

Rehumanization as an Intervention for Disgust-Based Prejudice: The Case of Ableism

by

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Certificate of Approval

This is to certify that the accompanying thesis by Leah Shaffner has been accepted in partial fulfillment of the requirements for graduation with Honors in Psychology.

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Abstract

Ableism is a pervasive form of prejudice that affects the world's largest minority group, yet ableism has been overlooked by psychologists. The emotion of disgust may play a key role in disability prejudice as it is rooted in the avoidance of cues that predict the presence of pathogens, and the non-conforming bodies and behaviors of people with disabilities (PWD) may be mistaken for pathogen cues. Dehumanizing rhetoric is used by powerful groups to maintain their privilege by rendering outgroups as disgusting, as disgust polices the animal-human boundary. Rehumanization may be a potential intervention to reduce disgust, and consequently prejudice. The present study used participants (N = 150) from Amazon's Mechanical Turk (M Turk) to analyze the existence of ableism and its connection to disgust sensitivity, as well as to test the use of a humanizing intervention video to decrease negative attitudes toward PWD. Ableism was extremely prevalent amongst participants and was correlated with disgust sensitivity, suggesting a basis of disgust in disability prejudice. The humanizing video did not reveal a significant effect on negative attitudes of PWD. This finding contradicts previous research and may be due to the salience of the intervention as well as the reliability of the M Turk worker participants. It is therefore important to continue work on the use of humanization to decrease disability prejudice as it addresses the basis of ableism in disgust and holds practical implications for reducing such a prevalent marginalization.

Keywords: ableism, prejudice, disgust sensitivity, humanization, contact

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Rehumanization as an Intervention for Disgust-Based Prejudice: The Case of Ableism

Disability is a broad term that applies differently to different people and carries the weight of stigma and prejudice. In general, people with disabilities (PWD) are defined as people with intellectual, developmental, or physical abnormalities that restrict participation in daily life (Wendell, 1996). PWD make up one of the world's largest minority groups, encompassing individuals of all genders, races, sexualities, ages, classes, and nations (Goodley, 2011). Despite transcending all demographics, PWD are paradoxically one of the most marginalized minorities. Marginalization can have enormous detrimental impacts on psychological well-being, consequently causing great harm to PWD (Schmitt, Branscombe, Postmes, & Garcia, 2014). In the current day and age of touted human equality, much is lacking in the realm of disability equality. Social psychological research has worked to understand equality (or lack thereof) and has made great strides to understand prejudices in general. Research has focused on the domains of gender and race, however little research has explored prejudices toward PWD. General theories of prejudice may apply to disability, however there may be unique features that are yet unexamined. For example, recent studies have suggested that the emotion of disgust may play a role in disability prejudice (Buckels & Trapnell, 2013; Inbar, Pizarro, Knobe, & Bloom, 2009; Nussbaum, 2001). Disgust is an emotion that evolved to prevent disease transmission; nonconforming bodies or behaviors associated with PWD may be mistaken for disease cues, eliciting disgust-based prejudice (Tyber, Lieberman, Kurzban, & DeScioli, 2013). Furthermore, privileged groups project disgust onto marginalized groups to dehumanize them and to justify their mistreatment (Nussbaum, 2001). Consequently, interpersonal contact and positive information that

humanizes marginalized groups may help reduce stigmas (Tompkins, Hillman, Shields, & White, 2015; Pettigrew, 1998). The current study tests the hypothesis that disgust is associated with disability prejudice, and that humanization of PWD through contact and exposure can decrease that prejudice.

Disability and Ableism

The marginalization of PWD is the result of centuries of discrimination and cruelty. Throughout the 19th and 20th centuries, PWD were sterilized and institutionalized; in the Holocaust, PWD were one of the first populations killed in concentration camps (National Consortium on Leadership and Disability, 2011). The 21st century has seen a climate shift of political correctness and a push for complete equality; disability rights have paralleled other civil rights movements in terms of increased legal protection and increased integration into society. Despite these improvements, PWD continue to be stigmatized and ignored. For example, compared to those without disabilities, PWD are nearly four times less likely to be employed, and graduate high school at only $\frac{3}{4}$ the rate of people without disabilities (Bureau of Labor Statistics, 2018; Diamant, 2014). PWD are more likely to experience abuse in their lifetime, are more excluded from education, and are less represented in both positions of power and in mainstream settings (Goodley, 2011). Even when PWD are recognized in society, it is often as the target of sympathy and pity, which maintains their exclusion and extreme vulnerability.

Perhaps disability prejudice has persevered in part due to the normalcy that surrounds disability otherization. Disability is often visible, both in the obvious sense of physical abnormalities and by the physical separation of PWD that has become the norm.

PWD are separated in different classrooms and jobs, different sports teams and recreational activities, to the extent that people without disabilities rarely have any contact with or exposure to PWD. Even unrelated daily language separates PWD; words such as “retarded”, “cripple”, and “lame” evoke negativity and all stem from the notion of disability. Very few structures integrate people with and without disabilities, so of course there is lingering prejudice when PWD are rarely seen as equal humans.

The Psychology of Prejudice, Stereotypes and Discrimination

Prejudice, stereotypes, and discrimination are among the most widely studied topics in social psychology, as bigotry is the driving force behind human history’s most horrendous forms of violence. Together, these three components begin to explain the existence of negative attitudes toward people in outgroups, such as PWD. Stereotypes are the cognitive component of bigotry. They are schemas, or mental representations of a particular group. With regard to PWD, schemas become overgeneralized beliefs about the traits and attributes of members belonging to that group (Greenberg, Schmader, Arndt, & Landau, 2015). Although stereotyping often has a negative connotation, Dovidio, Hemstone, Glick, and Esses (2010) specify that stereotypes are advantageous: schemas are needed for efficient mental categorization and social perception. In addition to preserving mental resources, schemas allow individuals to summarize all knowledge pertaining to a particular topic and use that information to make inferences and predictions (Greenberg et al., 2015). For instance, a schema about athletes might lead to the belief that tall individuals excel at sports. While this belief is not inherently negative, it is an overgeneralization that fails to apply to all people categorized as tall. It is

important to acknowledge that not all predictions based upon stereotypes are accurate and many can have negative implications when these stereotypes hold negative connotations.

Stereotypes with negative connotations can lead to prejudices regarding particular groups. Prejudice refers to the affective element of bigotry, or the attitudes and emotions directed toward a subject. As Allport (1954/1979) explains, prejudice is the negative attitude or antipathy toward an individual based solely on that person's presumed membership in a particular group (i.e., racial group, religious groups, ability group, etc.). Prejudices in themselves are negative; however, they may not have negative implications for others until they manifest as discrimination. Discrimination is the behavioral component of bigotry, defined as the negative actions targeted toward individuals based upon their membership in a particular group (Greenberg et al., 2015). Whereas examples of prejudice include disliking or feeling disgusted by PWD, examples of discrimination include denying equal rights, or the most disturbing form of discrimination, genocide. Among the theories pertaining to prejudice, ingroup bias and social identity theory are the most prominent. As Allport (1954/1979) first explained, ingroup bias is the tendency to evaluate the ingroup to which one belongs more positively than outgroups, to which one does not belong. Additionally, ingroup bias emphasizes the propensity to prefer what is familiar and connected to oneself (Greenberg et al., 2015). Ingroup bias is an effort to maintain one's self esteem through positive associations with the ingroup. For instance, humans prefer one's own family, race, language, nationality, and the like, to those of outgroups (Mullen, Brown, & Smith, 1992).

Commonly associated with ingroup bias is Tajfel and Turner's (2004) social identity theory, which holds that people are motivated to increase their self-esteem by

maintaining a positive social identity, which is often accomplished through comparing one's ingroup with relevant outgroups (e.g., collegiate Greek fraternity organizations comparing their chapters to others on campus). Further, ingroup members have a self-serving bias, in which people tend to view their ingroup as especially positive and distinctive in comparison to outgroups (Dovidio, Glick, & Rudman, 2005). Research on social identity theory has shown that merely being categorized as a group member is enough to evoke intergroup differentiation and discrimination (Hewstone, Fincham, & Jaspars, 1981) and motivates ingroup members to enhance their self-esteem through intergroup comparisons (Oakes & Turner, 1980).

Prejudice can be difficult to study via self-report due to self-report bias that reduces participant reliability and consequently measure validity. Therefore, contemporary research has focused on implicit rather than explicit attitudes. While explicit attitudes refer to attitudes that are deliberate, conscious, and easily self-reported, implicit attitudes refer to attitudes that are involuntary, unconscious, and accessed indirectly through novel measures (Greenberg et al., 2015). While research on implicit attitudes is frequently accomplished through Greenwald, McGhee, and Schwartz's (1998) implicit attitudes test (IAT), which measures the strength of association between concepts and evaluations (e.g., good or bad), more recent research indicates that the IAT may not actually predict behavior (Blanton et al., 2009). For instance, the Disability-Attitudes IAT may indicate that an individual holds negative attitudes toward PWD, but nonetheless the individual acts in ways that contradict their IAT results (e.g. volunteering to work in a special education classroom). In light of the IAT's validity issues, other ways of

measuring attitudes should be considered, such as using self-report surveys which validly assess prejudice indirectly.

Dehumanization

Dehumanization is a manifestation of prejudice in which outgroup members are viewed as less than human as a means of undermining those outgroups. In an extreme form of dehumanization, outgroup members are compared with nonhuman animals. For example, during World War II, European Jews were compared with disease carrying rats (Greenberg et al., 2015). Historically, reducing people to animals has been a recurrent form of prejudice and discrimination that ultimately works to justify inhumane treatment by removing a target group from moral consideration (Greenberg et al., 2015). In addition, dehumanization through animal comparisons is a way for people to distance themselves emotionally and physically from outgroups, aligning with social identity theory, as distancing oneself from outgroups is a way to increase self-esteem and to preserve a positive social identity (Oakes & Turner, 1980). Another form of dehumanization is the tendency to perceive outgroup members as lacking qualities viewed as uniquely human, for instance not possessing emotions such as terror, grief, passion, or joy (Greenberg et al., 2015). This form of dehumanization is often seen toward PWD, in which abled-bodied individuals may view PWD (intellectual or physical) as lacking the ability to perceive and feel human emotions (Greenberg et al., 2015).

Disgust

Disgust may play a role in negative attitudes toward PWD. Disgust is a negative emotion that many believe has likely evolved as an avoidance mechanism to protect organisms from contact with potentially harmful pathogens (Tyber et al., 2013). Similar

to other basic emotions, Rozin and Fallon (1987) explain that disgust has a characteristic facial expression that includes furrowing one's brows, lifting the upper lip, and scrunching the nose to presumably distance oneself from the potentially harmful substance. Traditionally, disgust involves the revulsion at the thought of oral incorporation of disgusting stimuli such as bodily waste or rotting food; however, Tyber et al. (2013) explain that disgust can extend to stimuli where pathogen cues are subtler, such as strong smells, the presence of insects, or general abnormality. When judging the level of threat in a potential pathogen, Schaller and Park (2011) explain that it is advantageous to avoid all potential pathogens, therefore as a first line of defense humans have evolved a "behavioral immune system," which is highly sensitive to pathogen cues. While the behavioral immune system is efficient at protecting humans from potential pathogens, some non-harmful stimuli such as abnormal bodies can trigger false positive errors and appear disgusting. As a result, this oversensitive disgust detector may lead to negative attitudes and discriminatory behavior toward PWD, as unnatural bodies and non-normative abilities may serve as potential pathogen cues (Schaller & Park, 2011). While some disgust theorists focus on unnatural stimuli as potential pathogen cues, Douglas (2013) presents a different perspective, arguing that the emotion of disgust is more of a psychological defense mechanism, protecting us from the deeper anxiety that comes from the threat of misunderstanding the world we live in. Humans have a need for order, to fit experiences and stimuli into existing schemas. Stimuli that defy the order we understand threaten our trust in our understanding of the rest of the world. Douglas (2013) explains that when objects or people fall outside of our carefully constructed schemas, we feel threatened and consequently we can feel disgusted to avoid the threat.

For example, non-normative bodies (e.g amputated stump, wheelchair use) and non-normative abilities (e.g intellectual delays) fall outside of the ‘natural’ or the ‘normal’ and so threaten our understanding of what it means to have a body and what it means to have ‘normal’ abilities. In result, negative attitudes toward PWD may partially be driven by threatened norms and insecure schemas.

Another underlying domain of disgust is animal-reminder, in which Rozin and Fallon (1987) explain is linked to the “animal-human boundary,” wherein we tend to distance ourselves from our own animality for fear of our own mortality. Animals remind us that we too are made of meat and while we may have complex human minds, like non-human animals we will eventually rot and decay. Rozin and Fallon (1987) explain that nearly all stimuli we find disgusting has an animal origin; for example, there is a component of animality in bodily waste, sex, and injury. Animality is a physical representation of what we fear and avoid in ourselves. Nussbaum (2001) states “we don’t often stop at feces, cockroaches, and slimy animals. We need a group of humans to bound ourselves against” (p. 107). As such, the implication that someone is less than human, or animal-like, is a suggestion of disgust and rejection. Dehumanization of others is prejudice in its most extreme form and acts as an effective means of marginalizing outgroups. Rozin and Fallon (1987) explain that humans see themselves as far superior to animals, so any suggestion to ambiguity is revolting. Non-normative bodies and non-normative abilities present ambiguity in the definition of a person with a disability, and consequently may appear disgusting due to the animal reminder it implies.

To explore further the connection between disgust and prejudice, Inbar et al. (2009) considered how one’s disgust sensitivity (the tendency to experience the emotion

of disgust (Van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006)) relates to negative attitudes toward marginalized groups. Inbar et al. (2009) discovered that participants who scored high on disgust sensitivity showed more negative attitudes toward gay men compared to participants who scored low on disgust sensitivity, suggesting that individual disgust sensitivity influences one's negative interpersonal biases. Adding further to their research, Inbar, Pizarro, and Bloom (2011) found that when eliciting disgust via the introduction of an unpleasant odor, participant's negative attitudes toward gay men increased. While this finding demonstrates that the presence of disgust can elicit negative attitudes toward gay men, little research has considered how decreasing the emotion of disgust may affect negative attitudes, particularly among other marginalized groups such as PWD.

Contact and Humanization

References to PWD and other marginalized groups often utilize dehumanizing, disgust-oriented language that paints the picture of PWD as being sub-human. Terms such as 'retarded' and 'disabled' otherize the population of PWD as it defines them by their disability and creates the notion that they are separate from us and therefore can be treated differently. Many studies have demonstrated the importance of contact in reducing prejudice (Allport, 1954/1979; Pettigrew, 1998); recent research has emphasized the importance of contact, explaining that it humanizes the outgroup (Tompkins et al., 2015). The process of humanization reduces prejudice by targeting cognitive reappraisal of stereotypes and forcing extinction of prejudiced assumptions of PWD.

Pettigrew's (1998) contact hypothesis suggests that contact with outgroups forces cognitive reappraisal of stereotyped assumptions as one learns about the 'outgroup and realizes their humanity. Pettigrew and Tropp's (2006) meta-analysis showed that intergroup contact reduced prejudice toward many minority groups (e.g. differing racial identities, mentally ill, etc.). Contact mediates cognitive reappraisal of existing schemas to incorporate more nuanced and positive understandings. Contact may also reduce prejudice by reducing disgust. Disgust motivates avoidance of contact; but if exposed in non-disgust inducing ways, contact may be a form of exposure that replaces pre-existing stereotypes with learned information, ideally resulting in the extinction of preexisting stereotyped associations about PWD.

In his book *The Nature of Prejudice*, Allport (1954/1979) emphasized the importance of the type of contact. Infrequent and casual contact may not always eliminate prejudice as it forces little reappraisal. Recent work has focused on interpersonal, humanizing contact, which effectively reduces prejudice. Yuker and Hurley (1987) found that participants who experienced contact with PWD in social and personal settings (humanizing settings) developed positive attitudes regarding PWD. This contact contrasted with participants who interacted with PWD in medical or rehabilitative settings, who maintained negative attitudes. The study by Yuker and Hurley (1987) demonstrates the importance of humanization. Personal connections equalize PWD, whereas medical settings push a power dynamic as PWD are seen as abnormal, or less than human. Tompkins, Hillman, Shields, and White (2015) found a similar effect comparing informational contact to humanizing contact. When participants watched humanizing videos of transgender people, they developed much more positive attitudes

than participants who watched an informational video about transgender people. Humanization works in direct opposition to disgust. Humanization of PWD removes the animal association that may create or enhance the feelings of disgust. Despite the non-normative bodies and abilities of PWD, they are human. Humanizing contact with PWD emphasizes the similarities we all share as humans and may help to reduce disgust toward marginalized groups, and consequently may reduce prejudice toward those groups (Buckels & Trapnell, 2013).

Current Study

The goal of the present study was to examine the impact of a disability humanization intervention on attitudes toward PWD and on contact disgust, as moderated by disgust sensitivity. Participants were randomly assigned to either a humanizing intervention or a control condition. For the intervention, participants watched a Paralympic video in which PWD are humanized by depicting a successful swimmer without arms. Before and after the intervention, we assessed participants' explicit attitudes and implicit disgust toward PWD. We predicted that the participants would have more negative attitudes toward PWD than people without disabilities. We predicted that the humanizing intervention would improve attitudes toward PWD, as reflected in both explicit attitudes (Disability Attitudes Scale) and implicit disgust (Indirect Contact Disgust Scale). Additionally, we predicted that disgust sensitivity would moderate both effects, such that individuals higher in disgust sensitivity will show reduced treatment effects. For the purposes of this paper, disability is defined as an intellectual, developmental, or physical disability or abnormality, however the current study will use

physical disability as a visual cue in the intervention video as it is more pervasive in conveying the concept of disability.

Method

Participants

Participants included 150 people from the United States. They ranged in age from 21 to 72 ($M = 36.40$, $SD = 11.10$), and varied in race and ethnicity (107 white, 14 black or African American, 14 Hispanic, 5 Native American, 6 Asian, 4 mixed race), and gender (57 female and 93 male). Participants independently found the study on Amazon's Mechanical Turk (M Turk) and were compensated monetarily via M Turk.

Measures

Disgust Scale-Revised

To measure individual disgust sensitivity, each participant took the Disgust Scale-Revised (DS-R), a measure originally developed by Haidt, McCauley, and Rozin (1994). The scale consists of 27 items, each pertaining to disgust in one of three subscales: core disgust (e.g. "you are about to drink a glass of milk when you smell that it is spoiled"), animal-reminder disgust (e.g. "you see a man with his intestines exposed after an accident") and contamination disgust (e.g. "you take a sip of soda, and then realize you drank from the glass that an acquaintance of yours had been drinking from"). Half of the questions ask participants about their disgust response to stimuli on a 4-point numerical scale with responses ranging from 0 = *strongly disagree*, to 4 = *strongly agree*. The other half of the questions ask participants to rate scenarios on a 4-point numerical scale ranging from 0 = *not disgusting at all*, to 4 = *extremely disgusting*. Two items are catch items and were later removed. These scores translated into a final score that could range

from 0-100, determining an individual's dispositional disgust sensitivity, in which higher scores indicate that the participant is more prone to experiencing disgust. The DS-R had high internal consistency ($\alpha = 0.87$) in the present sample, demonstrating its reliability.

Disability Attitudes

The Disability Attitudes-revised measure (DA) is a 34-item questionnaire adapted from The Multidimensional Attitudes Scale Towards Persons with Disabilities (MAS) (Findler, Vilchinsky, & Werner, 2007; Yucker & Hurley, 1987). The scale measures participants' explicit assumptions and beliefs about PWD to detect ableism. The MAS has previously proven to be a valid measure, evaluating true attitudes toward PWD (Dachez, NBodo, & Ameline, 2015; Findler, Volchinsky, & Werner, 2007). It asks participants to rate how much they agree with prejudiced statements regarding PWD in a more general sense than used in the MAS (e.g. "people with disabilities are capable members of the workforce"). In order to prevent response bias, the survey consisted of 20 questions related to individual attitudes toward PWD and the remaining 14 questions were not scored and pertained to attitudes toward other groups of people such as athletes, women, and single parents. Participants responded using a 4-point numerical scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. The questions included reverse-scored items to avoid blind responding. The DA scale had high internal consistency for both the pre-intervention survey, $\alpha = 0.82$, and for the post-intervention survey, $\alpha = 0.82$.

Indirect-Contact Disgust

We revised the Indirect-Contact Disgust measure (ICD) originally created by Rozin, Markwith, and McCauley (1994) to measure contamination disgust toward PWD. The scale measures participants' explicit comfort with contact with people in outgroups, implicitly measuring their disgust with those outgroups. Contact is highly related to

disgust, as disgust motivates an avoidance of contact. This measure bridges the gap between prejudice and disgust. The measure consists of four sections, each with nine questions pertaining to different scenarios regarding comfort with indirect or interpersonal contact with people that have various disabilities or illnesses from lowest to highest degree (e.g., someone who has strep throat, someone in a wheelchair, someone who is quadriplegic). While each of the five sections are set up with different scenarios, such as “imagine wearing a brand new sweater,” the nine questions in each section parallel each other, excluding the slight wording adjustments needed to fit each question with its corresponding scenario (e.g., adjusting the question, “how would you feel about wearing a sweater after being worn by a person who uses a manual wheelchair?” to fit the second scenario, “how would you feel about staying in a hotel room previously occupied by a person who uses a manual wheelchair?”). Scoring included aggregating participant's responses for each of the nine questions across the four scenarios and averaging the scores. This method allowed the comparison of scores across varying degrees of disability (broken arm, wheelchair dependent, amputated arm, and quadriplegic). The total ICD scale had a high internal consistency for both the pre-intervention survey, $\alpha = 0.86$, and the post-intervention survey, $\alpha = 0.87$. When scores for the four disability contact groups were tallied together, there was an even higher internal reliability for both the pre-intervention survey, $\alpha = 0.95$, and the post-intervention survey, $\alpha = 0.97$.

Procedures

Participants enrolled in the study on M Turk and, after reading a study overview, signed an electronic consent form. All participants first completed the Disgust Scale-Revised, the Disability Attitudes scale, and the Indirect Contact Disgust scale.

Participants were then randomly assigned to one of two conditions, either the experimental condition in which participants watched a humanizing video (Paralympic Games, 2012) or the control video condition (Edwin, 2017), each lasting approximately five minutes long. The experimental video depicted a man without arms competing and winning a Paralympic swim race, it elicits vicarious contact with PWD, a form of intervention shown to be an effective tool for reducing prejudice (Tomkins et al., 2015). The control video was an informational video about glass blowing. The participants watched their respective videos and afterwards answered an attention check to confirm they did watch the video. They next completed three additional questionnaires, displayed in a random order. Two of the questionnaires were exact repeats of the Indirect-Contact Disgust scale and the Disability Attitudes questionnaire, the third questionnaire collected demographic information, including participants' previous contact with PWD. Following the final questionnaire, participants read an electronic debrief form explaining the full nature of the current study and were compensated monetarily for their time. Participant data was collected anonymously through M Turk and stored and analyzed on password protected computers.

Results

Group Characteristics

As demonstrated in Table 1, the experimental group and the control group were sufficiently matched in demographic characteristics. As expected, participants did not significantly differ in age, gender, or disgust sensitivity. There were, however, unexpected group differences in ethnicity ($p = 0.028$) and previous contact ($p = 0.006$). Indeed, all those who reported having a personal disability ($n = 6$) were all randomly assigned to the control condition. In accordance with our hypotheses, we predicted that the intervention would have less of an effect on those high in previous contact, therefore, the unanticipated assignment of participants who reported having a personal disability in the control group should minimize rather than inflate our predicted effects.

Table 1
Group characteristics.

	Control ($n = 71$)	Intervention ($n = 79$)	95% CI	Test Statistic
Age	33.8	36.4	[-1.03, 6.19]	$t(146) = 1.41, p = 0.160, d = 0.233$
Gender				$\chi^2 = 1.04, p = 0.309$
% Female	42.3	34.2		
Ethnicity				$\chi^2 = 12.6, p = 0.028$
% White	70.4	72.2		
% Black	2.8	15.2		
% Hispanic	12.7	6.3		
% Asian	4.2	2.5		
% Native American	4.2	3.8		
% Other	0	5.6		
Contact				$\chi^2 = 14.4, p = 0.006$
% No contact	16.9	5.1		
% Minimal	21.1	32.9		
% Moderate	32.4	32.9		
% High	21.1	29.1		
% Personal	8.5	0		

Disgust and Ableism

Participants were expected to display more negative attitudes toward PWD than toward people without disabilities as measured by the DA measure and the ICD measure. We compared the sample mean score on the DA to the midpoint of the scale (50), which represents a neutral attitude. A one sample *t*-test revealed significantly lower rates of negative attitudes toward PWD than the neutral midpoint, $\bar{x} = 47.30$, $t(146) = -3.64$, $p < 0.001$, 95% CI [-4.13, -1.22], $d = -0.30$. This finding of a positive attitude toward PWD contradicted our hypothesis. Next, we compared the target contact groups in the ICD scale using a repeated measures ANOVA. As shown in Figure 1, the ANOVA revealed a significant difference in participant comfort for contact with the eight different groups, $F(7, 1,015) = 62.90$, $p < 0.001$, partial $\eta^2 = 0.027$.

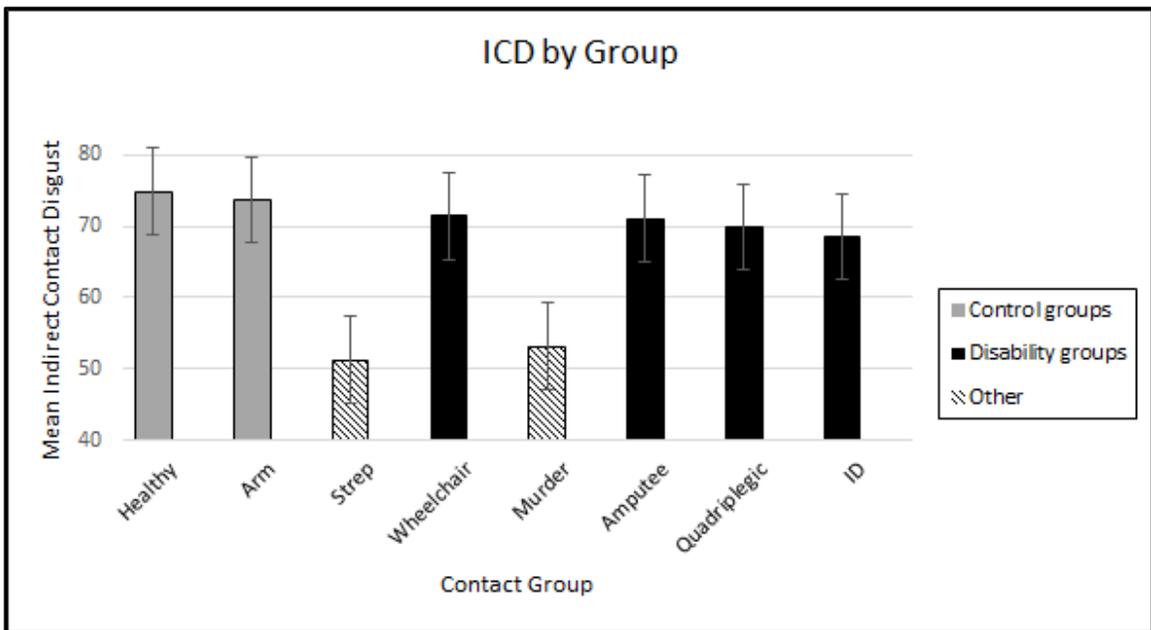


Figure 1. Mean ICD scores by contact group representing the average comfort for contact with each group across all five scenarios. Error bars indicate 95% confidence intervals.

We followed up the ANOVA with 8 Bonferroni-corrected paired samples *t*-tests in which the alpha was set to $0.05/8 = 0.006$. The *t*-tests compared each of the disability contact groups to the two control contact groups (i.e. a healthy person and a person with a broken arm). These tests revealed that participants were significantly less comfortable with contact with all four of the disability contact groups (wheelchair, amputee, quadriplegic, and intellectual disability) than for either control group, as shown in Table 2. Additionally, there were no significant differences in comfort levels for the two control contact groups (i.e. healthy person and broken arm), as revealed by a paired samples *t*-test, $t(145) = 1.59, p = 0.11$. Laken’s (2017) Two One-Sided Test (TOST) of equivalence confirmed that the non-significant difference was smaller than a small effect size (less than a mean difference of 5.21, $p < 0.001$ and more than a mean difference of -2.04, $p = 0.022$). The findings for the ICD scale matched our hypotheses, demonstrating that participants were less comfortable in contact with PWD than people without disabilities.

Table 2
Comparative comfort levels with PWD and control groups

Control contact	Disability contact	$\bar{X}_1 - \bar{X}_2$	<i>t</i>	<i>p</i>	95% CI	<i>d</i>
Healthy person	Wheelchair	3.44	3.65	< 0.001*	[1.58, 5.30]	0.302
	Amputee	3.8	4.03	< 0.001*	[1.93, 5.66]	0.333
	Quadriplegic	4.96	4.42	< 0.001*	[2.75, 7.18]	0.366
	Intellectual Disability	6.24	4.6	< 0.001*	[3.56, 8.91]	0.381
Broken arm	Wheelchair	2.3	3.26	< 0.001*	[0.907, 3.70]	0.27
	Amputee	2.66	3.7	< 0.001*	[1.24, 4.08]	0.307
	Quadriplegic	3.82	4.06	< 0.001*	[1.96, 5.69]	0.336
	Intellectual Disability	5.1	4.43	< 0.001*	[2.82, 7.37]	0.367

* $p < 0.006$, Bonferroni-corrected alpha

We examined bivariate correlations to test the hypothesis that the two measures of negative attitudes toward PWD would be associated. As shown in Figure 2, participant

results on the DA scale and the ICD scale were significantly negatively correlated, such that participants who scored high on the DA scale, reflecting high levels of negative attitudes toward PWD, scored low on the IDC scale, reflecting low levels of comfort with PWD, $r = -0.30, p < 0.001, 95\% \text{ CI } [-0.14, -0.44]$. This significant correlation is in line with our hypothesis predicting a relationship between scores on the two measures of negative attitudes.

We also examined bivariate correlations to test the association between scores on the DA and ICD with disgust sensitivity, as measured by the DS-R (see Figure 2). Scores on the DS-R correlated with scores on the DA scale, $r = 0.37, p < 0.001, 95\% \text{ CI } [0.51, 0.22]$, such that participants who scored high in disgust sensitivity also scored high on the DA scale. This correlation matched the hypothesis and demonstrated a relationship between disgust sensitivity and negative attitudes toward PWD. The DS-R also correlated with the ICD scale, $r = 0.21, p = 0.012, 95\% \text{ CI } [0.36, 0.22]$, such that participants who scored high in disgust sensitivity also scored high on the ICD scale. This finding contradicted the hypothesis; it was expected that participants high in disgust sensitivity would score low on the ICD scale, reflecting a discomfort with contact with PWD.

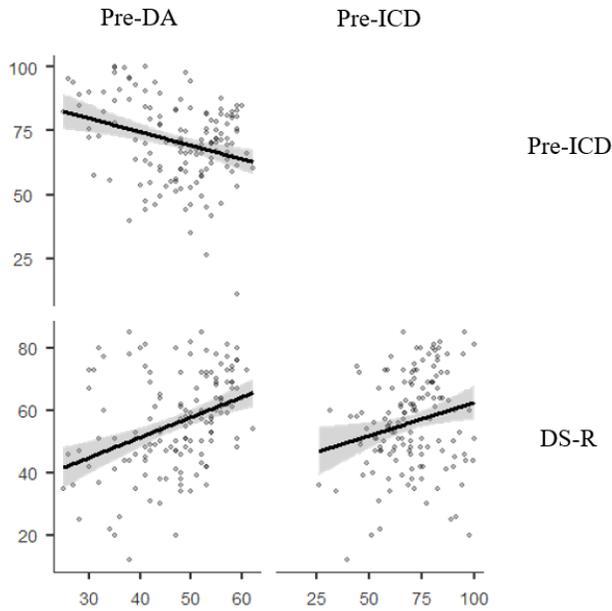


Figure 2. Correlation matrix relating mean scores for Pre-DA, Pre-ICD, and DS-R. Represents a significant negative correlation between DA and ICD, and significantly positive correlations between DA and DS-R and between ICD and DS-R.

It was expected that amount of previous contact with PWD would positively influence participant's attitudes toward PWD, such that amount of previous contact would be negatively correlated with the DA and positively correlated with the ICD. In order to test these hypotheses, we performed a correlation matrix between previous contact and pre-DA as well as between previous contact and pre-ICD. Contrary to our hypotheses, there was no significant correlation found between previous contact and pre-DA, $r(142) = -0.066, p = 0.43$. In addition, there was no significant correlation found between previous contact and pre-ICD, $r(142) = 0.13, p = 0.12$.

Humanizing Intervention

It was predicted that the humanizing intervention would reduce negative attitudes and avoidance toward PWD in the experimental condition, but not for the control condition. Contrary to our hypotheses, a mixed-effects 2 x 2 ANOVA on DA scores with between-subjects factor condition (treatment, control) and repeated-measures factor time (pre, post) did not yield a significant interaction between condition and time, $F(1, 143) = 0.56, p = 0.45, \text{partial } \eta^2 = 0.004$, such that the treatment did not improve attitudes toward PWD as compared to the control group. Additionally, a mixed-effects 2 x 2 ANOVA on ICD scores with between-subjects factor condition (treatment, control) and repeated measures factors time (pre, post) did not yield a significant interaction between condition and time $F(1, 143) = 0.29, p = 0.59, \text{partial } \eta^2 = 0.002$, such that the treatment did not increase comfort with PWD as compared to the control group. Given the lack of the significant treatment effects, we did not examine moderation by DS-R or previous contact with PWD.

Discussion

Despite the wide prevalence of prejudice and discrimination toward PWD, previous research has overlooked how the emotion of disgust may influence disability prejudice. The current study explored the presence of negative attitudes toward PWD and the relationship of those attitudes to the emotion of disgust. Furthermore, we investigated the efficacy of a humanizing intervention, a competitive athletic video of a person without arms, to decrease negative attitudes toward PWD. As demonstrated in the ICD measure, participants had significantly more negative attitudes toward, and less comfort with PWD as compared to other outgroups. The present study revealed a relationship

between the emotion of disgust, in individual disgust sensitivity, and disability prejudice, as shown in correlation between the DS-R and DA scales. However, the DS-R was inversely related to prejudice in the ICD. Despite this unexpected finding, we found support for the validity of our novel indirect measure of disgust toward PWD, as the ICD was correlated with more explicit ableist attitudes measured by the DA. Contrary to expectations, the intervention showed no significant effect on participant attitudes toward PWD.

Ableism and Disgust

The present study used two modified measures of negative attitudes toward PWD, the ICD scale and the DA scale. Scores on the ICD scale revealed significant disability prejudice, as hypothesized. The results on the ICD measure demonstrate its validity and nuance. Participants were significantly less comfortable with contact with all four disability groups (i.e. a person in a wheelchair, an amputee, a quadriplegic, and a person with an intellectual disability) than they were with contact with either of the control groups (i.e. a healthy person and a person with a broken arm). The ICD appeared to be a valid measure of ableist prejudice, as it predicted scores on the DA, which correlated with disgust sensitivity. Furthermore, the ICD appeared to measure more than the DA, as it captured actual bias, revealing negative attitudes toward PWD not revealed by the DA. The bias toward PWD is nuanced; participants did not avoid PWD as much as the person with strep throat or as much as the murderer, however, the bias against PWD was still present. PWD were avoided significantly more than the healthy person or a person with a broken arm. The distinction between a person with a broken arm, a temporary disability, and a person with a permanent disability (i.e., the four disability groups) suggests that

avoidance of PWD is not simply an avoidance of the physical abnormality or presence of disability, it is the avoidance of people who fit the socially constructed notion of “disabled” (Goffman, 1963). A person with a broken arm is not considered to be disabled, but a person without an arm is. The notion of disability holds symbolic meaning much more than it holds literal meaning; the essence of PWD as irredeemably divergent from the norm; that is what is considered to be inferior and disgusting (Goffman, 1963). The fear of contact with PWD implies a fear on contamination with the essence of that person who was deemed disgusting. Through contact, there is a fear that the properties of PWD will be transferred (Rozin, Millman, & Nemeroff, 1986). PWD are avoided because of a fear of contamination by the notion of disability. The ICD scale highlights the stigma surrounding the notion of disability and that stigma is based in disgust as it motivates avoidance.

The results for the DA scale countered our hypothesis; participants reported significantly lower negative attitudes toward PWD than the neutral midpoint of the scale. The lack of disability prejudice on the DA scale may be due to response bias. The DA is an explicit measure of prejudice and may therefore influence participants to respond with more socially favorable answers. Furthermore, the midpoint of the DA scale may have been a somewhat arbitrary point of comparison as attitudes toward PWD were not compared to groups of other types of people, as was done in the ICD scale. Therefore, while the one sample t-test did not reveal participants to have negative attitudes toward PWD, bias might be present if disability attitudes were to be compared to attitudes toward other groups.

Despite the unexpected lack of significant bias on the DA, it did correlate with the ICD scale on which bias was observed. Thus, both measures appeared to tap into negative attitudes toward PWD. The ICD scale is an indirect measure of negative attitudes toward PWD and applies them to real scenarios (e.g. “How would you feel riding the bus next to a person with an intellectual disability”). The ICD contrasts with the DA, which explicitly asks about opinions of PWD (e.g. “People with disabilities usually do not make much of a contribution to society”). Perhaps the subtleties of an indirect measure eliminated participant response bias, contributing to the finding of negative bias for the ICD but not the DA. This finding suggests that people believe that prejudice toward PWD is wrong, but in practice still feel averse to contact with that population. This distinction is significant as it integrates the notion of disgust. The emotion of disgust goes beyond avoidance of disgusting stimuli but extends to objects and spaces contaminated by that stimuli, leading to disgust via contact with objects and people. Perhaps the ICD scale was more sensitive to negative bias compared to the DA because it captured disgust at contamination with PWD, whereas the DA focused on attitudes toward PWD at a more abstract level.

Consistent with our hypotheses, participant disgust sensitivity, as demonstrated through scores on the DS-R, significantly correlated with scores on the DA such that people with higher disgust sensitivity had higher prejudice toward PWD. The DS-R did not, however, correlate as expected with the ICD. There was a positive relationship between the DS-R and the ICD, when a negative correlation was predicted. We believe this finding was a spurious correlation driven by chance, given how unlikely this relationship would be given prior theory and research. However, the fact that the DA and

the ICD were correlated, and that the DS-R and DA were correlated, suggests that there may be a relationship between negative attitudes toward PWD and higher dispositional levels of disgust sensitivity. A person high in disgust sensitivity will have a highly active behavioral immune system and falsely identify more stimuli as pathogen cues. Consequently, high disgust sensitivity may lead to greater behavioral avoidance to stimuli that are mis-identified as disgusting, such as the abnormal bodies and behaviors of PWD. This is an important finding, as the present literature fails to include the emotion of disgust in disability prejudice research. Perhaps understanding the existence of a relationship between disgust and disability prejudice may inform improved strategies to decrease social stigma and prejudice.

Humanizing Intervention

The present study did not reveal significant changes in negative attitudes toward PWD as a consequence of the humanization intervention, contrary to our predictions. Participants in the experimental condition did not show altered responses in either of the negative attitudes measures (i.e. DA or ICD) compared to the control condition. Further research should test the validity of the intervention by using a manipulation check that asks how human participants find PWD before and after the video. A manipulation check would confirm whether or not the manipulation worked, that is, whether or not the video humanized PWD. If the intervention did not work as expected, this could be the result of the nature of the intervention. The experimental video was just five minutes long and perhaps not salient enough to elicit a cognitive reappraisal of PWD. Although the video did reveal a man without arms successfully competing in a strenuous athletic competition, a humanizing activity generally not associated with PWD, perhaps this

informational form of humanizing contact is not strong enough to modify schemata for PWD. If this was the case, future investigations should enhance the intervention to thoroughly challenge existing schemas about PWD to force cognitive reappraisal to humanize such an ostracized population. The use of videos as vicarious contact has proven to be effective and hold practical applications (Tompkins et al., 2015), however the contact should be enhanced through longer interventions, more in-depth interventions, or interactive interventions. For example, Tomkins et al. (2015) used videos depicting personal stories of people belonging to marginalized groups and ran participants through perspective-taking tasks. These methods promote empathy and teach about the outgroup, which corrects negative attitudes to force cognitive reappraisal of existing stereotyped understandings of outgroups to include relatable and humanized descriptions (Pettigrew, 1998).

An unsuccessful intervention may also have been due to the use of M Turk workers as participants, who may have been more concerned with completing the study quickly in search of compensation, than they were with thoroughly completing it. The removed setting on a worker online on their personal computer may have led to a lack of investment and intentional responses. While the use of M Turk allows for a larger and more diversified sample, future studies should compare responses from M Turk workers to responses from a potentially more engaged convenience sample.

Limitations

While interpreting the results of the present study, it is important to keep several limitations in mind. In addition to the potential influence of the M Turk worker participants on the results of the intervention, the nature of our participants poses other

problems. For instance, due to the number of questions and tasks the present study involved, it is possible that participant exhaustion and loss of attention led to inaccurate results, especially on post-DA and post-ICD. In addition, workers on M Turk can participate in research from any internet-connected device, meaning that there is a high likelihood that participants varied in their level of distraction and willingness to read the questions thoroughly and watch the humanizing video to its entirety. Future research should focus on decreasing response bias and participant fatigue by adding manipulation checks throughout the study to increase participant motivation.

Participants were also largely white and able-bodied, which poses a threat to external validity. While PWD comprise 15% of the population, our sample included only six participants who have a disability, all of whom who were randomized into the control group (perhaps contributing to the null results of our intervention). The unrepresentative sample likely limited the effects of our intervention as the group characteristics were uneven between the experimental and control conditions. If PWD are less biased against PWD than people without disabilities, then the randomization of all PWD to the control condition may have made mean scores of ableism in the control group lower than expected.

Conclusion and Future Prospects

Ableism is a rampant form of prejudice that impacts one of the world's largest and most diverse minority groups. Despite the group's prevalence, it has been largely neglected by the scientific community working to understand prejudice. Identifying disgust as a key component to the basis of disability prejudice is an important first step in deconstructing ableism and in developing interventions that target disgust-based

prejudice. The current study revealed a connection between disgust and ableism, highlighting the importance of the adverse emotion in disability prejudice research. Despite the insignificant effect of the intervention, vicarious contact as an intervention for prejudice holds exciting possibilities with practical applications for reducing ableism. Our findings promise a new direction for research aimed at reducing ableism through a disgust-based approach, a direction that more thoroughly understands the origins of disability prejudice.

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