic information are presented in Table 2, including their gender, age, highest education achieved, ethnicity, if they are currently a university student, and if they are currently a student at the University of New Brunswick. Each of these variables was categorized based on whether participants indicated that they identified as a person with a disability or did *not* identify as a person with a disability. The combined percentage of participants' responses for each of the variables, regardless of disability self-identification, is also included in Table 2.

Table 2*Demographic Variables for Participants Split Based on Self-Identified Disability Status*

	Does <i>not</i> identify as a person with disability (<i>n</i> = 225)		Identifies as a person with a disability (<i>n</i> = 56)		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender						
Male	33	14.67	8	14.29	41	14.59
Female	187	83.11	39	69.64	226	80.43
Non-binary	4	1.78	4	7.14	8	2.85
Gender fluid	1	0.44	3	5.36	4	1.42
Other	0	0.00	2	3.57	2	0.71
Age						
18-24	171	76.00	21	37.50	192	68.33
25-34	29	12.89	15	26.79	44	15.66
35-44	10	4.44	11	19.64	21	7.47
45-54	5	2.22	4	7.14	9	3.20
55-64	7	3.11	3	5.36	10	3.56
65-100	3	1.33	2	3.57	5	1.78
Highest Education Achieved						
High school diploma	57	25.45	10	17.86	67	23.93
Some college or post-secondary education	106	47.32	14	25.00	120	42.86
Bachelor's or certificate program	34	15.18	15	26.79	49	17.50
Pursuing or completed a graduate level degree	27	12.05	17	30.36	44	15.71
Ethnicity						
Caucasian (white)	189	84.00	47	83.93	236	83.99
African American (black)	5	2.22	1	1.79	6	2.14
Asian	15	6.67	1	1.79	16	5.69
Middle Eastern	6	2.67	0	0	6	2.14
Latin American	3	1.33	1	1.79	4	1.42
Biracial	3	1.33	2	3.57	5	1.78
Other	4	1.78	4	7.14	8	2.85
Currently a university student						
No	42	18.67	27	48.21	69	24.56
Yes	183	81.33	29	51.79	212	75.44
Currently a UNB student						
No	72	32.00	37	66.07	109	38.79
Yes	153	68.00	19	33.93	172	61.21

Measures

In addition to the demographic questions, this study included six questionnaires. Each of the questionnaires was identified as having reasonable levels of reliability in previous studies and the current study. A summary of the reliability of each scale when used in previous research and when used in the current study can be seen in Table 3.

Table 3*A Summary of the Reliability of the Scales Used in the Current Study*

	α reported in previous research	α in current study
BFI-2-S		
Open-Mindedness	.74 – .77	.76
Conscientiousness	.73 – .78	.73
Extraversion	.77 - .78	.78
Agreeableness	.75	.72
Negative Emotionality	.82 – .84	.85
SDO ₇	.93	.91
Rosenberg Self-Esteem Scale	.91	.92
Contact With Disabled Persons Scale	.92	.92
MAS: Female “Michelle”		
Unspecified		
Affective	.68	.85
Behavioural	.90	.82
Cognitive	.82	.93
Cane		
Affective	.68	.86
Behavioural	.90	.78
Cognitive	.82	.95
Manual Wheelchair		
Affective	.68	.87
Behavioural	.90	.80
Cognitive	.82	.93
MAS: Male “Joseph”		
Unspecified		
Affective		.88
Behavioural		.82
Cognitive		.94
Cane		
Affective		.89
Behavioural		.86
Cognitive		.94
Manual Wheelchair		
Affective	.68	.90
Behavioural	.90	.84
Cognitive	.82	.95
Stereotypes		
Perceived Warmth		
Unspecified	.90	.84
Cane		.85
Manual Wheelchair		.84
Perceived Competence		
Unspecified	.94	.88
Cane		.84
Manual Wheelchair		.86

The Big Five Inventory–2 Short Form (BFI-2-S; Soto & John, 2017)

Previous research had indicated that specific personality traits are associated with attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). To assess the participants' personalities, the Big Five Inventory–2 Short Form (BFI-2-S) was used (see Appendix B). The BFI-2-S includes 30 questions and starts with the following statement: “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 click a number next to each statement to indicate the extent to which you agree or disagree with that statement.” The question is followed by a list of statements (i.e., “I am someone who tends to be quiet”) and participants rank the degree to which they agree with the statement on a scale of 1 (*Disagree strongly*) to 5 (*Agree strongly*).

Social Dominance Orientation Scale (SDO₇ Scale; Ho et al., 2015)

The SDO₇ is a 16-item scale designed to assess the participants' Social Dominance Orientation (see Appendix C). Participants read each statement (e.g., “No one group should dominate in society”) and were asked to report the degree to which they favoured that statement on a scale of 1 (*Strongly oppose*) to 7 (*Strongly favour*). When compared to the SDO, the SDO₇ was found to have significant correlations with the SDO, ranging from $r = .88, p < .001$ to $r = .95, p < .001$.

Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965)

The Rosenberg Self-Esteem Scale includes 10 statements (e.g., “On the whole I am satisfied with myself”), which participants were asked to rank on a 4-point scale from *Strongly Disagree* to *Strongly Agree* (see Appendix D). An analysis of the

psychometric properties of the RSES in various demographic groups in the United States has revealed that the RSES has acceptable internal reliability, item convergent validity ($r = .57 - .79$) and item discriminant validity ($r = .27 - .52$; Sinclair et al., 2010).

Contact With Disabled Persons Scale (CDP; Yucker & Hurley, 1987)

The CDP scale includes 20 questions to assess the degree of previous contact a person has had with people with disabilities (see Appendix E). For example, the scale asks questions such as, “How often have you had a long talk with a person who is physically disabled?” Participants were asked to report the frequency that these events occurred on a 5-point scale, where 1 = *Never*; 2 = *Once or twice*; 3 = *A few times*; 4 = *Often*; 5 = *Very often* (Yucker & Hurley, 1987). This scale includes both positive and negative interactions, as contact has been determined to be influential on attitudes regardless of whether the interaction is positive or negative (Yucker & Hurley, 1987). To assess the context of these interactions, participants will also be asked, “During the majority of these interactions, were you: A caregiver; A nurse; A physician; Another type of healthcare worker; None of the above.”

The MAS (Findler et al., 2007)

The MAS describes a scenario in which a non-disabled person interacts with a person using a wheelchair in a coffee shop. After reading the scenario, participants were asked to rank the likelihood that a specific emotion, thought, or behaviour would arise in Joseph/Michelle when they are interacting with the person in the coffee shop (Findler et al., 2007). To assess the affective domain, participants were presented with 16 emotions (e.g., tension) and asked to rank the likelihood that this emotion would arise in Joseph/Michelle from 1 (*Not at all*) to 5 (*Very likely*). Similar to the affective domain, to

assess the cognitive domain, participants were asked to rank each of the 10 beliefs (e.g., “They seem to be an interesting person”) on a scale from 1 (*Not at all*) to 5 (*Very likely*). Lastly, to assess the behavioural domain, participants were asked to report the likelihood of 8 distinct behaviours (e.g., “Move away”) occurring on a scale of 1 (*Not at all*) to 5 (*Very likely*). The concurrent validity of the MAS was assessed by comparing the MAS to the ATDP (Yuker et al., 1996), which revealed positive correlations with the affective ($r = .21, p < .05$) and behavioural domains ($r = .29, p < .001$), but not the cognitive domain ($r = .14, p > .05$).

For this study, the gender of the person interacting with an individual with a disability (the male “Joseph” and the female “Michelle” conditions) was purposefully randomized. In order to assess attitudes towards people who are using different types of mobility aids, adaptations to the MAS were introduced where the wheelchair was replaced with the different mobility aids of interest (an unspecified mobility aid, a cane, and a manual wheelchair). Participants were then asked to respond to the questions included in the original MAS to assess the affective, cognitive, and behavioural domains of attitudes (see Appendix F, Appendix G, and Appendix H).

Competence and Warmth Scales (Fiske et al., 2002)

Finally, participants were asked to complete the competence and warmth scales (Fiske et al., 2002) for each of the three types of mobility aids (an unspecified mobility aid, a cane, or a manual wheelchair). The competence scale included five questions such as, “As viewed by society, how competent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others” (Fiske et al., 2002). Meanwhile, the warmth scale included four questions such as, “As

viewed by society, how tolerant are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others” (Fiske et al., 2002; see Appendix I, Appendix J, and Appendix K). Participants ranked the competence and warmth on a 5-point scale (1 = *Not at all*, 5 = *Extremely*). This scale focuses on how society will view the mobility aid user (i.e., “As viewed by society...”) to avoid the effects of social desirability and to assess the perceived cultural stereotypes that exist (Fiske et al., 2002). The validity of the clusters was tested using cluster and *k*-means analyses. The cluster including disabled, elderly, and “retarded people” was significantly higher on warmth, $M = 4.29$, than competence, $M = 3.23$.

Procedure

The study was reviewed by the University of New Brunswick Saint John Research Ethics Board (REB #044-2021). Participants ($N = 281$) for this study were recruited through UNB’s recruitment system, SONA, and through targeted social media sites. Using the link provided through social media or SONA, participants were redirected to the questionnaire that was distributed using Qualtrics, a secure online survey software. When they clicked on the link directing them to Qualtrics, participants were presented with an introduction giving them a brief introduction to the purpose of the study (see Appendix L), followed by an informed consent form (see Appendix M). Participants read the informed consent form and then clicked the appropriate box to indicate that they consented to participating in the study. If they did not click the appropriate box, they were directed immediately to the end of the survey. Participants had the option to end the survey at any point, at which time they would be directed to the

end of the survey where they would be presented with a debriefing form (see Appendix N).

After providing informed consent, they were asked to respond to a series of demographic questions, the BFI-2-S (Soto & John, 2017), the SDO₇ Scale (Ho et al., 2015), the RSES (Rosenberg, 1965), and the CDP (Yuker & Hurley, 1987) in a randomized order. Participants were then randomly assigned to either the female “Michelle” group or the male “Joseph” group. In the female “Michelle” group, participants reported how they believed Michelle would feel, think, and behave when interacting with a person in three conditions of the MAS (the unspecified mobility aid, cane, and manual wheelchair conditions). Similarly, participants assigned to the male “Joseph” group reported how they believed Joseph would feel, think, and behave when interacting with a person with a disability in three conditions of the MAS (the unspecified mobility aid, cane, and manual wheelchair conditions). Finally, participants completed the warmth and competence scales of the SCM for the unspecified mobility aid, cane, and manual wheelchair conditions. After completing all study measures, a debriefing form was presented (see Appendix N).

Results

Data Conditioning Procedures

Prior to conducting data analyses, the data collected through Qualtrics underwent typical data cleaning procedures, including the removal of cases with large amounts of missing data and out-of-range values. The data then underwent conditioning procedures, including assessing for univariate and multivariate outliers, normality, and

multicollinearity. The assumptions underlying each of the inferential analyses were tested, and when appropriate, corrections were made.

Consent, Age Requirements, and Missing Data

Eight participants indicated they did not consent to completing the questionnaire package and 12 participants indicated that they did not meet the minimum age requirement of 18 years of age for UNB students or 19 years of age for non-UNB students. These participants were removed from the dataset. Participants who did not complete at least 80% of the items for each questionnaire were recoded as missing. Frequency analyses were used to identify participants who did not complete at least 80% of the questionnaires, which were removed ($n = 137$). In total, 35.52% of the participants ($n = 157$) were removed due to missing data or failing to provide consent.

Univariate Outliers

Univariate outliers were defined as values that were less than or greater than three standard deviations from the mean. Outliers were detected for 10 variables included in this study. Each outlier was recoded to a non-outlier value that retained its relative ranking in comparison to the rest of the data collected (i.e., the farthest value from the mean; Keith, 2019).

Normality

The assumption of normality is met when the data has a skew that is less 1.50 than and greater than -1.50 and a kurtosis value less than 5.00 and greater than -5.00 (Keith, 2019). The five subscales of the Big Five Inventory-2 Short Form (Soto & John, 2017), the SDO₇ (Ho et al., 2015), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), and the Contact With Disabled Persons Scale (Yuker & Hurley, 1987) had acceptable

skew and kurtosis values. The affective, behavioural, and cognitive subscales of the MAS for the three types of mobility aids (unspecified mobility aid, a cane, and a manual wheelchair) all had acceptable skew and kurtosis values. The competence and warmth scales for the three types of mobility aids had acceptable skew and kurtosis values as well.

Homogeneity of Variance

The assumption of homogeneity of variance assumes that two or more independent groups have equal variances (Keith, 2019). The assumption of homogeneity of variance was assessed by examining the scatterplots for each regression and ANOVA model. All models met the assumption of homogeneity of variance.

Multivariate Outliers

Multivariate outliers occur when there is a combination of unusual scores on two or more variables (Keith, 2019). Multivariate outliers were identified by calculating Mahalanobis distance. Four multivariate outliers were identified and removed from the data.

Multicollinearity

Multicollinearity is present when multiple independent variables in a model are correlated, leading to less reliable results (Keith, 2019). Multicollinearity was assessed using tolerance and variance inflation factor (VIF) values. A small amount of multicollinearity was detected between the variables Self-esteem (tolerance ranging from .346 to .458) and Negative Emotionality (tolerance ranging from .323 to .451). This was expected given the correlation between Self-esteem and Negative Emotionality, $r = -0.73, p < .001$.

Descriptive Statistics

Disability Status

Using the Washington Group Short Set on Functioning, participants ranked the level of difficulty they had performing specific tasks (see Appendix O). The scale has six response options: no difficulty, some difficulty, a lot of difficulty, cannot do at all, refuse to answer, and don't know. The purpose of this questionnaire was to assess whether the participants had impairments that could be considered a disability, regardless of whether they self-identified as a person with a disability.

As can be seen in Table 4, there were some discrepancies between self-identifying as a person with a disability and having a disability. It was anticipated that only participants who identified as a person with a disability would select 'A lot of difficulty' and 'Cannot do at all'; however, this was not the case. Among the participants who indicated that they did *not* identify as a person with a disability, 11 participants indicated that they had a lot of difficulty seeing, even with glasses; four participants reported a lot of difficulty hearing, even with hearing aids; 21 participants indicated they had a lot of difficulty concentrating or could not concentrate at all; three participants reported a lot of difficulty with self-care; and seven participants reported a lot of difficulty communicating or that they could not communicate at all. The only category that did not have any participants who reported either 'A lot of difficulty' or 'Cannot do at all' was difficulty walking. Although there is a possibility that the participants who indicated that they do not identify as a person with a disability have impairments that could be considered a disability, this study focused on mobility disabilities. Given that participants who did *not* identify as a person with a disability did not report a large

degree of impairment when walking, it is unlikely that there were participants whose responses would be influenced by their own experiences as a person with a mobility disability who did not self-identify as a person with a disability.

Table 4*Washington Group Short Set on Functioning to Measure Disability*

	Does <i>not</i> identify as a person with disability (<i>n</i> = 225)		Identifies as a person with a disability (<i>n</i> = 56)		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Difficulty Seeing						
No difficulty	138	61.33	34	60.71	172	61.21
Some difficulty	76	33.78	20	35.71	96	34.16
A lot of difficulty	11	4.89	2	3.57	13	4.63
Cannot do at all	0	0.00	0	0.00	0	0.00
Refuse to answer	0	0.00	0	0.00	0	0.00
Don't know	0	0.00	0	0.00	0	0.00
Difficulty Hearing						
No difficulty	189	84.38	35	62.50	224	80.00
Some difficulty	28	12.50	19	33.93	47	16.79
A lot of difficulty	4	1.79	2	3.57	6	2.14
Cannot do at all	0	0.00	0	0.00	0	0.00
Refuse to answer	0	0.00	0	0.00	0	0.00
Don't know	3	1.34	0	0.00	3	1.07
Difficulty Walking						
No difficulty	207	92.41	23	41.07	230	82.14
Some difficulty	15	6.70	21	37.50	36	12.86
A lot of difficulty	0	0.00	8	14.29	8	2.86
Cannot do at all	0	0.00	4	7.14	4	1.42
Refuse to answer	0	0.00	0	0.00	0	0.00
Don't know	2	0.89	0	0.00	2	0.71
Difficulty Concentrating						
No difficulty	73	32.44	10	17.86	83	29.54
Some difficulty	130	57.78	24	42.86	154	54.80
A lot of difficulty	20	8.89	21	37.50	41	14.59
Cannot do at all	1	0.44	0	0.00	1	0.36
Refuse to answer	1	0.44	0	0.00	1	0.36
Don't know	0	0.00	1	1.79	1	0.36
Difficulty with Self-Care						
No difficulty	207	92.00	25	44.64	232	82.56
Some difficulty	14	6.22	22	39.29	36	12.81
A lot of difficulty	3	1.33	7	12.50	10	3.56
Cannot do at all	0	0.00	2	3.57	2	0.71
Refuse to answer	0	0.00	0	0.00	0	0.00
Don't know	1	0.44	0	0.00	1	0.36
Difficulty Communicating						
No difficulty	145	64.73	29	51.79	174	62.14
Some difficulty	69	30.80	22	39.29	91	32.50
A lot of difficulty	6	2.68	5	8.93	11	3.93
Cannot do at all	1	0.45	0	0.00	1	0.36
Refuse to answer	1	0.45	0	0.00	1	0.36
Don't know	2	0.89	0	0.00	2	0.71

The mean scores for the scales used in this study were also categorized by the self-identified disability status of participants. The mean scores and standard deviations for all relevant variables are presented in Table 5. T-tests were conducted to determine if there were any statistically significant differences between participants who reported they identified as a person with a disability and participants who reported they did *not* identify as a person with a disability. Among the BFI-2-S subscales, no significant differences were detected for the Open-Mindedness subscale, the Extraversion subscale, or the Agreeableness subscale (see Table 5); however, there were statistically significant differences detected for the Conscientiousness subscale and the Negative Emotionality subscale, with small to moderate effect sizes. This indicates that, compared to individuals who did *not* report a disability, those who reported a disability had lower Conscientiousness and higher Negative Emotionality.

T-tests were also conducted to determine if there were any statistically significant differences among the psychological resources of participants who reported they did or did *not* identify as a person with a disability. Statistically significant differences were noted for all three psychological resources (see Table 5). More specifically, there were significant differences between participants who reported they identified as a person with a disability and participants who reported they did *not* identify as a person with a disability for Social Dominance Orientation, Self-Esteem, and Contact, with small to large effect sizes. This indicates that, compared to individuals who did not report a disability, those who reported a disability had lower Social Dominance Orientation and Self-Esteem and higher degrees of previous contact with people with disabilities.

T-tests were used to determine if there were statistically significant differences in the attitudes towards people with disabilities between participants who reported they identified as a person with a disability and participants who reported they did *not* identify as a person with a disability. These differences were assessed for the three subscales of the MAS (the affective, cognitive, and behavioural subscales) for the two different gender conditions (the female “Michelle” group and the male “Joseph” group) and the three different mobility aid conditions (the unspecified mobility aid condition, the cane condition, and the manual wheelchair condition).

For the unspecified mobility aid condition, there were no statistically significant differences between participants who did and did *not* identify as a person with a disability for any of the subscales for either the female “Michelle” group or the male “Joseph” group. Similarly, for the cane condition no statistically significant differences were detected between the participants who did and did *not* identify as a person with a disability for any of the subscales for either the female “Michelle” group or the male “Joseph” group. For the manual wheelchair condition, no significant differences were detected between the participants who did and did *not* identify as a person with a disability for any of the subscales for either the female “Michelle” group; however, for the male “Joseph” group, statistically significant differences were detected between participants who did and did *not* identify as a person with a disability for the affective domain. This finding indicates that compared to participants who did *not* self-identify as a person with a disability, participants with a disability reported that a man observing a person using a wheelchair would have more negative affective attitudes. With a mean difference of -4.49, participants who did *not* self-identify as persons with a disability

reported Joseph would experience fewer negative affective attitudes than participants with a disability reported Joseph would experience.

T-tests were also conducted to determine if there were significant differences between the participants who reported they identified as a person with a disability and the participants who reported they did *not* identify as a person with a disability for the perceived competence and perceived warmth measures for the three different mobility aid conditions (the unspecified mobility aid condition, the cane condition, and the manual wheelchair condition). For the perceived competence measure, no statistically significant differences were detected between the participants who identified as a person with a disability and the participants who did *not* identify as a person with a disability for the unspecified mobility aid condition; however, for the cane condition a statistically significant difference was detected between the participants who identified as a person with a disability and the participants who did *not* identify as a person with a disability. This indicates that, compared to individuals who did not report a disability, those who self-identified as persons with a disability reported lower competence associated with a person using a cane. For the manual wheelchair condition, there was not a statistically significant difference detected between participants who identified as a person with a disability and participants who did *not* identify as a person with a disability.

For the perceived warmth measure, statistically significant differences between participants who identified as a person with a disability and participants who reported they did *not* identify as a person with a disability were detected for the unspecified mobility aid condition, the cane condition, and the manual wheelchair condition. This indicates that, compared to individuals who did not report a disability, those who self-

identified as persons with a disability reported lower warmth associated with a person using an unspecified mobility aid, a cane, or a manual wheelchair.

Thus, overall, the t-tests to assess the differences between participants who identified as a person with a disability and participants who did *not* identify as a person with a disability revealed a number of statistically significant differences; as expected, the largest effect size was detected for Contact ($d = -.876$). More specifically, statistically significant differences were detected for the BFI-2-S Conscientiousness subscale, the BFI-2-S Negative Emotionality subscale, Social Dominance Orientation, Self-Esteem, Contact, the affective subscale of attitudes that participants reported a male “Joseph” would experience when observing a person using a manual wheelchair, perceived competence of a person using a cane, and perceived warmth of a person using an unspecified mobility aid, a cane, and a manual wheelchair. Due to the number of differences detected based on self-identification as a person with a disability, the two groups (persons with a disability and persons without a disability) were assessed separately, when appropriate.

Table 5
Means Scores and Standard Deviations Across Each Scale for all Participants

	Does <i>not</i> identify as a person with disability (<i>n</i> = 225)		Identifies as a person with a disability (<i>n</i> = 56)		<i>t</i>	<i>d</i>
	Mean	SD	Mean	SD		
BFI-2-S						
Open-Mindedness	21.90	4.46	23.21	4.87	1.934	.289
Conscientiousness	21.48	4.21	19.18	5.13	3.494 ***	.522
Extraversion	18.63	4.80	17.29	4.97	1.857	.277
Agreeableness	23.47	3.64	24.20	3.85	1.328	.198
Negative Emotionality	18.58	5.53	20.40	5.84	2.172 *	.324
Psychological Resources						
SDO ₇	32.71	15.50	28.44	11.49	2.308 *	.289
Self-Esteem	28.39	5.91	25.77	5.90	2.968 **	.443
Contact	48.47	14.33	61.30	15.87	5.869 ***	.876
Attitudes						
Unspecified mobility aid						
MAS: Michelle						
Affective domain	38.99	9.11	40.05	11.28	.499	.111
Cognitive domain	22.85	7.51	20.44	7.12	1.458	.323
Behavioural domain	17.17	5.14	19.21	5.86	1.747	.387
MAS: Joseph						
Affective domain	37.16	10.07	40.48	10.16	1.626	.329
Cognitive domain	20.17	7.20	22.90	7.36	1.870	.378
Behavioural domain	16.43	5.24	17.10	5.06	.634	.128
Cane						
MAS: Michelle						
Affective domain	37.71	9.61	39.47	12.93	.641	.171
Cognitive domain	22.65	7.97	22.56	7.04	.051	.011
Behavioural domain	16.97	5.02	18.84	6.44	1.359	.352
MAS: Joseph						
Affective domain	35.84	9.85	37.54	10.04	.849	.172
Cognitive domain	20.75	7.24	22.16	6.94	.974	.197
Behavioural domain	16.30	5.43	18.35	5.79	1.846	.374
Manual wheelchair						
MAS: Michelle						
Affective domain	38.75	9.93	39.44	13.14	.295	.065
Cognitive domain	22.23	7.64	21.88	7.15	.208	.046
Behavioural domain	16.81	4.95	18.48	5.84	1.475	.327
MAS: Joseph						
Affective domain	36.74	10.53	41.23	11.82	2.053 *	.415
Cognitive domain	20.49	7.35	21.77	6.69	.875	.177
Behavioural domain	16.07	5.14	17.97	5.38	1.807	.366
Perceived Competence						
Unspecified mobility aid	13.40	4.44	12.25	4.22	1.745	.261
Cane	15.65	3.77	14.46	4.34	2.049 *	.306
Manual wheelchair	14.44	4.29	13.09	5.15	1.811	.302
Perceived Warmth						
Unspecified mobility aid	13.88	3.01	12.66	3.18	2.691 **	.402
Cane	14.17	2.91	12.73	3.26	3.229 **	.482
Manual wheelchair	14.32	2.92	12.98	3.44	2.968 **	.443

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. SDO₇ = Social Dominance Orientation.

Hypothesis 1: The Effects of Gender on Attitudes

Hypothesis 1 predicted that the difference in the attitudes towards people with disabilities using different types of mobility aids due to the gender of the participant would *not* be a statistically significant. Due to the statistically significant differences according to the disability status of participants (see Table 5), only participants who did not self-identify as a person with a disability were included in this analysis. A three-way mixed measures ANOVA was used to assess the combined effect of the participant gender (between subjects, male versus female), the gender of the person interacting with the person with a disability in the scenario (between subjects, female “Michelle” or male “Joseph”), and the attitudes towards the three different mobility aid conditions (within subjects, unspecified mobility aid, cane, and manual wheelchair).

Table 6

Within-Subjects and Between-Subjects Effects for Gender and Attitudes

	<i>F</i>	<i>p</i>	η_p^2
Within-Subjects Effects			
Mobility Aid	0.334	.700	.002
Mobility Aid x Gender	1.125	.322	.005
Mobility Aid x MAS: Michelle or MAS: Joseph	0.658	.507	.003
Mobility Aid x Gender x MAS: Michelle or MAS: Joseph	0.519	.582	.002
Between-Subjects Effects			
Intercept	2311.722	< .001	.915
Gender	1.129	.289	.005
MAS: Michelle or MAS: Joseph	4.482	.035	.020
Gender x MAS: Michelle or MAS: Joseph	0.618	.433	.003

Note. Mobility Aid = the three different mobility aid conditions; Gender = gender of the participant; MAS: Michelle or MAS: Joseph = the female “Michelle” group or the male “Joseph” group.

As can be seen in Table 6, the within-subjects effects for the different mobility aid conditions as well as the interactions between the mobility aid conditions, the gender

of the participants, and the gender of the person interacting with the individual with a disability who was using the mobility aids were not statistically significant, which supports Hypothesis 1. The between-subjects effect for the differences across the female “Michelle” conditions, $M = 77.98$, $SD = 16.10$, and the male “Joseph” conditions, $M = 73.31$, $SD = 17.58$, were statistically significant. This finding suggests that, overall, the attitudes reported in the female “Michelle” group were more negative than the attitudes reported in the male “Joseph” group. Therefore, although the gender of the participants did not result in statistically significant attitudinal differences, the gender of the person interacting with the individual using the mobility aid did influence attitudes.

The measure of effect size used for the power analysis for Hypothesis 1 was Cohen’s f . Cohen’s $f = 0.01$ indicates a small effect size, $f = 0.25$ indicates a medium effect size, and $f = 0.40$ indicates a large effect size. An a priori power analysis indicated that to achieve a power level of 0.80 to detect a medium effect size ($f = 0.25$) for the interaction between the attitudes towards the three mobility aid conditions and participant gender, it was necessary to recruit a minimum of 158 participants. In order to detect a small effect ($f = 0.01$) a substantially larger sample size would be required ($n = 96,350$), which this current study did not have. As a result, although the null hypothesis was not rejected based on the non-significant p -value, only medium and large effect sizes can be reliability detected; small effect sizes may still be undetected due to a lack of power.

Hypothesis 2: The Effects of Gender on Stereotypes

Hypothesis 2 predicted that the stereotypes associated with people with disabilities using different types of mobility aids due to the gender of the participant

would *not* differ. Two two-way mixed measures ANOVAs were used to assess the interactions of the participant gender (between subjects, male versus female) and the perceived warmth and perceived competence associated with the three different mobility aid conditions (within subjects, unspecified mobility aid, cane, and manual wheelchair). Due to the statistically significant differences according to the disability status of participants (see Table 5), only participants who did not self-identify as a person with a disability were included in this analysis.

Table 7

Within-Subjects Effects and Between-Subjects Effects for Gender and Stereotypes

	<i>F</i>	<i>p</i>	η_p^2
Perceived Warmth			
Within-Subjects Effects			
Mobility Aid	0.589	.533	.003
Mobility Aid x Gender	1.038	.347	.005
Between-Subjects Effects			
Intercept	3281.718	< .001	.938
Gender	0.039	.843	.000
Perceived Competence			
Within-Subjects Effects			
Mobility Aid	27.380	< .001	.112
Mobility Aid x Gender	0.292	.740	.001
Between-Subjects Effects			
Intercept	1688.519	< .001	.886
Gender	0.715	.399	.003

Note. Mobility Aid = the three different mobility aid conditions; Gender = gender of the participant.

As can be seen in Table 7, there were no statistically significant within-subjects effects detected for the different mobility aid conditions or for the interaction between the different mobility aid conditions and the gender of the participant for the perceived warmth measure. Similarly, there was not a statistically significant between-subjects effect detected for gender. These findings indicate no statistically significant differences

in perceived warmth due to the gender of the participant or the type of mobility aid being used, confirming Hypothesis 2.

Unlike the perceived warmth measure, there was a statistically significant within-subjects effect detected for the different mobility aid conditions for the measure of perceived competence. Pairwise comparisons between the three mobility aid conditions showed significant differences between all three of the mobility aid conditions, with the highest degree of competence associated with the person using a cane, $M = 15.72$, $SD = 3.77$, followed by the person using a manual wheelchair, $M = 14.51$, $SD = 4.30$, and the person using an unspecified mobility aid, $M = 13.46$, $SD = 4.47$. There were no statistically significant within-subjects or between-subjects effects due to the gender of the participant. Therefore, overall, there were no statistical significances in the perceived warmth or perceived competence between mobility aid conditions due to gender, supporting Hypothesis 2; however, perceived competence was found to be statistically different across mobility aid conditions.

The measure of effect size used in the power analysis for Hypothesis 2 was also Cohen's f . The a priori power analysis indicated that to achieve a power level of 0.80 to detect a medium effect size ($f = 0.25$) for the interaction between the perceived warmth and perceived competence associated with the three mobility aid conditions and participant gender, it was necessary to recruit a minimum of 158 participants. To detect a small effect ($f = 0.01$) a much larger sample size would be required ($n = 96,350$). Although the null hypothesis was not rejected based on the non-significance of the p -value, only medium and large effect sizes can be reliably detected; therefore, small effect sizes may be undetected for Hypothesis 2 as well.

Hypothesis 3: The Effects of Age on Attitudes

It was proposed that the attitudes towards the various types of mobility aid users would *not* vary according to the age of the participants. Given the uneven distribution of ages, a two-way ANOVA could not be conducted as proposed. Instead, correlational analyses were conducted to assess the relationship between the attitudes associated with different mobility aid conditions, the age of the participant, and the gender of the person interacting with the individual using a mobility aid (see Table 8). Due to the statistically significant differences according to the disability status of participants (see Table 5), only participants who did not self-identify as a person with a disability were included in this analysis.

Table 8

Correlations Between Age and Attitudes

	Age	
	<i>r</i>	<i>p</i>
Mobility Aid		
Unspecified Mobility Aid	-.066	.326
Cane	-.132	.048
Manual Wheelchair	-.068	.312
Gender in scenario		
MAS: Michelle or MAS: Joseph	.052	.440
Mobility Aid x Gender in scenario		
Unspecified Mobility Aid x MAS: Michelle or MAS: Joseph	.018	.783
Cane x MAS: Michelle or MAS: Joseph	-.024	.716
Manual Wheelchair x MAS: Michelle or MAS: Joseph	.020	.762

The relationships between the attitudes associated with the unspecified mobility aid condition and age were not statistically significant. The relationship between age and the attitudes associated with a person using a cane was statistically negatively correlated, in which being younger was associated with more negative attitudes. The relationship between age and the gender of the person interacting with the individual using a

mobility aid was not statistically significant. These findings suggest that the attitudes towards a person using a cane and the participant's age were correlated, providing partial support for Hypothesis 3.

The measure of effect size used in the power analysis for Hypothesis 3 was Cohen's q . Cohen's $q = 0.10$ indicates a small effect size, $q = 0.30$ indicates a medium effect size, and $q = 0.50$ indicates a large effect size. An a priori power analysis indicated that to achieve a power level of 0.80 to detect a medium effect size ($q = 0.30$) for the correlation between the attitudes towards the three mobility aid conditions and participant age, it was necessary to recruit a minimum of 178 participants. In order to detect a small effect ($q = 0.01$) a substantially larger sample size would be required ($n = 1573$), which this current study did not have. A post-hoc power analysis indicated that to detect a small effect size ($q = 0.10$) given the sample size in the current study, the analysis was underpowered with a power level of 0.184; however, a medium effect size ($q = 0.30$) could be detected with a power level of 0.885. As a result, Hypothesis 3 failed to confirm at least a medium effect.

Hypothesis 4: The Effects of Age on Stereotypes

It was proposed that the stereotypes associated with the various types of mobility aid users would *not* vary according to the age of the participants. Given the uneven distribution of ages, a two-way ANOVA could not be conducted as proposed. Instead, correlation analyses were conducted to assess the relationship between the stereotypes associated with different mobility aid conditions and the age of the participant. Stereotypes were measured using the perceived warmth and perceived competence measures (see Table 9). Due to the statistically significant differences according to the

disability status of participants (see Table 5), only participants who did not self-identify as a person with a disability were included in this analysis.

Table 9

Correlations Between Age and Stereotypes

	Age	
	<i>r</i>	<i>p</i>
Perceived Warmth		
Unspecified Mobility Aid	-.033	.626
Cane	-.029	.670
Manual Wheelchair	-.118	.077
Perceived Competence		
Unspecified Mobility Aid	.113	.091
Cane	.069	.303
Manual Wheelchair	.102	.129

The relationship between the perceived warmth associated with the unspecified mobility aid condition, the cane condition, and the manual wheelchair condition and age were not statistically significant. Similarly, the relationship between the perceived competence associated with the unspecified mobility aid condition, the cane condition, and the manual wheelchair with age were not statistically significant. These findings suggest that age does not have a statistically significant relationship with the stereotypes associated with mobility aid users, providing support for Hypothesis 4.

The measure of effect size used in the power analysis for Hypothesis 4 was Cohen's *q*. An a priori power analysis indicated that to achieve a power level of 0.80 to detect a medium effect size ($q = 0.30$) for the correlation between the level of perceived warmth associated with the three mobility aid conditions and participant age and the correlation between the level of perceived competence associated with the three mobility aid conditions and participant age it was necessary to recruit a minimum of 178 participants. In order to detect a small effect ($q = 0.01$) a substantially larger sample size

would be required ($n = 1573$), which this current study did not have. A post-hoc power analysis indicated that to detect a small effect size ($q = 0.10$) given the sample size in the current study, the analysis was underpowered with a power level of 0.184; however, a medium effect size ($q = 0.30$) could be detected with a power level of 0.885. Thus, Hypothesis 4 failed to confirm at least a medium effect.

Hypothesis 5 – Hypothesis 9: The Influence of Personality

The effects of personality were assessed by conducting correlational analyses between the five BFI-2-S personality subscales and the attitudes participants reported would be experienced by either the female “Michelle” or male “Joseph” interacting with a person using each of the mobility aids (unspecified mobility aid, a cane, or a manual wheelchair). Fisher’s r to z scores were calculated to assess differences in correlation strength between the participants who responded to the female “Michelle” condition and participants who responded to the male “Joseph” condition (see Table 10). For these hypotheses, only participants who did *not* identify as having a disability were included. There were five hypotheses underlying the relationships between personality and the attitudes towards people with disabilities.

Hypothesis 5 predicted that as BFI-2-S Open-Mindedness increased, the scores on the MAS, which assesses negative attitudes towards people with disabilities, would decrease. There was a statistically significant correlation between BFI-2-S Open-Mindedness and the unspecified mobility aid and cane for the male “Joseph” condition. These results suggest that as BFI-2-S Open-Mindedness increased, the negative attitudes that participants believed would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid or a cane decreased. The correlations between

BFI-2-S Open-Mindedness and the attitudes participants reported would be experienced by the female “Michelle” for the unspecified mobility aid, cane, and manual wheelchair conditions were not statistically significant. Fisher’s r to z transformation were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. Overall, results provided partial support for the hypothesis.

Hypothesis 6 predicted that the relationship between BFI-2-S Conscientiousness and the scores on the MAS would *not* be statistically significant. There was a statistically significant correlation between BFI-2-S Conscientiousness and the attitudes participants reported the female “Michelle” would experience when interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair. There was also a statistically significant relationship between BFI-2-S Conscientiousness and the attitudes participants reported the male “Joseph” would experience when interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair. These findings suggest that regardless of the mobility aid being used or the gender of the person interacting with the individual with a disability, as BFI-2-S Conscientiousness increased, the negative attitudes towards the person with a disability decreased. Fisher’s r to z transformation were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. Given this pattern of correlations, Hypothesis 6 was not supported.

Hypothesis 7 predicted that as BFI-2-S Extraversion increased, the scores on the MAS would decrease. The correlations between BFI-2-S Extraversion and the attitudes

participants reported would be experienced by the female “Michelle” interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair were not statistically significant. Additionally, the correlations between BFI-2-S Extraversion and the attitudes participants reported would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair were not statistically significant. Fisher’s r to z transformation were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. These findings suggest that the relationship between BFI-2-S Extraversion and the attitudes towards the mobility aid users described in the scenarios were not statistically significant. Thus, Hypothesis 7 was not supported.

Hypothesis 8 predicted that as BFI-2-S Agreeableness increased, the scores on the MAS would decrease. There was a statistically significant correlation between BFI-2-S Agreeableness and the attitudes participants reported would be experienced by the female “Michelle” interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair. There was also a statistically significant relationship between BFI-2-S Agreeableness and the attitudes participants reported would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid, a cane, or a manual wheelchair. Fisher’s r to z transformation were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. These findings indicate that regardless of the mobility aid being used or the gender of the person interacting with the individual using the mobility aid, as BFI-2-S Agreeableness

increased, the negative attitudes towards the person with a disability decreased, supporting Hypothesis 8.

Hypothesis 9 predicted that as BFI-2-S Negative Emotionality increased, the scores on the MAS would also increase. There was a statistically significant correlation between BFI-2-S Negative Emotionality and the attitudes participants reported would be experienced by the female “Michelle” interacting with a person using an unspecified mobility aid or a manual wheelchair. There was also a statistically significant relationship between BFI-2-S Negative Emotionality and the attitudes participants reported would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid. Fisher’s r to z transformation were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. These findings suggest that as BFI-2-S Negative Emotionality increased the negative attitudes that would be experienced by the female “Michelle” interacting with a person using an unspecified mobility aid or a manual wheelchair or the attitudes that would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid also increased, providing partial support for Hypothesis 9.

Table 10*Correlations Between Attitudes Towards Mobility Aid Users and Personality Traits*

	Open-Minded	Conscientious	Extraversion	Agreeableness	Negative Emotionality
Unspecified					
Mobility Aid					
MAS: Michelle	-.050	-.248**	-.146	-.278**	.194*
MAS: Joseph	-.200*	-.291**	-.171	-.341***	.207*
Fisher's <i>r</i> to <i>z</i>	1.13	0.34	0.19	0.52	-0.10
Cane					
MAS: Michelle	-.013	-.228*	-.133	-.222*	.156
MAS: Joseph	-.200*	-.271**	-.048	-.348***	.131
Fisher's <i>r</i> to <i>z</i>	1.4	0.34	-0.63	1.02	0.19
Manual Wheelchair					
MAS: Michelle	-.011	-.280**	-.187	-.302**	.211*
MAS: Joseph	-.106	-.213*	-.080	-.339***	.115
Fisher's <i>r</i> to <i>z</i>	0.71	-0.53	-0.81	0.31	0.73

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Hypotheses 10 – 12: The Influence of Psychological Resources

To assess the relationship between the three psychological resources (Social Dominance Orientation, Self-Esteem, and Contact) and the attitudes towards people with disabilities, Pearson's correlation coefficients were used (see Table 11). Fisher's *r* to *z* values were calculated to compare the strength of the correlations between the participants who responded to the female "Michelle" condition and the participants who responded to the male "Joseph" condition. For these hypotheses, only participants who did *not* identify as having a disability were included.

Table 11*Correlations Between Attitudes Towards Mobility Aids and Psychological Resources*

	Social Dominance Orientation	Self-Esteem	Contact
Unspecified Mobility Aid			
MAS: Michelle	.390^{***}	-.203[*]	-.063
MAS: Joseph	.216[*]	-.264^{**}	-.002
Fisher's <i>r</i> to <i>z</i>	1.42	0.48	-0.45
Cane			
MAS: Michelle	.398^{***}	-.135	-.072
MAS: Joseph	.382^{***}	-.199[*]	-.033
Fisher's <i>r</i> to <i>z</i>	0.14	0.49	-0.29
Manual Wheelchair			
MAS: Michelle	.458^{***}	-.211[*]	-.052
MAS: Joseph	.329^{***}	-.199[*]	.049
Fisher's <i>r</i> to <i>z</i>	1.13	-0.09	-0.75

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Hypothesis 10 predicted that as Social Dominance Orientation increased, the scores on the MAS would increase. There was a statistically significant correlation between Social Dominance Orientation and the unspecified mobility aid, cane, and manual wheelchair for the “female” Michelle condition. For the male “Joseph” condition, there was a statistically significant relationship between Social Dominance Orientation and the MAS unspecified mobility aid, cane, and manual wheelchair conditions. Fisher's *r* to *z* transformations were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. These findings suggested that as Social Dominance Orientation scores increased, the negative attitudes towards people with disabilities also increased, regardless of the mobility aid being used

or the gender of the person interacting with the individual using the mobility aid. Thus, Hypothesis 10 was supported.

Hypothesis 11 predicted that as Self-Esteem increased, the scores on the MAS would decrease. There was a statistically significant correlation between Self-Esteem and the MAS unspecified mobility aid and manual wheelchair for the Michelle condition. For the male “Joseph” condition, there was a statistically significant relationship between Self-Esteem and the MAS unspecified mobility aid, cane, and manual wheelchair conditions. Fisher’s r to z transformations were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. These findings suggest that as Self-Esteem increased, the negative attitudes towards people with disabilities decreased for all of the conditions except for the negative attitudes experienced by the female “Michelle” interacting with a person using a cane. Thus, Hypothesis 11 was partially supported.

Hypothesis 12 predicted that as Contact increased, the scores on the MAS would decrease. There were no statistically significant correlations between Contact and the MAS unspecified mobility aid, cane, or manual wheelchair conditions for the Michelle condition. Additionally, for the male “Joseph” condition, there were no statistically significant relationships detected between Contact and the unspecified mobility aid, cane, and manual wheelchair conditions. Fisher’s r to z transformations were used to assess differences in the magnitude of the correlations and results indicated no differences in the strength of the correlations for the male “Joseph” and female “Michelle” conditions. Based on these results, Hypothesis 12 was not supported.

Hierarchical Regressions to Assess Potential Predictor Variables

The purpose of conducting these analyses were to determine which variables were statistically significant predictors in the models predicting the attitudes towards people with disabilities using specific mobility aids. For these hypotheses, only participants who did not identify as having a disability were included. Six hierarchical regressions were conducted. For each hierarchical regression, Block 1 included the demographic variables age, gender, ethnicity, and highest education level achieved. The age variable was added as a continuous variable due to the uneven distribution of ages among the participants. Gender was dummy coded as female (0) or male (1). Ethnicity was dummy coded as Caucasian (0) or other (1). Block 2 included the five BFI-2-S subscales, Open-Mindedness, Conscientiousness, Extraversion, Agreeableness, and Negative Emotionality. Block 3 included the psychological resources Social Dominance Orientation and Self-Esteem. Lastly, Block 4 included the variable Contact.

MAS: Michelle and the Unspecified Mobility Aid Condition

The first model assessed the ability to predict the attitudes that would be experienced by the female “Michelle” interacting with a person using an unspecified mobility aid. The overall model was statistically significant and accounted for 29.1% of the variability, $F(12, 95) = 3.25, p < .001$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the negative attitudes experienced by the female “Michelle” interacting with a person using an unspecified mobility aid. Block 2 was statistically significant and accounted for approximately 11.4% of the variability. Upon closer examination of this significant block, none of the individual Big Five personality traits added in Block 2

were significant predictors, although the significant BFI-2-S Agreeableness was only slightly below the cutoff, $p = .057$. Block 3 also made a statistically significant contribution to the model and explained approximately 13.9% of the variability in the model; further, Social Dominance Orientation was a significant predictor. More specifically, higher scores in Social Dominance Orientation predicted more negative attitudes experienced by the female “Michelle” interacting with a person using an unspecified mobility aid. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

MAS: Female and the Cane Condition

The second model assessed the ability to predict the attitudes towards female “Michelle” using a cane. The overall model was statistically significant and accounted for 28.0% of the variability, $F(12, 95) = 3.07, p = .001$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the attitudes experienced by the female “Michelle” interacting with a person using a cane. Block 2 was not statistically significant, indicating that the BFI-2-S personality subscales did not contribute to the model predicting the attitudes experienced by the female “Michelle” interacting with a person using a cane. Block 3 made a significant contribution and accounted for approximately 15.7% of the variability in the model. Upon closer examination of Block 3, Social Dominance Orientation was found to be a significant predictor, which indicated that higher scores in Social Dominance Orientation predicted more negative attitudes experienced by the female “Michelle” interacting with a person using a cane. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

MAS: Female and the Manual Wheelchair Condition

The third model assessed the ability to predict the attitudes experienced by the female “Michelle” interacting with a person using a manual wheelchair. The overall model was statistically significant and accounted for 40.1% of the variability, $F(12, 95) = 5.30, p < .001$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the attitudes experienced by the female “Michelle” interacting with a person using a cane. Block 2 was statistically significant and accounted for approximately 15.0% of the variability explained by the model. Upon closer examining of Block 2, only Agreeableness was a statistically significant predictor of the attitudes experienced by the female “Michelle” interacting with a person using a manual wheelchair. This finding suggested that higher scores in Agreeableness predicted more positive attitudes experienced by the female “Michelle” interacting with a person using a manual wheelchair. Similarly, Block 3 was statistically significant and accounted for approximately 20.5% of the variability explained by the model; further, Social Dominance Orientation was identified as a statistically significant predictor. This finding suggested that higher scores in Social Dominance Orientation predicted more negative attitudes experienced by the female “Michelle” interacting with a person using a manual wheelchair. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

MAS: Male and the Unspecified Mobility Aid Condition

The fourth model assessed the ability to predict the attitudes experienced by the male “Joseph” interacting with a person using an unspecified mobility aid. The overall model was statistically significant and accounted for 24.5% of the variability, $F(12, 98)$

= 2.65, $p = .004$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the attitudes experienced by the male “Joseph” interacting with a person using an unspecified mobility aid. Block 2 was statistically significant and explained approximately 13.7% of the variability in the model; further, Agreeableness was identified as a statistically significant predictor. More specifically, higher scores in Agreeableness predicted more positive attitudes experienced by the male “Joseph” interacting with a person using an unspecified mobility aid. Block 3 was not statistically significant, indicating that neither Social Dominance Orientation nor Self-Esteem contributed to the model. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

MAS: Male and the Cane Condition

The fifth model assessed the ability to predict the attitudes experienced by the male “Joseph” interacting with a person using a cane. The overall model was statistically significant and accounted for 28.3% of the variability, $F(12, 98) = 3.23, p < .001$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the attitudes experienced by the male “Joseph” interacting with a person using a cane. Block 2 was statistically significant and contributed approximately 14.2% of the variability in the model; further, BFI-2-S Agreeableness was identified as a statistically significant predictor for the model. This finding suggested that higher scores in Agreeableness predicted more positive attitudes experienced by the male “Joseph” interacting with a person using a cane. Block 3 was also statistically significant and accounted for approximately 9.9% of the variability explained by the model. For Block 3, Social Dominance Orientation was a statistically

significant predictor, which suggested that higher scores in Social Dominance Orientation predicted more negative attitudes experienced by the male “Joseph” interacting with a person using a cane. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

MAS: Male and the Manual Wheelchair Condition

The sixth model assessed the ability to predict the attitudes experienced by the male “Joseph” interacting with a person using a manual wheelchair. The overall model was statistically significant and accounted for 23.2% of the variability, $F(12, 98) = 2.47$, $p = .007$ (see Table 12). Block 1 was not statistically significant, indicating that the demographic variables did not contribute to the model predicting the attitudes experienced by the male “Joseph” interacting with a person using a manual wheelchair. Block 2 was not statistically significant, which indicated that the BFI-2-S subscales did not contribute to the model. Block 3 was statistically significant and explained approximately 9.2% of the variability explained by the model. Closer examination of Block 3 showed that Social Dominance Orientation was a statistically significant predictor for the model, which suggested that higher scores in Social Dominance Orientation predicted more negative attitudes experienced by the male “Joseph” interacting with a person using a manual wheelchair. Block 4 was not statistically significant, indicating that Contact did not contribute to the model.

Overall, the two variables that emerged as significant predictors in the models were BFI-2-S Agreeableness and Social Dominance Orientation. Agreeableness was identified as a significant predictor for the attitudes participants reported would be experienced by the female “Michelle” interacting with a person using a manual

wheelchair condition as well as the attitudes participants reported would be experienced by the male “Joseph” interacting with a person using an unspecified mobility aid or a cane. In each of these cases, higher scores in Agreeableness predicted fewer negative attitudes when interacting with the person with a disability described in the scenario. Social Dominance Orientation was consistently identified as a significant predictor for each of the model except for the unspecified mobility aid condition for the male “Joseph” group. In each of the models, higher scores in Social Dominance Orientation predicted more negative attitudes towards the person described in the scenario.

Table 12*Summary of Hierarchical Regression Coefficients*

	Unspecified Mobility Aid		Cane		Manual Wheelchair	
	Michelle	Joseph	Michelle	Joseph	Michelle	Joseph
R²	29.1%	24.5%	28.0%	28.3%	40.1%	23.2%
BLOCK 1						
Constant	94.176 ^{***}	85.836 ^{***}	90.579 ^{***}	87.501 ^{***}	91.717 ^{***}	91.495 ^{***}
Age	0.032	-0.233	-0.165	-0.357	0.039	-0.314
Gender	-5.450	0.308	-6.418	-2.806	-6.666	-4.083
Education	-1.711	-1.841	1.002	-0.217	-0.620	-0.919
Ethnicity	-4.311	-8.388	-3.440	-2.355	-4.540	-3.209
BLOCK 2						
Constant	119.754 ^{***}	132.696 ^{***}	110.002 ^{***}	133.895 ^{***}	117.259 ^{***}	130.311 ^{***}
BFI: Open-Mindedness	0.144	-0.670	0.400	-0.823	0.358	-0.360
BFI: Conscientiousness	-0.620	-0.396	-0.761	-0.549	-0.740	-0.243
BFI: Extraversion	-0.198	-0.172	-0.193	0.245	-0.305	0.027
BFI: Agreeableness	-0.923	-1.323^{**}	-0.691	-1.277[*]	-0.945[*]	-1.426[*]
BFI: Negative Emotionality	0.429	0.006	0.308	-0.089	0.467	-0.122
BLOCK 3						
Constant	97.523 ^{***}	116.663 ^{***}	72.743 ^{***}	109.659 ^{***}	84.663 ^{***}	107.343 ^{***}
SDO ₇	0.444^{***}	0.266[*]	0.495^{***}	0.414^{***}	0.527^{***}	0.413^{**}
Self-Esteem	-0.155	-0.120	0.173	-0.219	-0.013	-0.276
BLOCK 4						
Constant	97.147 ^{***}	115.979 ^{***}	72.333 ^{**}	109.312 ^{***}	84.190 ^{***}	105.074 ^{***}
Contact	0.141	0.054	0.154	0.028	0.178	0.181

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Michelle = the attitudes experienced by a female “Michelle” interacting with the mobility aid user; Joseph = the attitudes experienced by a male “Joseph” interacting with the mobility aid user.

Hypotheses 13 – 15: Attitudes Towards Mobility Aid Users

To examine the differences in the attitudes towards people with disabilities who use different types of mobility aids, mixed model ANOVAs were used. The gender of the person interacting with the individual using the mobility aid (female “Michelle” or male “Joseph”) was included as a between-subjects factor. Given that attitudes are

formed of three components (the affective, cognitive, and behavioural domains), each domain was assessed separately.

The Affective Domain

Hypothesis 13 predicted that scores across the negative affective component would be significantly different for the condition involving a person with a disability using a wheelchair compared with the condition involving a person with a disability using a cane and the unspecified mobility aid condition. To assess this hypothesis, the within-subjects main effect for the differences between the three mobility aid conditions was assessed (see Table 13). The interaction effects were also assessed to determine if there was a combined effect between the mobility aid conditions and the gender of the person interacting with the mobility aid user (female “Michelle” or male “Joseph”) on the affective attitude domain.

Table 13

Within-Subjects and Between-Subjects Effects for the Affective Attitudinal Domain

	<i>F</i>	<i>p</i>	η_p^2
Within-Subjects Effects			
Mobility Aid	4.935	.008	.022
Mobility Aid x MAS: Michelle or MAS: Joseph	0.025	.974	.000
Between-Subjects Effects			
Intercept	3794.267	< .001	.944
MAS: Michelle or MAS: Joseph	2.442	.120	.011

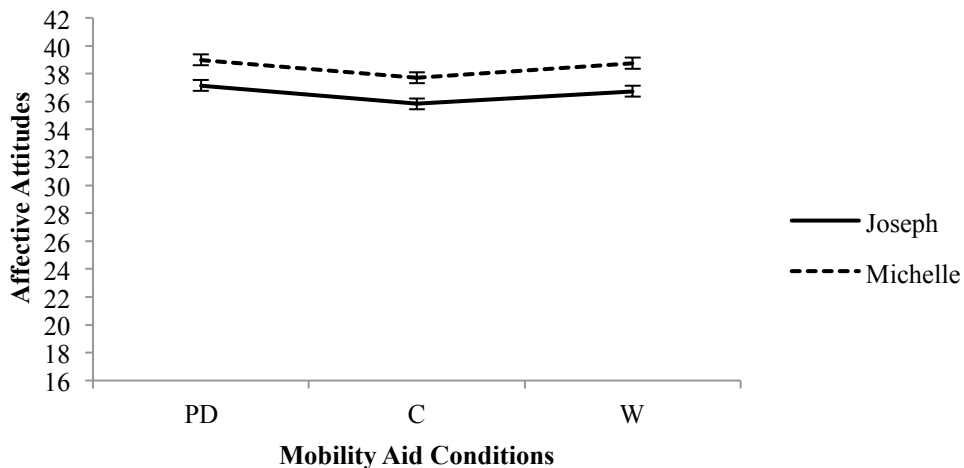
The within-subjects main effect for the different mobility aid conditions was statistically significant. Pairwise comparisons of the differences in affective attitudes between the three mobility aid conditions were conducted to analyze the statistically significant result further. A statistically significant pairwise comparison was detected between the unspecified mobility aid comparison and the cane condition, in which the

unspecified mobility aid condition, $M = 38.06$, $SD = 9.64$, resulted in more negative affective attitudes than the cane condition, $M = 36.76$, $SD = 9.76$. The remaining pairwise comparisons were not statistically significant (see Figure 3).

The tests of between-subjects effects were assessed to detect significant differences between participants the between-subjects factor of whether participants were assigned to the female “Michelle” group or the male “Joseph” group. For the affective domain, the between-subjects effect was not statistically significant for the between-subjects factor, indicating that there was not a statistically significant difference between the two groups for the affective domain. The interaction effect between the different mobility aid conditions and the gender of the person interacting with the individual using the mobility aid (Michelle or Joseph) was not statistically significant. Overall, this hypothesis was supported.

Figure 3

Mean Affective Attitude Scores Across Mobility Aid Conditions



Note. PD = unspecified mobility aid condition; C = cane condition; W = manual wheelchair condition.

The Cognitive Domain

Hypothesis 14 predicted that scores across the cognitive component would be significantly different for the condition involving a person with a disability using a wheelchair compared to the condition involving a person with a disability using a cane and the unspecified mobility aid condition. To assess this hypothesis, the within-subjects main effect for the differences between the three mobility aid conditions was assessed (see Table 14). The interaction effect was also assessed to determine if there was a combined effect between the mobility aid conditions and the gender of the person interacting with the individual using the mobility aid (Michelle or Joseph) on the cognitive attitude domain. The within-subjects main effect for the different mobility aid conditions was not statistically significant. The interaction between the mobility aid conditions and the gender of the person interacting with the individual using the mobility aid (Michelle or Joseph) was also not statistically significant. These findings indicated that there were not statistically significant differences between the three mobility aid conditions. Thus, this hypothesis was not supported.

Table 14

Within-Subjects and Between-Subjects Effects for the Cognitive Attitudinal Domain

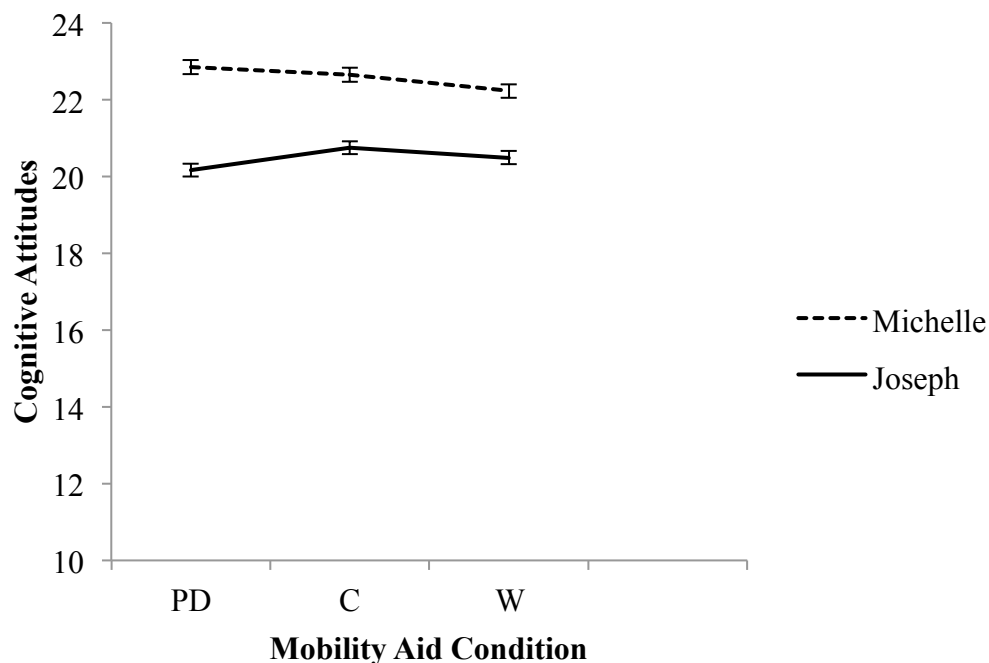
	<i>F</i>	<i>p</i>	η_p^2
Within-Subjects Effects			
Mobility Aid	0.549	.571	.002
Mobility Aid x MAS: Michelle or MAS: Joseph	1.209	.299	.005
Between-Subjects Effects			
Intercept	2163.043	< .001	.907
MAS: Michelle or MAS: Joseph	5.174	.024	.023

The tests of between-subjects effects were assessed for the cognitive domain to detect significant differences between participants (see Table 14). The between-subjects

effect was statistically significant for the gender of the person interacting with the individual using the mobility aid (Michelle or Joseph), suggesting that there were statistically significant differences between the attitudes experienced by the female “Michelle” and the attitudes experienced by male “Joseph” interacting with people using mobility aids (see Figure 4). The cognitive attitudes towards Michelle using a mobility aid, $M = 22.57$, $SD = 7.19$, were more negative than the attitudes towards Joseph using a mobility aid, $M = 20.47$, $SD = 6.69$.

Figure 4

Mean Cognitive Scores of Mobility Aid Conditions for the Michelle and Joseph Groups



Note. PD = unspecified mobility aid condition; C = cane condition; W = manual wheelchair condition.

The Behavioural Domain

Hypothesis 15 predicted scores across the behavioural component would be significantly different for the condition involving a person with a disability using a wheelchair compared to the condition involving a person with a disability using a cane and the unspecified mobility aid condition. To assess this hypothesis, the within-subjects main effect for the differences between the three mobility aid conditions were assessed (see Table 15). The interaction effect was also assessed to determine if there was a combined effect between the mobility aid conditions and the gender of the person interacting with an individual using the mobility aid (Michelle or Joseph) on the behavioural attitude domain. The within-subjects main effect for the different mobility aid conditions was not statistically significant. The tests of between-subjects effects were assessed to detect significant differences between participants for the between-subjects factor of whether participants were assigned to the female “Michelle” group or the male “Joseph” group. For the behavioural component, the between-subjects effect was not statistically significant, which indicated that there was not a statistically significant difference between the two groups for the behavioural domain. Additionally, the interaction effect between the different mobility aid conditions and the gender of the person interacting with the individual using the mobility aid (Michelle or Joseph) was not statistically significant. These findings indicate that there were not statistically significant differences on the behavioural domain detected between the three mobility aid conditions or between the combined effects for the different mobility aid conditions and the between-subjects variable. Overall, this hypothesis was not supported.

Table 15*Within-Subjects and Between-Subjects Effects for the Behavioural Attitudinal Domain*

	<i>F</i>	<i>p</i>	η_p^2
Within-Subjects Effects			
Mobility Aid	1.096	.330	.005
Mobility Aid x MAS: Michelle or MAS: Joseph	0.011	.983	.000
Between-Subjects Effects			
Intercept	2804.386	< .001	.926
Michelle or Joseph	1.302	.255	.006

Summary of Attitudes

Hypotheses 13 – 15 predicted there would be statistically significant differences between the three mobility aid conditions for the affective, cognitive, and behavioural domains, respectively. For the cognitive and behavioural domains, the attitudes towards the use of mobility aids were not statistically different across mobility aid conditions. For the cognitive model, statistically significant between-subjects effects were detected between the attitudes reported in the female “Michelle” group and the attitudes reported in the male “Joseph” group, in which the cognitive attitudes participants reported would experienced by the female “Michelle” group were more negative. Unlike the cognitive and behavioural domains, for the affective domain a statistically significant difference was detected for the three different mobility aid conditions, in which the unspecified mobility aid condition resulted in more negative attitudes than the cane condition, providing partial support for Hypothesis 13.

Hypotheses 16 and 17: Stereotypes Associated with Mobility Aid Users

To determine the differences in perceived warmth and perceived competence associated with the different mobility aid conditions, repeated-measures ANOVAs were

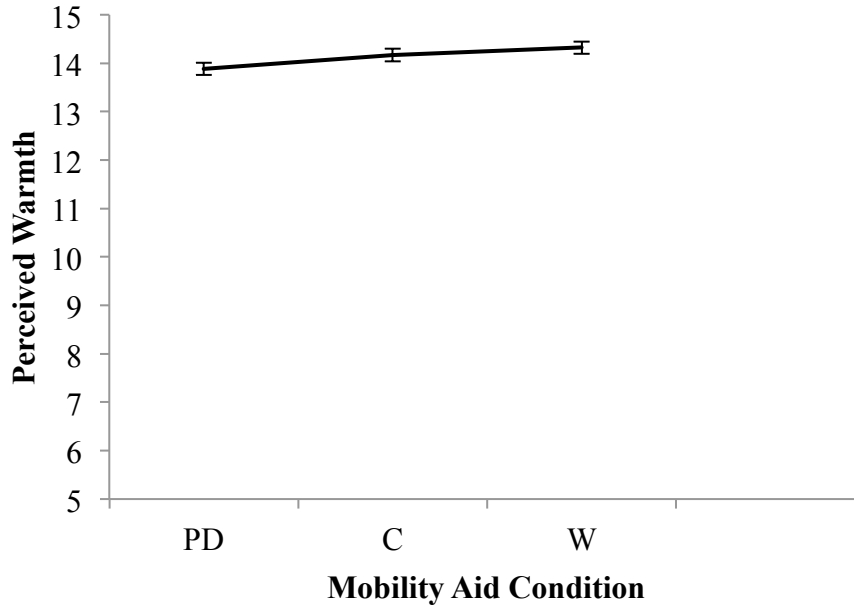
used to assess for differences across the mobility aid conditions for the perceived warmth and perceived competence measures.

Perceived Warmth

Hypothesis 16 predicted that the conditions that include specific mobility aids would produce lower levels of warmth compared to the unspecified mobility aid condition. To assess this hypothesis, the within-subjects effect of the difference in perceived warmth between mobility aid conditions was assessed. The within-subjects effect was statistically significant, $F = 4.174$, $p = .021$, with a small effect size, $\eta^2 = .018$. This finding suggests that there were statistical differences in perceived warmth due to the mobility aid being used. Pairwise comparisons were used to assess differences in perceived warmth between the three mobility aid conditions. A statistically significant difference was detected only between the unspecified mobility aid condition, $M = 13.88$, $SD = 3.01$, and the manual wheelchair, condition, $M = 14.32$, $SD = 2.92$, $p < .001$. As can be seen in Figure 5, the perceived warmth associated with a person using an unspecified mobility aid was statistically lower than the perceived warmth associated with a person using a manual wheelchair; however, there were statistically significant differences detected mobility aid conditions. Thus, Hypothesis 16 was partially supported.

Figure 5

Mean Scores of Perceived Warmth Across the Mobility Aid Conditions



Note. PD = unspecified mobility aid condition; C = cane condition; W = manual wheelchair condition.

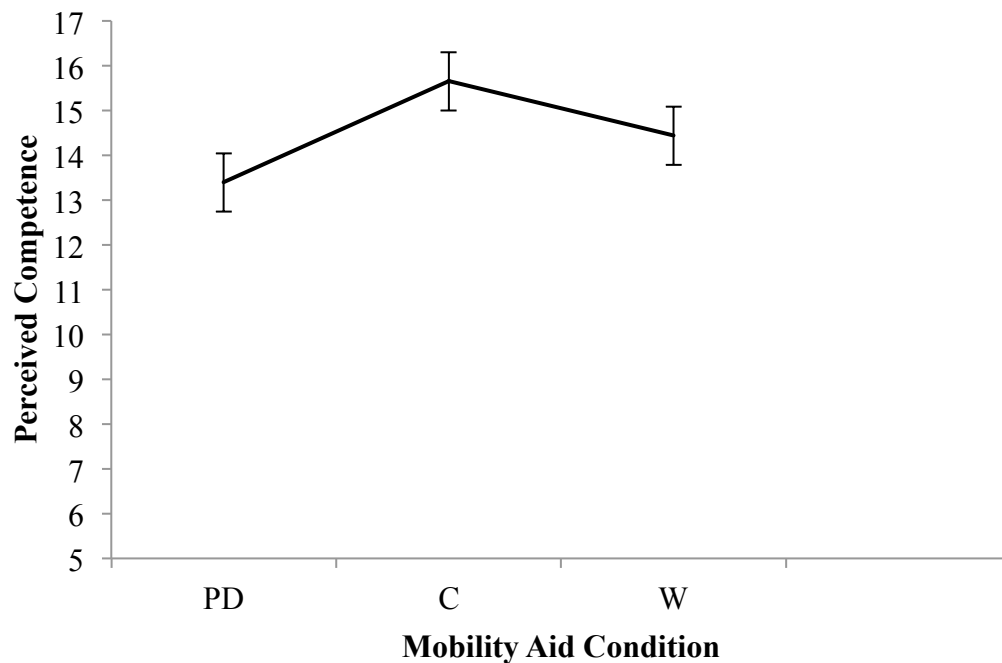
Perceived Competence

Hypothesis 17 predicted that the conditions that include mobility aids would produce higher levels of competence compared to the unspecified mobility aid condition. To assess this hypothesis, the within-subjects effect of the differences in perceived competence between mobility aid conditions was assessed. The within-subjects effect was statistically significant, $F = 63.129, p < .001$, with a large effect size, $\eta^2 = .220$. This finding suggests that there were statistical differences in perceived competence due to the mobility aid being used. Pairwise comparisons were used to further examine this finding. The comparisons in perceived competence between the

unspecified mobility aid condition and the cane condition, the unspecified mobility aid condition and the manual wheelchair condition, and the cane condition and the manual wheelchair condition were all statistically significant, $p < .001$. As can be seen in Figure 6, the perceived competence associated with the unspecified mobility aid condition, $M = 13.40$, $SD = 4.44$, was statistically lower than the perceived competence associated with the manual wheelchair condition, $M = 14.44$, $SD = 4.29$, which was statistically lower than the perceived competence associated with the cane condition, $M = 15.65$, $SD = 3.77$

Figure 6

Mean Scores of Perceived Competence Across the Mobility Aid Conditions



Note. PD = unspecified mobility aid condition; C = cane condition; W = manual wheelchair condition.

Discussion

The purpose of this study was to examine if mobility aids affect the perception of people with disabilities. I examined the attitudes and stereotypes associated with three types of mobility aid users: a person using an unspecified mobility aid, a cane, or a manual wheelchair. The Multidimensional Attitudes Scale Toward People with Disabilities (MAS) was used to assess attitudes by presenting participants with a scenario in which a person interacts with a person with a disability in a coffee shop. For each mobility aid condition, participants read the scenario and were asked to report how the person in the scenario would think, feel, and behave when interacting with the person with the disability. Although participants were unaware of it, there were two groups they could be randomly assigned to. In the first group, participants reported how they thought a female (described as Michelle) observer would react when interacting with a mobility aid user. In the second group, participants reported how they thought a male (described as Joseph) observer would react when interacting with a mobility aid user. To assess the stereotypes associated with people with disabilities, participants reported the perceived warmth and perceived competence associated with people with disabilities using each of the three mobility aids. Overall, the results of this study highlighted the importance of assessing the perception of both the person with a disability and their mobility aid to gain a more complete understanding of how people with disabilities are viewed by others. Table 16 presents a summary of the results of the current study.

Table 16*Summary of Hypotheses and Results for the Current Study*

Hypothesis	Results
Attitudes towards people with disabilities using different types of mobility aids due to the gender of the participant would <i>not</i> differ.	Supported.
Stereotypes associated with people with disabilities using different types of mobility aids due to the gender of the participant would <i>not</i> differ.	Supported.
Attitudes towards the various types of mobility aid users would <i>not</i> vary according to the age of the participants.	Partially supported.
Stereotypes associated with the various types of mobility aid users would <i>not</i> vary according to the age of the participants.	Supported.
As BFI-2S Open-Mindedness increased, the scores on the MAS would decrease.	Partially supported.
The relationship between BFI-2S Conscientiousness and the scores on the MAS would <i>not</i> be statistically significant.	Not Supported.
As BFI-2S Extraversion increased, the scores on the MAS would decrease.	Not Supported..
As BFI-2S Agreeableness increased, the scores on the MAS would decrease.	Supported.
As BFI-2S Negative Emotionality increased, the scores on the MAS would also increase.	Partially supported.
As Social Dominance Orientation increased, the scores on the MAS would increase.	Supported.
As Self-Esteem increased, the scores on the MAS would decrease.	Partially supported.
As Contact increased, the scores on the MAS would decrease.	Not Supported.
Scores across the negative affective component would be significantly different for the wheelchair condition compared with the cane and unspecified mobility aid conditions.	Partially supported.
Scores across the cognitive component would be significantly different for the wheelchair condition compared to the cane and unspecified mobility aid conditions.	Not Supported.
Scores across the behavioural component would be significantly different for the wheelchair condition compared to the cane and unspecified mobility aid conditions.	Not Supported.
Conditions that include specific mobility aids would produce lower levels of warmth compared to the unspecified mobility aid condition.	Partially supported.
Conditions that include mobility aids would produce higher levels of competence compared to the unspecified mobility aid condition.	Supported.

The Effects of Disability Status

In this study, although I was interested in understanding the perceptions of individuals who did *not* self-identify as persons with a disability, individuals who reported that they had a disability were included in some analyses. T-tests were used to compare participants who identified as persons with a disability and participants who did *not* identify as persons with a disability. This analysis revealed statistically significant differences across 10 variables, including BFI-2-S Conscientiousness, BFI-2-S Negative Emotionality, Social Dominance Orientation, Self-Esteem, Contact, the MAS affective domain of attitudes for a man interacting with a person using a manual wheelchair, perceived competence towards a person using a cane, and perceived warmth associated with a person using an unspecified mobility aid, a cane, and a manual wheelchair. Therefore, the remainder of the analyses proceeded with a focus on persons without a disability.

In addition to asking participants if they self-identified as a person with a disability, participants completed the Washington Short Set on Functioning. *Difficulty walking* was the only category that did not include any participants who did *not* self-identify as having a disability reporting impairments that could be considered a disability. This was ideal for this study, which focused on the perception of people with mobility disabilities, as it reduced the potential for effects of self-stigmatization among the participants who did not self-identify as having a disability; however, it does highlight different patterns in self-identification depending on the disability type.

Previous research indicated that using the Washington Group Short Set on Functioning identifies participants who may not otherwise report having a disability

(Loeb, 2016; Schneider, 2009). Schneider (2009) identified that participants with physical and visual disabilities were less likely to report a disability that prevents their full participation, but would still select a high degree of difficulty on the Washington Group Short Set on Functioning and would report that they are disabled. When asked to explain this distinction, participants reported that although they have impairments, they were still able to perform most activities that they desired. On the contrary, the non-disabled participants specifically mentioned individuals who use wheelchairs and who are blind as individuals who would be considered “disabled.” This distinction between the participants with and without disabilities highlights the differences in the perception of disability between individuals who do and do not identify as having a disability (Schneider, 2009).

The results of the current study may be a reflection of the effect detected by Schneider (2009). For example, some participants reported “a lot of difficulty” seeing, but no participants reported “cannot do at all”, which would indicate complete blindness. One explanation for this pattern of response is that participants may have difficulty seeing to perform specific tasks, such as reading or seeing objects at a distance, but did not perceive this difficulty to be associated with a degree of impairment that would categorize them as a person with a disability. Another possible explanation is that participants may have been more hesitant to associate themselves with the other categories of the Washington Group Short Set on Functioning that they believe have an association with disability. Therefore, the results of the current study illustrated the ability of the Washington Group Short Set on Functioning to detect difficulties performing basic tasks among participants who do not identify as having a disability.

Further, it highlighted the prejudice that exists towards specific types of disabilities that prevents non-disabled participants from selecting responses that they believe would associate them with those types of disabilities (Schneider, 2009).

The Influence of Gender on Attitudes and Stereotypes

Although the literature surrounding the influence of gender on the perception of people with disabilities does vary across studies, recent research suggests that gender does not influence the attitudes towards people with disabilities (Kritsotakis et al., 2017; Tervo et al., 2004). Vilchinsky, Werner, et al. (2010) used the MAS to examine the attitudes towards people using wheelchairs and found that disability status, the gender of the participant, and the gender of the person observing a person with a disability did not impact the attitudes towards the person using a wheelchair, suggesting that neither the gender of the participant nor the gender of the observer influenced attitudes towards the person using a wheelchair (Vilchinsky, Werner, et al., 2010). The current results supported previous research. Specifically, the interaction between the different mobility aid conditions and the gender of the participants was not statistically significant, indicating that in all conditions (unspecified aid, cane, wheelchair), the attitudes of male and female participants were similar. Thus, current results are aligned with previous studies that examined the influence of gender on the attitudes towards people with disabilities (Kritsotakis et al., 2017; Tervo et al., 2004). It should be noted, however, that only medium and large effect sizes could be reliably detected due to a lack of power; therefore, there may be small effects on attitudes due to the interaction between the gender of the participant and the mobility aid conditions that went undetected.

Although the gender of the participant did not affect attitudes towards persons with a disability, the gender of observer in the scenario (Joseph or Michelle) was statistically significant, suggesting that participants thought females interacting with mobility aid users would have more negative responses than males interacting with mobility aid users. In a similar study focusing on the attitudes towards a person using a wheelchair compared to a control condition with a non-disabled individual, Vilchinsky, Werner, et al. (2010) also detected a statistically significant effect on attitudes due to the gender of the observer, specifically for the cognitive domain of attitudes. The findings from the current study and Vilchinsky, Werner, et al. (2010)'s study suggest that although attitudes are not influenced by the type of mobility aid being used, the gender of the person observing the mobility aid user can influence attitudes.

For the purposes of this study, stereotypes were assessed using the Stereotype Content Model (SCM), which uses the measures of perceived warmth and perceived competence (Fiske et al., 2002). Fiske and colleagues' results did not indicate a statistically significant influence on the stereotypes associated with various social groups due to gender. In the current study, the warmth and competence ratings of the individuals with a disability were similar for male and female participants, which supported Hypothesis 2. These findings align with Schwind et al.'s (2019) research, which found that gender did not influence the stereotypes associated with wearable devices. Much like the relationship between attitudes and gender, the analysis of the interaction between the three mobility aid conditions and the measures of stereotypes was underpowered. As a result, only medium and large effect sizes could be detected; there may be small effects that were undetected.

The Influence of Age on Attitudes and Stereotypes

Previous research examining the influence of age on the use of mobility aids in general indicated that age did not influence the attitudes towards people with disabilities using mobility aids (MacInnis et al., 2019). Therefore, Hypothesis 3 predicted that the attitudes across the different mobility aid conditions would not vary as a function of participant age. I found a statistically significant relationship between age and attitudes in the cane condition only. There was an inverse association between age and attitudes and thus, Hypothesis 3 was not supported; however, MacInnis et al. (2019) focused on mobility aid use more generally without specifying the type of mobility aid.

Additionally, due to a lack of power only medium and large effect sizes could be reliably detected; therefore, there may be correlations with small effects sizes between participant age and the attitudes towards the unspecified mobility aid condition and the manual wheelchair condition that went undetected.

Previous research using the SCM found that stereotypes are not influenced by age (Fiske et al., 2002). Further, in their examination of the acceptability of wearable devices using the SCM, Schwind et al. (2019) found that age did not influence the stereotypes associated with mobile device users; therefore, Hypothesis 4 predicted that the age of the participants would not influence the stereotypes associated with people with disabilities using specific mobility aids. The results of the current study aligned with previous research and supported Hypothesis 4. It should be noted that the Schwind et al.'s (2019) sample also had a restricted age range, with participants who were 19 – 36 years old. As a result, the results from Schwind et al.'s study and the current study may not be representative of all age groups. Further, due to a lack of power only medium and

large effect sizes could be reliably detected; therefore, there may be correlations with small effects sizes between participant age and the stereotypes associated with the three mobility aid conditions that went undetected.

The Influence of Personality

The current results, in part, aligned with recent research examining the attitudes towards specific types of disabilities (Himmelberger et al., 2022; Page & Islam, 2015; Wolska & Malina, 2020). Further, aspects of the current results are novel and extend previous research examining the relationship between personality and the attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). I proposed that BFI-2-S Open-Mindedness and Agreeableness would be related to more positive attitudes towards the mobility aid users (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). Although the current results did indicate that Agreeableness was correlated with more positive attitudes towards mobility aid users, this personality factor emerged as a statistically significant predictor variable in only four of the six hierarchical regressions to assess the different mobility aid conditions. Additionally, the correlations between attitudes and the BFI-2-S Open-Mindedness scores varied across mobility aid conditions and this personality factor was not a significant predictor of the attitudes towards people with disabilities in any of the regression models.

More recent literature proposes an explanation that help to explain these inconsistent findings. Page and Islam (2015) discovered that the relationship between open-mindedness and agreeableness and the attitudes towards people with disabilities was relatively weak; further, they identified that the strongest predictor of attitudes was the quality of contact participants have had with people with disabilities in the past.

Himmelberger et al. (2022) extended this finding by discovering that quality of contact has a mediating effect between both agreeableness and open-mindedness and the attitudes towards people with disabilities. Therefore, quality of contact may be a more important predictor of attitudes towards people with disabilities than either agreeableness or open-mindedness (Himmelberger et al., 2022).

The current study detected consistent results between the attitudes towards mobility aid users and BFI-2-S Conscientiousness and BFI-2-S Extraversion; however, the correlations did not support the proposed hypotheses (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). More recent research may help provide an explanation for the differences between the current results and previous research. Himmelberger et al. (2022) examined the relationship between personality factors and the attitudes towards individuals with intellectual disabilities, whereas Wolska and Malina (2020) examined the relationship between personality factors and the attitudes towards individuals with mental disorders. Although their research interests were similar, their results varied. Much like the current study, Himmelberger et al. (2022) detected a statistically significant relationship between conscientiousness and attitudes; however, Wolska and Malina (2020) did not report this association. Additionally, Wolska and Malina (2020) did not detect a statistically significant relationship between extraversion and attitudes, which aligned with the current study; however, Himmelberger et al. (2022) did detect a statistically significant relationship. The conflicting results between older research (Cloerkes, 1981; Fries, 1991, Keller & Siegrist, 2010) and more current research focusing on individuals with intellectual disabilities (Himmelberger et al., 2022) and individuals with mental disorders (Wolska & Malina, 2020) may be due to the focus on

the *type* of disability. This would suggest that the differences between the findings of the current study and previous literature may be due to the focus specifically on the mobility disabilities, rather than focusing on people with disabilities more broadly.

Previous research suggested that higher scores in negative emotionality were associated with more negative attitudes towards people with disabilities (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010); however, the result of the current study found that the relationship between BFI-2-S Negative Emotionality differed across mobility aid conditions. In more recent literature, Wolska and Malina (2020) detected a significant relationship between attitudes and neuroticism; however, Himmelberger et al. (2022) did not detect this significant relationship. The differences detected between mobility aid conditions in the current study may be reflective of the differences detected between studies focusing on the attitudes towards different types of disabilities. This would suggest that the type of mobility aid that is being used and the types of disability the individual has have similar impacts on the relationship between BFI-2-S Negative Emotionality and the attitudes towards people with disabilities. Overall, the results of the current study highlighted the nuances associated with research examining different types of disabilities; further, the current study suggests that the relationship between personality traits and the attitudes associated with people with disabilities may also differ as a function of the specific type of mobility aids that is used.

The Influence of Psychological Resources

Individuals who have high Social Dominance Orientation typically favour social hierarchies, in which specific groups of individuals “belong” at the top of the social hierarchy and others “belong” at the bottom (Pratto et al., 1994). Social Dominance

Orientation has been identified as a predictor of various forms of prejudice, including sexism and racism (Austin & Jackson, 2019; Heaven & Quintin, 2003). Additionally, Duckitt (2006) examined the role of Right Wing Authoritarianism and Social Dominance Orientation in predicting the negative attitudes towards specific out-groups. In this study, Duckitt proposed that Right Wing Authoritarianism would be more likely to predict negative attitudes towards an out-group that was perceived as threatening to the in-group, whereas Social Dominance Orientation would be more likely to predict negative attitudes towards social groups that were either in competition with or lower in status than the in-group. As expected given that people with disabilities are a social group that are typically perceived as being lower in status, Social Dominance Orientation was identified as a correlate of the negative attitudes towards people with disabilities. Previous research also indicated that higher scores in Social Dominance Orientation were associated with more negative attitudes towards mobility aid users (MacInnis et al., 2019).

Given the research examining the role of Social Dominance Orientation in the prediction of attitudes towards people with disabilities, I hypothesized that higher scores in Social Dominance Orientation would predict more negative attitudes towards people with disabilities. Previous research suggested higher scores in Social Dominance Orientation would reinforce the social hierarchy in which people with disabilities are ranked lower than people without disabilities (Duckitt, 2006), which aligned with the findings in the current study. The role of Social Dominance Orientation in predicting the attitudes towards people with disabilities can also have applied impacts. For example, Social Dominance Orientation was found to have direct and indirect effects on the

opposition of the inclusion of children with disabilities in classroom settings (Crowson & Brandes, 2010). Further, Crowson et al. (2013) determined that Social Dominance Orientation is a correlate of the attitudes towards the opposition of rights for people with disabilities, such as the rights surrounding employment, education, and basic standards of living. In the current study, Social Dominance Orientation was a mostly consistent predictor of the attitudes towards mobility aid users, which suggests that research in applied contexts could extend to specific types of mobility aid users as well. The exception in this study was the unspecified mobility aid condition for the male “Joseph” group, which was not identified as a significant predictor of attitudes towards people with disabilities due to the overall block being non-significant.

Previous research indicated that higher scores in self-esteem were associated with more positive attitudes towards people with disabilities (Findler et al., 2007; Sinclair et al., 2010). Aside from the cane condition, the findings of the current study align with previous research (Findler et al., 2007; Sinclair et al., 2010); however, the inconsistency associated with the cane condition highlights the differences that may be detectable when the mobility aid being used by the person with the disability is specified. In this case, the non-significant finding detected for the cane condition may be due to the association between the use of canes and the aging process, rather than with disability among all age groups (Rababa et al., 2021; Tasdemir, 2020).

Rababa et al. (2021) identified that low self-esteem was associated with negative attitudes towards people with disabilities; however, researchers have proposed that the attitudes towards older adults may not be exclusively negative (Cary et al., 2016; Vale et al., 2019). Ambivalent ageism describes a form of prejudice towards older adults that is

a mix of positive and negative stereotypes (Cary et al., 2016). The mix of positive and negative stereotypes associated with older adults was also recognized by Fiske et al. (2002) in their development of the SCM, in which older adults were categorized as being high in perceived warmth but low in perceived competence. This mix of positive and negative stereotypes may also influence the relationship between ageism and self-esteem (Tasdemir, 2020). Rather than focusing on low self-esteem and the negative perception of older adults, Tasdemir (2020) found that higher scores in self-esteem were associated with positive stereotyping. The difference detected for the cane condition in the current study may be reflective of Tasdemir's finding, which would suggest that the relationship between self-esteem and the attitudes towards mobility aids that are associated with aging may be different than the relationship between self-esteem and the attitudes towards mobility aids that are less commonly associated with aging.

The third psychological resource under examination was Contact. Previous research indicated increased contact with people with disabilities is associated with more positive attitudes towards people with disabilities (Yuker & Hurley, 1987; Zheng et al., 2016), which informed the hypothesis for the current study; contact was neither a correlate nor a predictor of the attitudes towards people with disabilities. The current methodology aligned with previous studies that focused primarily on the frequency of previous contact participants have had with people with disabilities. Recent research has found that rather than focusing on the *frequency* of contact participants have had with people with disabilities, researchers should be focusing on the *quality* of contact (Himmelberger et al., 2022; Page & Islam, 2015). Not only is the quality of contact a stronger predictor of the attitudes towards people with disabilities (Page & Islam, 2015),

it can also mediate the relationship between agreeableness and open-mindedness and the attitudes towards people with disabilities (Himmelberger et al., 2022).

The Effect of Attitudes: Affective, Cognitive, and Behavioural Domains

Given that attitudes are formed of three components outlined in the ABC model of attitudes (Breckler, 1984; Findler et al., 2007), the differences between the three mobility aids conditions were assessed for the affective domain, the cognitive domain, and the behavioural domain. For example, for the affective domain of the unspecified mobility aid condition, participants who were randomly assigned to the female “Michelle” group would have been asked to report how likely Michelle would be to experience emotions such as tension, stress, or helplessness when interacting with a person with a physical disability. For the cognitive domain of the cane condition, participants who were randomly assigned to the male “Joseph” condition were asked to report how likely Joseph would be to think thoughts such as “They seem to be an interesting person” or “They look like an OK person” when interacting with a person with a disability. Lastly, participants who were assigned to the female “Michelle” group was asked to report how likely Michelle would be to act on specific behaviours when interacting with a person with a disability such as, “Move away” or “Get up and leave.”

Previous research using the MAS focused solely on people using wheelchairs and did not include other types of mobility aids (Findler et al., 2007; Vilchinsky, Werner, et al., 2010). Therefore, given the lack of previous research examining differences in the perception of mobility aids the current analyses were largely exploratory. The results indicated that there was a statistical difference in affective attitudes towards the different types of mobility aids, specifically between the

unspecified mobility aid condition and the cane condition; the cane condition was associated with more positive affective attitudes than the unspecified mobility aid condition. Unlike the affective domain, there were not differences detected in the cognitive or behavioural attitudinal domains between the three mobility aid conditions.

In their examination of the attitudes towards wheelchair users, Vilchinsky, Werner, et al. (2010) examined the three domains of attitudes to determine which domains contributed to the negative attitudes associated with people with disabilities. These researchers discovered that participants had more positive cognitions and fewer distancing behaviours towards the person using a wheelchair compared with a control condition, in which the person did not have a disability; however, compared to the person without a disability, Vilchinsky, Werner, et al. (2010) detected increased negative affective attitudes towards the wheelchair-user. Although the current study did not include a control condition, the affective domain was identified as the most influential domain in detecting differences in the attitudes towards people with disabilities using different mobility aids, compared to the cognitive and behavioural domains, which did not differ between mobility aid conditions. Therefore, the results of the current study provided additional support for the importance of the affective domain in the detection of negative attitudes towards people with disabilities and the value of assessing all three domains instead of focusing exclusively on observable behaviours.

Although the current study identified the importance of the affective attitudinal domain in the detection of negative attitudes towards people with disabilities, the directionality of the results were not consistent with my hypotheses. Due to its association with a greater degree of impairment, I anticipated that the manual wheelchair

condition would result in the most negative attitudes; instead, the unspecified mobility aid condition was associated with the most negative attitudes. One plausible explanation for the more positive attitudes associated with the person using the cane is its potential association with the aging process, rather than exclusively disability. Tasdemir (2022) detected a significant relationship between ageism and both positive and negative stereotypes, suggesting that the attitudes towards older adults can be related to a mix of negative and positive perceptions. The more positive affective attitudes detected for the cane condition in the current study may be reflective of the mixed perceptions of older adults; therefore, the unexpected results found for the cane condition may be more representative of the participants' attitudes towards older adults rather than their attitudes towards persons with disabilities.

Although differences between the three mobility aid conditions were not detected for the cognitive attitudinal domain, the scores for the female "Michelle" group were more negative than the male "Joseph" group. This finding suggests that the gender of the person observing the mobility aid user in the scenario influenced the cognitive attitudes towards mobility aid use. In their examination of the attitudes towards manual wheelchair users, Vilchinsky, Werner, et al. (2010) also found that cognitive attitudes are influenced by the gender of the observer. Vilchinsky, Werner, et al. (2010) found that participants reported that a woman interacting with a person using a wheelchair would have more positive cognitive attitudes than a man interacting with a person using a wheelchair; however, this difference was not statistically significant. The statistically significant effect in the current study suggests that the cognitive domain may not

identify negative attitudes towards people with disabilities based on the mobility aids they use, but rather based on the gender of the observer.

Unlike the affective and cognitive domains, there were no statistical significant effects detected for the behavioural domain. This included the attitudes between the mobility aid conditions and the attitudes that participants believed would be experienced in the female “Michelle” and male “Joseph” conditions. These findings aligned with Vilchinsky, Werner, et al. (2010)’s study, which only found a significant effect due to the gender of the person interacting with the individual with a disability for the cognitive attitudinal domain. These findings suggest that the behavioural domain of attitudes is similar regardless of the mobility aid being used or the gender of the observer interacting with the individual using the mobility aid.

Stereotypes Associated with Mobility Aid Users

In the current study, the unspecified mobility aid condition was associated with lower perceived warmth than the manual wheelchair condition (but not the cane condition). Additionally, the unspecified mobility aid condition resulted in lower perceived competence than the manual wheelchair condition, followed by the cane condition. Although research examining the influence of wearable technology on the stereotypes associated with specific social groups has not focused specifically on people with disabilities nor mobility aids, research that examined the stereotypes associated with seniors using wearable technology and other medical devices such as blood glucose monitors has been conducted (Kelly & Gilbert, 2016; Schwind et al., 2019). The results from the current study for the perceived competence measures aligned with previous research, which suggested that when social groups that are typically associated with low

perceived competence use technology, there is an increase in their perceived competence (Schwind et al., 2019). In contrast, the results for the perceived warmth measure did not align with previous research, which suggested that when social groups that are ranked higher perceived warmth use technology they were perceived as less warm (Schwind et al., 2019). Therefore, although the current study showed changes in perceived warmth and perceived competence across the mobility aid conditions, only the changes in perceived competence aligned with previous research; the changes in perceived warmth between the manual wheelchair and the unspecified mobility aid were in the opposite direction than has been detected with other forms of technology.

One possible explanation for this unexpected finding is that the stereotypes associated with the mobility aids interacted with the stereotypes associated with people with disabilities to reinforce the perceived warmth that has been previously identified for people with disabilities (Fiske et al., 2002). To determine how disability status influences the perception of people with disabilities, Profita et al. (2016) examined the perception of a person using a Google Glass. Participants reported interacting with a person with a disability using the device would be less awkward, more normal, more appropriate, less rude, and less uncomfortable than interactions with the person without a disability using the device. Almost 60% of participants also reported that knowing the person has a disability would increase the social acceptability of the Google Glass. This finding provides additional support for Schwind et al.'s (2019) hypothesis that there is a bidirectional relationship between the user and the device they are using. People with disabilities have been identified as a group that is typically high in perceived warmth (Fiske et al., 2002) and the results of Profita et al.'s study (2016) suggest that disability

status, in turn, improves the perception of technology being used by people with disabilities. Therefore, it is plausible that rather than leading to a decrease in warmth, as other forms of technology have done for similarly ranked social groups (Schwind et al., 2019), the mobility aids being used by people with disabilities lead to higher levels of perceived warmth due to a unique effect produced by disability status. Overall, these findings suggest that although the mobility aid conditions in the current study resulted in changes in stereotypes, much like other forms of wearable technology (Schwind et al., 2019), the directionality of these changes are not necessarily uniform with other forms of technology or other social groups.

Limitations of the Current Study

The biggest limitation of this study was the unequal distribution of the demographic variables gender and age among the participants. The goal was to recruit adult participants from the general public; however, the majority of the participants were UNBSJ students, who were likely recruited through SONA. Only 33 males (~14.7%) completed the questionnaires, compared to 187 females (~83.1%); additionally, only five participants (~2.2%) reported a gender outside of the gender binary. As a result, the non-binary and gender fluid participants were excluded and the analyses. These factors limited the generalizability of the current results. The analysis for Hypothesis 1 and Hypothesis 2, which assessed the interaction of gender and attitudes, perceived warmth, and perceived competence associated with the different mobility aid users, was underpowered. The power levels for these analyses could be improved with a larger sample size. Similarly, the age of the participants was unevenly distributed; 200 (~88.9%) were under the age of 35 years old. The analyses for Hypothesis 3 and

Hypothesis 4, which assessed the effects of age differences on the attitudes, perceived warmth, and perceived competence associated with the different mobility aid users, were also underpowered. The power levels for these analyses could also be improved with a larger sample size. When possible, gender and age were included as control variables in the analyses. I would encourage future researchers to strive to collect a more equal distribution of male, female, and gender diverse participants as well as participants from a wide variety of age groups. Additionally, there was an uneven distribution of ethnicities, with 189 (84%) of participants reported that they were Caucasian. As a result, the Ethnicity variable was coded as a binary variable (Caucasian or other) and controlled when possible.

Another limitation of the current study was the fact that the data was collected during the COVID-19 pandemic, when people were isolating more frequently, particularly individuals with disabilities who may have conditions that make them particularly vulnerable to COVID-19. The Contact with Disabled Persons Scale (Yuker & Hurley, 1987) does not specify a particular period of time to focus on when thinking about previous contact with people with disabilities. If participants focused only on their most recent experiences, they may report less contact with people with disabilities because of the various COVID-19 restrictions. As a result, these findings may be unique to pandemic situations and may not be representative of non-pandemic times.

An additional limitation of the current study is the focus the SCM places on society's view of the person with a disability. The purpose of the wording in the SCM is to capture negative stereotypes that may otherwise be underreported due to participants' fear of how they will be viewed by the researcher (Fiske et al., 2002). Kotzur et al.

(2020) determined that focusing on society's views can lead to more negative levels of perceived warmth and/or perceived competence than if participants are not asked to focus on society's view of specific social groups. As a result, the negative stereotypes identified in the current study may be more negative than the participants' actual perception of people with disabilities.

Lastly, although this study aimed to assess the perception of people with disabilities, the cane condition may have unintentionally induced the perception of older adults as well. The current study did not include a scale to assess the participants' ageist attitudes, which could have been used to control for any potential influences of this variable. Thus, the interaction between disability status and ageism could not be examined.

Future Research

To continue to develop the understanding of how people with disabilities are perceived, specifically in relation to the use of mobility aids, there are a number of areas that could be examined further. First, future research should attempt to address the limitations of the current study. Specifically, as discussed above, recruiting samples that are more evenly distributed in terms of relevant demographic variables, particularly gender, age, and ethnicity, is advised. Additionally, the results of this study focused on the perception of people with disabilities from the perspective of individuals who do not identify as having a disability. It would be beneficial to replicate these analyses with a sample of participants with disabilities and to conduct a comparison between the disability and non-disability samples. The results of these comparisons could inform the understanding of the role of mobility aids in self-stigmatization among people with

disabilities. It would also be beneficial to compare the results of the SCM when participants are asked to focus on society's views, which was done in the current study, and when they are asked to focus on their personal views. Similar results would provide additional support for the current results and indicate that the results were not influenced by the wording of the items on the perceived warmth and perceived competence measures. Further, research examining the attitudes towards people with disabilities could benefit from including a measure to detect ageist attitudes of participants. Given the overlap between the aging process and disability (Fiske et al., 2022), particularly when focusing on the use of mobility aids, it would be ideal to control for any potential influences of ageist attitudes to ensure the effects detected are related to disability rather than aging.

Second, the analysis of the personality factors that were correlated with attitudes towards the different mobility aid users produced unexpected findings. Notably, there was a consistent association between the BFI-2-S Conscientiousness and Extraversion, which differed from previous research (Cloerkes, 1981; Fries, 1991; Keller & Siegrist, 2010). Future research should continue to examine the relationship between these personality subscales to determine if these findings are replicated in additional samples and if there are specific facets of these personality traits that are related to the attitudes towards people with disabilities.

Third, the most consistent predictor of the attitudes towards the various types of mobility aid users included in the current study was Social Dominance Orientation. Social Dominance Orientation has been identified as one of the key predictors of prejudice attitudes in previous research, including negative attitudes towards people with

disabilities (Duckitt, 2006; MacInnis et al., 2019). Social Dominance Orientation has also been identified as a factor that influences attitudes towards people with disabilities in applied settings, such as the attitudes towards inclusive classrooms (Crowson & Brandes, 2010) and the opposition of rights for people with disabilities (Crowson et al., 2013). Due to the consistent influence of Social Dominance Orientation in the current study, future research should continue to control for this predictor variable in the perception of people with disabilities.

Fourth, recent research suggests that the quality of contact participants have had with people with disabilities may mediate the relationship between agreeableness and open-mindedness and the attitudes towards people with disabilities (Himmelberger et al., 2022). Additionally, Huskin et al. (2017) identified that the quality of contact predicted the perception of people with specific types of disabilities even when the frequency of contact did not. Therefore, it would be beneficial to focus on the *quality* of contact rather than the *frequency* of contact in future research (Himmelberger et al., 2022; Page & Islam, 2015).

Fifth, a modified version of the Disability Attitudes Implicit Association Test could be developed to assess the implicit prejudices associated with various types of mobility aid users. Similar to the study conducted by Friedman & Awsumb (2019), comparisons could be made between participants' implicit and explicit prejudices to determine the prevalence of both types of prejudice. This could be especially relevant to examine the differences between participants who did and did not self-identify as a person with a disability, as these differences may be due to implicit attitudes that participants are not aware of (Friedman, 2018; Greenwalk et al., 1998).

Sixth, the methodology used in this study could be expanded to include other types of disabilities. This study focused on mobility aids that are used primarily by people with mobility disabilities. Future research could examine the role of assistive devices associated with other types of disabilities, such as the differences in attitudes and stereotypes associated with using glasses for a visual disabilities compared to a white cane or service animal. Comparisons could also be made between disability types, such as between the devices used to assist people with mobility disabilities in comparison to the devices used to assist people with visual disabilities.

Seventh, this methodology could be used to examine the role of mobility aids in the perception of people with disabilities who also belong to other marginalized groups. The current study focused on the mobility aid user as a general entity without a specified gender, ethnicity, or any other details beyond the mobility aid they were using. Details about the person using the mobility aid could be manipulated to determine if belonging to additional minority groups (i.e., being a female-presenting individual or a person of colour) results in increased negative attitudes and stereotypes. Future research could examine the extent to which the interaction of belonging to multiple minority groups influences the attitudes and stereotypes associated with mobility aid users.

Conclusions

The primary hypothesis underlying this research was that there would be significant differences in the attitudes and stereotypes associated with the use of different types of mobility aids used by people with disabilities. The proposed hypothesis that attitudes towards people with disabilities would differ based on the mobility aid in use was partially supported by this study, although the directionality

differed from what was expected. The affective domain was identified as the only domain in which there were differences in the attitudes towards people with disabilities who are using different mobility aids, likely due to participants desire to hide their negative thoughts and behaviours towards people with disabilities (Vilchinsky, Werner, et al., 2010). Further, the cognitive domain was identified as the attitudinal domain that identified differences in attitudes due to the gender of the observer.

The proposed hypothesis that stereotypes associated with people with disabilities would differ as a function of the mobility aid in use was partially supported by this research as well. Perceived warmth associated with the unspecified mobility aid condition was lower than the perceived warmth associated with the manual wheelchair condition. Further, the perceived competence associated with people with disabilities was statistically different for all three mobility aids, where the highest perceived competence was associated with the cane condition. By examining the scores for the perceived warmth scale and the perceived competence scale, the results of this study revealed that the use of mobility aids does not follow the trend that other wearable devices typically follow.

Overall, both attitudes and stereotypes associated with people with disabilities varied based on the mobility aid in use. These findings should be used to continue to examine this effect across larger samples and with a greater diversity of mobility aids and assistive devices. This area of research will not only develop a better understanding of the perception of assistive technology, but will also determine how the technology people with disabilities use to navigate their day-to-day lives influences the overall perception of people with disabilities.

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Appendix A: Demographics

1. Do you identify as a person with a disability?
 - a. Yes
 - b. No
2. What is your age?
3. What is your sex (as assigned at birth)?
 - a. Female
 - b. Male
4. What is your gender?
 - a. Female
 - b. Male
 - c. Non-binary
 - d. Gender fluid
 - e. Other
 - f. Prefer not to answer
5. What is your highest level of education achieved?
 - a. Less than high school
 - b. High school diploma
 - c. Some college or post-secondary education
 - d. Completed a bachelor's or certificate program
 - e. Pursuing or completed a graduate level degree
6. What is your ethnicity?
 - a. Caucasian / White
 - b. African American (black)
 - c. Aboriginal/Indigenous
 - d. Asian
 - e. Middle Eastern
 - f. Latin American
 - g. Biracial
 - h. Other (please enter)
7. Are you currently a university student?
 - a. Yes
 - b. No

Appendix B: The Big Five Inventory–2 Short Form (BFI-2-S; Soto & John, 2017)

Participants select their response on a 5-point scale, where 1 = *Disagree Strongly*, 5 = *Agree Strongly*)

Instruction: 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 click a number next to each statement to indicate the extent to which you agree or disagree with that statement.

I am someone who...

1. Tends to be quiet.
2. Is compassionate, has a soft heart.
3. Tends to be disorganized.
4. Worries a lot.
5. Is fascinated by art, music, or literature.
6. Is dominant, acts as a leader.
7. Is sometimes rude to others.
8. Has difficulty getting started on tasks
9. Tends to feel depressed, blue.
10. Has little interest in abstract ideas.
11. Is full of energy.
12. Assumes the best about people.
13. Is reliable, can always be counted on.
14. Is emotionally stable, not easily upset.
15. Is original, comes up with new ideas.
16. Is outgoing, sociable.
17. Can be cold and uncaring.
18. Keeps things neat and tidy.
19. Is relaxed, handles stress well.
20. Has few artistic interests.
21. Prefers to have others take charge.

22. Is respectful, treats others with respect.
23. Is persistent, works until the task is finished.
24. Feels secure, comfortable with self.
25. Is complex, a deep thinker.
26. Is less active than other people.
27. Tends to find fault with others.
28. Can be somewhat careless.
29. Is temperamental, gets emotional easily.
30. Has little creativity.

Appendix C: Social Dominance Orientation Scale (SDO₇ Scale; Ho et al., 2015)

Instructions: Show how much you favor or oppose each idea below by selecting a number from 1 to 7 on the scale below. You can work quickly; your first feeling is generally best.

1 = Strongly Oppose; 2 = Somewhat Oppose; 3 = Slightly Oppose; 4 = Neutral; 5 = Slightly Favor; 6 = Somewhat Favor; 7 = Strongly Favor.

Pro-trait dominance:

1. Some groups of people must be kept in their place.
2. It's probably a good thing that certain groups are at the top and other groups are at the bottom.
3. An ideal society requires some groups to be on top and others to be on the bottom.
4. Some groups of people are simply inferior to other groups.

Con-trait dominance:

5. Groups at the bottom are just as deserving as groups at the top.
6. No one group should dominate in society.
7. Groups at the bottom should not have to stay in their place.
8. Group dominance is a poor principle.

Pro-trait anti-egalitarianism:

9. We should not push for group equality.
10. We shouldn't try to guarantee that every group has the same quality of life.
11. It is unjust to try to make groups equal.
12. Group equality should not be our primary goal.

Con-trait anti-egalitarianism:

13. We should work to give all groups an equal chance to succeed.
14. We should do what we can to equalize conditions for different groups.
15. No matter how much effort it takes, we ought to strive to ensure that all groups have the same chance in life.
16. Group equality should be our ideal.

Appendix D: Rosenberg Self-Esteem Scale (RESE; Rosenberg, 1965)

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

(4-point scale where 1 = *Strongly Disagree* and 4 = *Strongly Agree*)

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Appendix E: Contact With Disabled Persons Scale (Yuker & Hurley, 1987)

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?

Additional Question:

During the majority of these interactions, were you:

- A caregiver;
- A nurse;
- A physician;
- Another type of healthcare worker;
- None of the above.

Appendix F: The Multidimensional Attitude Scales Toward Persons with Disabilities (Findler et al., 2007)

Vignette: Imagine the following situation. Joseph/Michelle (some participants will be presented with Joseph, some participants will be presented with Michelle) went out for lunch with some friends to a coffee shop. A person with a physical disability, with whom Joseph/Michelle is not acquainted, enters the coffee shop and joins the group. Joseph/Michelle is introduced to this person, and shortly thereafter, everyone else leaves, with only Joseph/Michelle and the person with a physical disability remaining alone together at the table. Joseph/Michelle has 15 minutes to wait for their ride. Try to imagine the situation.

Affective Component: People experience a variety of emotions when they are involved in such a situation. In the next column 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 Joseph/Michelle. (Participants will select a number ranking the likelihood of 1 = *Not at all* 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

Cognition Component: People experience a variety of cognitions when they are involved in such a situation. Following is a list of possible thoughts that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this cognition might arise in Joseph/Michelle: (Participants will select a number ranking the likelihood of 1 = *Not at all* to 5 = *Very much*).

1. They seem to be an interesting person.
2. They look like an OK person.
3. We may get along well.

4. They look friendly.
5. I enjoy meeting new people.
6. They will enjoy getting to know me.
7. I can always talk with 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.

Behaviour Component: People experience a variety of behaviors when they are involved in such a situation. Following is a list of possible behaviors that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that Joseph/Michelle would behave in the following manner: (Participants will select a number ranking the likelihood of 1 = *Not at all* 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 he/she was 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.

Appendix G: The Multidimensional Attitude Scales Toward Persons with Disabilities (Findler et al., 2007)

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

Affective Component: People experience a variety of emotions when they are involved in such a situation. In the next column 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 Joseph/Michelle. (Participants will select a number ranking the likelihood of 1 = *Not at all* 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

Cognition Component: People experience a variety of cognitions when they are involved in such a situation. Following is a list of possible thoughts that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this cognition might arise in Joseph/Michelle: (Participants will select a number ranking the likelihood of 1 = *Not at all* to 5 = *Very much*).

1. They seem to be an interesting person.
2. They look like an OK person.
3. We may get along well.
4. They look friendly.
5. I enjoy meeting new people.

6. They will enjoy getting to know me.
7. I can always talk with 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.

Behaviour Component: People experience a variety of behaviors when they are involved in such a situation. Following is a list of possible behaviors that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that Joseph/Michelle would behave in the following manner: (Participants will select a number ranking the likelihood of 1 = *Not at all* 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 he/she was 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.

Appendix H: The Multidimensional Attitude Scales Toward Persons with Disabilities (Findler et al., 2007)

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

Affective Component: People experience a variety of emotions when they are involved in such a situation. In the next column 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 Joseph/Michelle. (Participants will select a number ranking the likelihood of 1 = *Not at all* 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

Cognition Component: People experience a variety of cognitions when they are involved in such a situation. Following is a list of possible thoughts that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this cognition might arise in Joseph/Michelle: (Participants will select a number ranking the likelihood of 1 = *Not at all* to 5 = *Very much*).

1. They seem to be an interesting person.
2. They look like an OK person.
3. We may get along well.
4. They look friendly.

5. I enjoy meeting new people.
6. They will enjoy getting to know me.
7. I can always talk with 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.

Behaviour Component: People experience a variety of behaviors when they are involved in such a situation. Following is a list of possible behaviors that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that Joseph/Michelle would behave in the following manner: (Participants will select a number ranking the likelihood of 1 = *Not at all* 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 he/she was 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.

Appendix I: Competence and Warmth Scales (Fiske et al., 2002)

Participants will rank their answer on a scale from 1 = *Not at all* to 5 = *Extremely*

People with a physical disability

Competence

1. As viewed by society, how competent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how confident are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how independent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how competitive are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
5. As viewed by society, how intelligent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Warmth

1. As viewed by society, how tolerant are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how warm are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how good-natured are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how sincere are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Appendix J: Competence and Warmth Scales (Fiske et al., 2002)

Participants will rank their answer on a scale from 1 = *Not at all* to 5 = *Extremely*

People who use a cane

Competence

1. As viewed by society, how competent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how confident are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how independent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how competitive are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
5. As viewed by society, how intelligent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Warmth

1. As viewed by society, how tolerant are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how warm are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how good-natured are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how sincere are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Appendix K: Competence and Warmth Scales (Fiske et al., 2002)

Participants will rank their answer on a scale from 1 = *Not at all* to 5 = *Extremely*

People who use a manual wheelchair

Competence

1. As viewed by society, how competent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how confident are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how independent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how competitive are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
5. As viewed by society, how intelligent are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Warmth

1. As viewed by society, how tolerant are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
2. As viewed by society, how warm are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
3. As viewed by society, how good-natured are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.
4. As viewed by society, how sincere are members of this group? We are not interested in your personal beliefs, but in how you think they are viewed by others.

Appendix L: Introduction for Participants

We invite you to volunteer to participate in the research study named above. Before you can decide whether or not to participate, you must understand the purpose, how it may affect you, any risks to you, and what is expected of you. This process is called informed consent.

- Your participation is entirely voluntary
- You may withdraw from the study at any time.
- You must be above the age of 18 if you are a UNB student.
- You must be above the age of 19 if you are not a UNB student.

PURPOSE OF STUDY

The purpose of the study is to examine the attitudes towards people with physical disabilities. This will help to better understand factors that contribute to the attitudes towards this specific group of people.

PROCEDURE

If you choose to participate, you will be directed to the online questionnaire, which involves a series of questions to assess your emotions, thoughts, and beliefs surrounding people with disabilities as well as your own personality and functioning. You will be asked to answer these questions as accurately as possible.

POTENTIAL RISKS/DISCOMFORTS

There is very little risk involved with completing this questionnaire. Should you develop any negative emotions while completing the questionnaire you are able to end the questionnaire at any point in time. A list of resources will be provided at the end of the questionnaire, should you require any professional assistance.

POTENTIAL BENEFITS

You may benefit from completing this questionnaire by developing a better awareness of your attitudes towards people with physical disabilities.

QUESTIONS

If you have questions you can contact the researchers at lbest@unb.ca (Dr. Lisa Best) or chall3@unb.ca (Catherine Hall). For more information about the ethics review process, you can contact the Chair of the Research Ethics Board by email (reb@unb.ca), or by phone (506-648-5994).

PRIVACY AND CONFIDENTIALITY

Protecting your privacy is an important part of this study. Although you will be asked to report some demographic information (e.g., your age and gender) this information will not be reported in any way that could identify you personally.

PARTICIPANT'S RESPONSIBILITIES

As a participant you will be asked to complete the questionnaire with as much accuracy as possible. The questionnaire is not timed, but you should be able to complete it in about 30 minutes.

ADDITIONAL INFORMATION

You can withdraw from the study at any time for any reason.

Appendix M: Consent Form

Reimagining Ableism and Disability Stereotypes: Attitudes and Stereotypes Associated with Mobility Aid Users with Physical Disabilities

Catherine Hall, Graduate Student, Department of Psychology
University of New Brunswick – Saint John

We are researchers in the Department of Psychology examining the attitudes and stereotypes associated with people with physical disabilities. This research will be helpful to identify the role of mobility aids on attitudes towards this specific group of people.

We are asking you to complete a series of questionnaires. There is no time requirement to complete the questionnaire. This questionnaire should take about 30 minutes to complete, but is not timed. To participate, you must be above the age of 18 if you are a UNB student or above the age of 19 if you are not a UNB student.

We do not anticipate any significant risk to you or others related to this study. The only potential risk of this study is the potential to evoke negative emotions regarding potential previous interactions with people with disabilities. If you experience any negative emotions and require professional assistance, we encourage you to seek help from professionals in your respective community. If you are uncertain of the assistance available in your area, please contact us at the emails below and we will assist you in finding the appropriate resources.

Although Qualtrics allows researchers to save IP addresses, we are not collecting IP addresses and thus will have no identifying information about the participants. There will be no way that a person (or their location) can be identified through the platform. Qualtrics data is securely stored at a site in Toronto, Ontario and is not subject to the US Homeland Security Act.

You are under no obligation to participate, and you may discontinue the experiment at any time.

We will be using the results from this research to help develop an understanding of the impact of mobility aids in the development of attitudes towards people who have physical disabilities as well as to publish in research journals. We also may present the findings at some research conferences. We will not be identifying any individual by person, title, or by any other identifying information. We will be collecting basic demographic information (e.g., age) in order to describe our sample, but we will not present the results in any way that might identify you personally.

By agreeing to this consent form, you are indicating that you fully understand the above information and agree to participate in this study. This project has been reviewed by the

Research Ethics Board at UNBSJ and is on file as #044-2021. For more information about the ethics review process, you can contact the Chair of the Research Ethics Board by email (reb@unb.ca), or by phone (506-648-5994).

- By clicking this box, you indicate that you have read the above consent form and you consent to completing the following questionnaire.
- By clicking this box, you indicate that you have read the above consent form and you do **not** consent to completing the following questionnaire.

If you have any questions about this study, please contact us at lbest@unb.ca or chall3@unb.ca. For more information about the ethics review process, you can contact the Chair of the Research Ethics Board by email (reb@unb.ca), or by phone (506-648-5994).

Appendix N: Debriefing Form

Debriefing Form

Reimagining Ableism and Disability Stereotypes: Attitudes and Stereotypes Associated with Mobility Aid Users with Physical Disabilities

Dear Participant:

Thank you very much for your participation in our study. Your time and commitment to applied psychological research at the University of New Brunswick Saint John is very much appreciated.

The study you took part in will contribute to a research project investigating the attitudes towards people with disabilities.

If participating in this study has caused you any personal distress, we encourage you to seek assistance. If you are in immediate distress, you should call 911. Otherwise, you should contact counselling services such as the following:

- In New Brunswick, call one of the following in your area:
 - Moncton Area Addiction and Mental Health Services at 506-856-2444
 - Charlotte County Addiction and Mental Health Services at 506-466-7380
 - Fredericton Addition and Mental Health Services at 506-452-2132
 - Grand Manan Addiction and Mental Health Services at 506-662-7023
 - Saint John Community Mental Health Services at 506-658-3737
 - Woodstock Addiction and Mental Health Services at 506-325-4419
- In Nova Scotia, call one of the following in your area:
 - Mental Health Services at (902) 245-4709
 - Canadian Mental Health Services – Nova Scotia at (902) 466-6600
 - Dawson Centre (NSHA Mental Health Services) at (902) 543-5400
- In Prince Edward Island, call one of the following in your area:
 - Community Mental Health Clinic at (902) 368-4430
 - Community Mental Health Service at (902) 838-0960
 - Community Mental Health and Addiction Services at (902) 888-8380
- In Newfoundland, call one of the following in your area:
 - Canadian Mental Health Association Newfoundland and Labrador at (709) 753-8550
 - Canadian Mental Health Association – Western NL at (709) 643-5553
 - Le Marchant House Mental Health at (709) 777-5622
- In Quebec, call one of the following in your area:

- Center Crise De Québec at (418) 688-4240
 - Auto Psy Région De Québec at (418) 529-1978
 - Le 388 (Mental Health Clinic) at (418) 522-1555
- In Ontario, call one of the following in your area:
 - York Region Community Clinic – Ontario Shores Centre for Mental Health Sciences at (905) 895-4242
 - Durham Mental Health Services at (905) 666-0831
 - Community Mental Health at (705) 848-7110
- In Saskatchewan, call one of the following in your area:
 - Mental Health and Addictions Services at (306) 655-7777
 - Mental Health & Addiction Services at (306) 655-6735
 - Canadian Mental Health Association at (306) 525-5601
- In Manitoba, call one of the following in your area:
 - Mental Health Education Resource Centre of Manitoba at (204) 942-6568
 - Selkirk Mental Health Centre at (204) 482-3810
 - Manitoba Mental Health at (204) 746-7348
- In Alberta, call one of the following in your area:
 - Access Mental Health at (403) 943-1500
 - Alberta Health Services – Mental Health at (403) 782-3413
 - Athabasca Mental Health Services (780) 675-5404
- In British Columbia, call one of the following in your area:
 - BC Mental Health & Substance Use Services at (604) 829-8657
 - Vancouver Community Mental Health Services at (604) 675-3890
 - BC Mental Health & Addiction at (604) 707-6377
- In Nunavut, call one of the following in your area:
 - Cape Dorset Health Centre at (867) 897-8820
 - Qikiqtani General Hospital at (867) 975-8600
 - Arviat Health Centre at (867) 857-3100
- In the Northwest Territories, call one of the following in your area:
 - Mental Health Clinic at (867) 767-9110
 - Northstar Centre for Counselling & Psychological Services at (867) 873-3600
 - Community Counselling Program at (867) 598-2059
- In the Yukon, call one of the following in your area:
 - Inner Landscapes Psychological Services at (867) 689-4844
 - Reach Out Support Line at 1(844) 533-3030
 - Canadian Mental Health Association, Yukon Division at (867) 668-6429
- In Canada, call Crisis Services Canada at 1-833-456-4566

- If you reside outside of Canada, click on the following link to find the services that are available in your country:
<https://www.therapyroute.com/article/helplines-suicide-hotlines-and-crisis-lines-from-around-the-world>

If you have any questions regarding your participation in this study, or would like to receive information about the results once they are available, feel free to contact Catherine Hall (chall3@unb.ca) or Dr. Lisa Best (lbest@unb.ca). We would be happy to provide you with the overall findings of our study.

Appendix O: Washington Group Short Set on Functioning (Washington Group, 2020)

Do you have difficulty seeing, even if wearing glasses? Would you say...

1. No difficulty
2. Some difficulty
3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Do you have difficulty hearing, even if using a hearing aid(s)? Would you say...

1. No difficulty
2. Some difficulty
3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Do you have difficulty walking or climbing steps? Would you say...

1. No difficulty
2. Some difficulty
3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Do you have difficulty remembering or concentrating? Would you say...

1. No difficulty
2. Some difficulty
3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Do you have difficulty with self-care, such as washing all over or dressing? Would you say...

1. No difficulty
2. Some difficulty

3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Do you have difficulty communicating, for example understanding or being understood?

Would you say...

1. No difficulty
2. Some difficulty
3. A lot of difficulty
4. Cannot do at all
5. Refuse to answer
6. Don't know

Curriculum Vitae

Candidate's Full Name: Catherine Hall

Universities Attended:

University of New Brunswick (Saint John) – B.Sc (Hons) in Psychology, minor in English (2016 – 2020)

University of New Brunswick (Saint John) – M.A. Candidate (2020 – 2022)

Conference Presentations:

Speed, D., MacDonald, J., King, T., Pronyk, T., Lamont, A., **Hall, C.**, Smith, E. (2022). *Sex-Based Disparities in Chores Persists Irrespective of Employment Status*. Canadian Psychological Association (CPA) Conference Presentation, Calgary, AB.

Operational Reviews:

Hall, C., & Law, M. (2021). Persisting Obstacles: Physical Barriers to Accessibility in the 2020 General Election in New Brunswick. *Operational Review*.

Academic Awards:

Graduate Research Award (\$5,000, 2021 – 2022)

Knight's of Columbus Scholarship (\$4,000, 2016 – 2021)

McCain Group Scholarship (\$18,000, 2016 – 2020)

Schulich Leader Scholarship (\$60,000, 2016 – 2020)

Provincial Artisans Bursary (\$2,000, 2016 – 2017)