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**EFFECT OF EMPATHY INTERVENTION ON PERCEPTIONS AND BELIEFS
ABOUT INDIVIDUALS DIAGNOSED WITH AUTISM SPECTRUM DISORDER**

A Masters Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Psychology

By

Asia Hulse

May 2016

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Psychology

Missouri State University, May 2016

Master of Science

Asia Hulse

ABSTRACT

Children diagnosed with Autism Spectrum Disorder (ASD) often experience stigma through acts of discrimination, bullying, and feelings of isolation and loneliness. Additional concerns of bearing the diagnosis include being treated differently by peers and an overall sense of feeling different than others. However, inclusive behavior and positive attitudes toward individuals with ASD can be facilitated through contact and interventions. This study sought to understand the impact of an empathic training video compared to an educational training video on college students' beliefs and knowledge about peers with this disorder. Results were significant for participants receiving the empathic training for higher scores on beliefs about the abilities of those with ASD as well as more positive opinions held toward them. Further findings indicate significant increases in beliefs about abilities and knowledge of the disorder for individuals with a close friend or family member diagnosed with ASD. This supports the use of empathy inspired trainings to facilitate more positive opinions and views about individuals with ASD.

KEYWORDS: autism, peer perceptions, stigma, intergroup contact hypothesis, beliefs, knowledge, disability

This abstract is approved as to form and content

Paul Deal, PhD
Chairperson, Advisory Committee
Missouri State University

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INTRODUCTION

Literature Review

An ASD diagnosis is characterized by persistent deficits in social communication and social interactions as well as restricted, repetitive behavior patterns present in the early developmental period (American Psychiatric Association, 2013). In addition, three levels of severity are identified for narrowing the precise presentation: level 1 – “requiring support”, level 2 – “requiring substantial support”, and level 3 – “requiring very substantial support.” A growing knowledge base on ASD is reflected in the recent changes of the diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders – fifth edition (DSM-V). The diagnosis of “Asperger’s Disorder” was subsumed under the umbrella “Autism Spectrum Disorder” despite many healthcare professionals’ and advocates’ insistence that the two diagnoses were different. In one study, 90% of psychologists surveyed believed there were major qualitative differences in the presentations of these diagnoses (Kite, Gullifer, & Tyson 2012). Further, participants viewed “Asperger’s” as less severe than “Autism” regarding the impact the diagnosis will have on the child.

Children diagnosed with Autism Spectrum Disorder (ASD) often experience stigma (Samson, Huber, & Ruch, 2011). Link and Phelan (2001) define stigma as “the co-occurrence of its components – labeling, stereotyping, separation, status loss, and discrimination.” Further, children and their parents identified stigmas associated with the ASD label as a concern (Calzada, Pistrang, & Mandy, 2011). Apprehensions consisted of others treating the child differently, the child feeling ostracized from others, and acts of

discrimination. These are frequently experienced by individuals with autism through bullying, fears of being laughed at, as well as feelings of isolation and loneliness (Martin & Bassman, n.d.).

Advances in awareness concerning the etiology of this disorder have been observed; however, a comprehensive understanding has yet to be accepted. The lack of agreement in terms and uncertainty of the cause of this disorder leaves the profession with conflicting ideas. Several studies have exhibited an importance of the relationship between knowledge about a disorder and reduction in stigma (Spagnolo, Murphy, & Librera, 2008; Nevill & White, 2011; Conner, McKinnon, Ward, Reynolds, & Brown, 2015). Ultimately, when confusion and misunderstandings are translated to the general public, it strengthens stigmas previously established.

An educational setting provides many social and academic struggles for an individual diagnosed with ASD. Challenges include sound sensitivity, poor use of visual discrimination, staring, lack of eye contact with others, repetitive body and object use, and limited language capacity (Myles, Simpton, & Johnson, 1995). These traits are observed by typically developing children within inclusive classrooms. Conversely, recent findings show students with ASD in full inclusion classrooms displayed greater social competence and number of friends than children involved in a non-inclusive classroom (Lyons, Cappadocia, & Weiss, 2011). Because of this, students are gaining increased exposure to others with ASD. However, Cappadocia, Weiss, and Pepler (2011) found 77% of parents reported their child with ASD had experienced some form of bullying within the last month at their school. These incompatible findings suggest a need

for exposure for those with the diagnosis, as well as increased empathic concern shown by neuro-typical peers.

The collegiate environment specifically presents numerous unique hurdles for all individuals but especially those diagnosed with ASD. Social aspects of this include appropriate communication expectations such as how to get along with a roommate, how to begin a conversation with a new individual, and what is acceptable when conversing with someone attractive (Van Berjeijk et al., 2008). Academic barriers for these individuals can include fine motor deficiencies, mandatory participation in final projects and large assignments, and distractibility due to an altered regular routine (Rose & Anketell, 2009). Group projects can also provide a source of anxiety for individuals with ASD. Since these students are prone to experiencing such difficulties, the importance of peer acceptance, inclusion, and positive attitudes are vital. Often interfering however, are previously established stigmas.

Stigmas

Stigmas attached to groups are likely to create distance from peers and extend diffusion of inaccurate information (Anderson, Jeon, Blenner, Wiener, & Hope, 2015). This is especially true if the individual is viewed by others as having control of the onset or the disorder has a behaviorally caused origin (Crandall & Moriarty, 1995). In a study assessing specific identifying aspects of stigmatization and social rejection, researchers observed participants' responses to a social distance scale and 40 different disorders from the DSM-IV-TR (Feldman & Crandall, 2007). From these findings, they developed a theory of predictability of stigmatization on mental illnesses consisting of perceived

responsibility, dangerousness, and rarity of the disorder. For disorders associated with these three aspects, higher levels of stigmatization were detected.

Interventions aimed at stigmas on mental health can be beneficial for prevention of self-stigma within an individual (Yanos, Lucksted, Drapalski, Roe, & Lysaker, 2015). Self-stigma is described as a phenomenon in which “people with mental illness who internalize stigma experience diminished self-esteem and self-efficacy” (Corrigan, Watson, & Barr, 2006). This type of stigma manifests itself in the individual with the diagnosis and has effects on seeking treatment, heightened symptoms, and decreased hope and drive to recover (Lucksted & Drapalski, 2015). For example, older adults diagnosed with depression showed a reduction in self-stigma after spending several weeks involved in a peer education group (Connor, McKinnon, Ward, Reynolds, & Brown, 2015). The intervention utilized peer groups that emphasized accurate information about the diagnosis, social and emotional support, and motivational interviewing practices.

Inclusive behavior and positive attitudes toward others can be facilitated through interventions with children (Fearon & Mearns, 2012; Ranson & Byrne, 2014). These interventions target a number of “out-group” areas such as race, class, and mental health. Interventions of various types have achieved successful outcomes. Owen-DeSchryver, Carr, Cale, and Blakeley-Smith (2008) showed peer training interventions significantly increased interactions between typically developed children and those with ASD. Peer training in this study consisted of three phases. The first phase utilized training techniques that promoted the importance of developing relationships between children with ASD. In the second phase, students participated in a discussion that centered on the

strengths and special abilities possessed by peers with ASD. This conversation aimed to guide thought processes about the presence of all children's needs and how those parallel children with ASD. The third phase presented children with concrete examples of ways to exhibit inclusive behavior and positive attitudes throughout the school day. The students' interactions were measured by frequency of initiating social situations and responses made by a student with ASD. The authors observed an increase in communications made by the typically developed students as well as positive responses to initiations from the children with ASD. Consequently, interactions are imperative to enhancing relationships between the stigmatized population and those who are typically developed.

Intergroup Contact Hypothesis

Contact with individuals identifying in minority groups has repeatedly reduced stigma and negative attitudes (Walch, Sinkkanen, Swain, Francisco, Breaux, & Sjoberg, 2012). Allport's Intergroup Contact Hypothesis (1954) first identified four key conditions for achieving a decrease this: equal status, common goals, intergroup cooperation, and support of authorities, law, or custom. Equal status between group members should be perceived and expected within the situation. Common goals are demonstrated by group members working toward an identified end result in which every member contributes. Intergroup cooperation involves collaboration without the presence of competition between members. Additionally, support of authorities, law, or custom provides individuals with an external incentive and greater inclination to interact with the specified out-group individuals. Several studies established the effectiveness of reducing prejudicial beliefs about a group when using this theory (Novak, Feyes, & Christensen,

2011; Pettigrew & Tropp, 2006). For instance, transgender individuals partaking in a speaker panel evoked decreased rates of transphobia among their non-transgender peers compared to a lecture presentation (Tompkins, Shields, Hillman, & White, 2015).

Ironically, research demonstrates effective interventions when Allport's (1954) conditions were not all present (Pettigrew & Tropp, 2006). Possibly, simply providing new information about an out-group is sufficient for improving attitudes. In one study, participants collaborating in a classroom setting experienced an increase in positive attitudes about a confederate they believed to be a mental health patient (Desforges et. al., 1991). Further, evidence supports imagined intergroup contact reveals increases in positive attitudes toward outgroup members (Miles & Crisp, 2014). The imagined intergroup contact intervention instructs participants to imagine a positive interaction with a member of the targeted group. This leads to beneficial effects such as increased helping behavior, intentions to seek out future contact, and overall prejudice reduction (Vezzali et. al., 2015; Stathi, Cameron, Hartley, & Bradford, 2014). A recent surge of studies introduced videotaped narratives in the place of contact interventions and detected similar effects. Specifically, Corrigan, Larson, Sells, Niessen, and Watson (2007) evoked reduced discriminatory behaviors and pity, and increased empowerment beliefs, with videotaped films portraying contact. Similarly, participants viewed a film about a young transgender girl followed by a perspective taking activity (i.e., writing a letter as if they were in her situation); a decrease in prejudicial thoughts and social distance desire was observed, when compared to participants who only viewed an educational lecture about transgender individuals (Tompkins, Shields, Hillman, & White, 2015). These findings

provide a practical avenue for reducing stigma and introduce a new direction for prospective interventions.

Current research expands imagined contact to the realm of perspective-taking tasks, or engaging cognitively in another's point of view, to reducing stigmas. Tompkins et al. (2015) utilized perspective-taking and attributed its effects partially to the decrease in prejudicial thoughts and desires for social distance. The authors suggest employing videotaped narratives followed by perspective-taking tasks may be more viable to assess the impact of contact. This idea is supported by considering previous research findings that perspective-taking increases empathy toward out-group individuals (Batson et al., 1997; Vescio, Sechrist, & Paolucci, 2003) and is a central component to stigma reducing interventions (Mann & Himelein, 2008). Additionally, Vescio et al. found participants who partake in perspective-taking activities are likely to exhibit more favorable attitudes toward the targeted out-group.

Previously Assessed Beliefs

Campbell, Morton, Roulston, and Barger (2011) found 71.3% of middle school students identified autism as a disability. Beyond this simple identification, however, students displayed a paucity of information regarding core features of the diagnosis. Of those students who were correct in their identification, most identified attributes that reflected either extremely high (i.e., intellectual giftedness) or extremely low (i.e., intellectual disability, mutism, catatonia) ends of the spectrum. Researchers suggest these findings reflect only a superficial appreciation of the diagnosis and a lack of true understanding. To increase peer knowledge about individuals with ASD, Gillespie-Lynch

et al. (2015) utilized an online training program that presented participants with a wide array of topics on autism (i.e., definition, etiology, prevalence, etc.). Stigma and knowledge of the disorder were assessed upon completion of the training. The researchers observed a decrease in stigmas among participants and an increase in knowledge between pre-and post-test measures. This illustrates the utility of interventions in an online format. Similar to Campbell et al. (2011), another finding in this study was the occurrence of vague and often inaccurate descriptions of autism. Students exhibited a greater ability to correctly identify forced-choice aspects of the disorder when compared to open-ended style descriptions. The authors caution future researchers on only using one style and suggest both will yield the most accurate representation of existing knowledge.

In a related study investigating peer acceptance and openness towards others, researchers found students with a first-degree relative diagnosed with ASD exhibited significantly higher scores (Nevill & White, 2011). They also observed a main effect of gender in that males showed higher levels of openness. Interestingly, the opposite was found in another study whose authors examined opinions and beliefs about the disorder, and females scored significantly higher than males (Hulse, Hayden, Smith, Byrket, & Young-Jones, In-Press). The Autism Beliefs Scale (ABS; See Appendix A) was developed for assessing opinions and beliefs held by typically developing peers about individuals with autism (Hulse et al.). Researchers replicated the relationship between prior exposure and higher levels of openness using the ABS. An exploratory factor analysis of this scale was conducted and yielded five factors: Abilities, Positive Beliefs, Negative Beliefs, Societal Tolerance, and Knowledge. This measure has been used once

prior to the current study and is being utilized due to lack of a previously established measure. In one study, researchers assessed prior knowledge by asking participants to simply answer the question, “What is autism?” (Campbell et al., 2011). They experienced difficulty in coding these answers although they took several steps to establish inter-rater reliability.

Nevill and White (2011) adapted a scale created by Harnum et al. (2007) to measure attitudes toward children with Attention Deficit Hyperactivity Disorder and ASD. This scale depicted a scenario of an individual with ASD and asked participants to rate their levels of perceived openness. However, it consisted of only seven domains and was not as comprehensive as the current researchers deemed necessary.

The Interactions with Disabled Persons Scale (IDP; Gething, 1991) has been used previously to establish concurrent validity of the ABS and will be utilized in the current design as well. The IDP was designed to measure negative attitudes toward individuals with various forms of disabilities and evaluate interventions designed to increase positive attitudes. Researchers established internal consistency by utilizing numerous populations including students, administrators, members of the community, health professionals, social workers, and municipal council employees. The original version of the scale consisted of 20 items and yielded six factors (i.e., Discomfort in Social Interaction, Coping/Succumbing Framework, Perceived Level of Information, Vulnerability, and two unnamed clusters). However, recent findings demonstrate difficulties replicating all six factors (Iacono, Tracy, Keating, & Brown, 2009). In the current literature, one factor was identified and in other research two (MacLean, & Gannon, 1995) or five (Wallymahmed, McKay-Moffat, & Cunningham, 2007). Interestingly, in the majority of studies that

detected at least one factor, the Discomfort in Social Interaction cluster was consistently found (Wallymahmed, McKay-Moffat, & Cunningham, 2007).

Based on the literature, we hypothesized an empathic intervention would result in more positive opinions of individuals with autism as identified by the ABS. Significant increases in the Abilities, Positive Beliefs, and Knowledge Factors (higher scores) were expected. Decreases in negative opinions on the Negative Beliefs and Societal Tolerance Factors (lower scores) were anticipated.

METHODS

Participants

Prior approval for this project was obtained from the Missouri State University IRB (December 7, 2015; approval #16-0226). This study consisted of 186 participants recruited from an introductory psychology course at a public Midwestern university. Students received research credit for their participation. Participants ranged from approximately age 18 to 50 years-old, were predominately White/Non-Hispanic (78.5%), female (68.4%), and first-time freshman (69.6%). Those who answered 'yes' to having a close friend or family member diagnosed with ASD, and therefore considered to have prior exposure, made up 41.8% of the sample.

Design

Participants were randomly assigned to one of two conditions: Empathic Training or Education Training (See Appendix A). In both conditions, students completed the assigned training followed by the Autism Beliefs Scale (ABS), Interactions with Disabled Persons Scale (IDP), and a demographic questionnaire. The Empathic Training utilized a video of a man and a woman discussing the struggles and triumphs involved with raising a son diagnosed with Autism Spectrum Disorder (ASD); this was approximately 15 minutes. The Education Training consisted of a TED Talk conducted by Wendy Chung on the known and unknown causes of ASD, current research, and possible future trends; the length was approximately 15 minutes as well. The researchers hypothesized scores on the ABS for three factors – Abilities, Positive Beliefs, and Personal Knowledge would be

significantly higher, whereas the factors Negative Beliefs and Fair Treatment in Society would be significantly lower in the Empathic Training Groups.

Measures

Autism Beliefs Scale (ABS) – Assesses five factors related to perceptions of someone with ASD: Abilities, Positive Beliefs, Negative Beliefs, Societal Tolerance, and Knowledge about this diagnosis (see Appendix B). Participants were asked to select the level of truth each statement holds from one (strongly disagree) to five (strongly agree).

Interactions with Disabled Persons (IDP) – This scale was used to establish concurrent validity with the ABS. It was designed to evaluate an overall attitude and familiarity toward individuals with disabilities (see Appendix C). The IDP consists of 20 items in a Likert-type format. Individuals were asked to select the degree of truth each statement holds according to a scale from one (strongly disagree) to six (strongly agree).

Demographic Questionnaire – Includes questions about age, ethnicity, gender, previous interactions with someone diagnosed with Autism Spectrum Disorder (exposure component), and presence of the diagnosis in themselves (see Appendix D).

RESULTS

Assumptions were met for accuracy, normality, linearity, homogeneity, and homoscedasticity. However, missing data and outliers were encountered. The missing data was due to two main aspects including unanswered items by participants, either intentional or unintentional, which resulted in the inability to derive a particular factor score. Participants missing an item within a factor did not receive a total factor score. Any participant who did not have a total for all five factors was subsequently deleted from the data; this resulted in an exclusion of 20 participants. It should be noted a majority of these were from questions in the Negative Opinions factor. Further, six exclusions were made due to participants answering 'yes' to identifying aspects of Autism Spectrum Disorder within themselves, and an additional two were excluded for meeting an outlier qualification designated by Mahalanobis. The total number of participants considered in the analysis was 158.

Two primary analyses were conducted in this study. The initial analysis consisted of a replication check of the internal consistency including summary statistics – means and standard deviations – for each of the five factors from the ABS (Table 1). To provide further support for the reliability and validity of the ABS, a Confirmatory Factor Analysis was conducted (Table 2). The number of participants was determined to be somewhat sufficient by KMO (.750, Fair). Bartlett's test was significant (2088.8, $df = 496$, $p < .001$), suggesting items are appropriately correlated. The scree plot identified the presence of four factors, while parallel analysis recommended five, and eigenvalues indicated five as well. Round two evaluated five factors at Unweighted Least Squares with Normalized

Direct Oblimin. For this round, two items were removed due to inability to load on any factor, and one was removed due to mistakenly being included twice on the scale, which established a total of 29 items. Fit indices were poor, yielding NNFI/TLI (.80) and CFI (.87). Adequate solution was determined with RMSR (.047, Good) which suggests a small degree of error. Reliability was evaluated by Cronbach's alpha and deemed excellent for factor 5 and good for factors 1, 2, 3, and 4 as follows: Abilities 0.892, Positive Beliefs 0.814, Negative Beliefs 0.845, Societal Tolerance 0.801, and Knowledge 0.976.

Due to inconsistent findings in the literature, a Confirmatory Factor Analysis was conducted for the Interactions With Disabled Persons (IDP) Scale as well (Table 4). Similarly, the number of participants was determined to be somewhat sufficient by KMO (.798, Fair), and Bartlett's test was significant (674.3, $df = 120$, $p < .001$). The scree plot suggested the presence of two factors, parallel analysis recommended two, and eigenvalues indicated two as well. Round two evaluated two factors at Exploratory Maximum Likelihood with Normalized Direct Oblimin. For this round, three items were removed due to inability to load on any factor, which established a total of 16 items (See Appendix E). Fit indices were examined, yielding NNFI/TLI (.90, acceptable) and CFI (.92, acceptable). Additionally, adequate solution was determined with RMSEA (.056, Good) and suggested a small degree of error. Reliability was consequently evaluated by Cronbach's alpha and proved good for both factors. Additionally, a correlational analysis was conducted between the ABS and the IDP. See Table 5 for the coefficients.

Finally, A 2X2 MANOVA of condition (i.e., Empathic Training versus Education Training) by exposure (i.e., existence of a prior relationship with a close friend or family

member with ASD versus no existence of such a relationship) was conducted for scores on the ABS (i.e., Abilities, Positive Beliefs, Negative Beliefs, Societal Tolerance, Knowledge) . This analysis revealed significant main effects for condition, Wilks' $\lambda = .928$, $F(5, 150) 2.32$, $p = .046$, $\eta^2p = .072$, and exposure, Wilks' $\lambda = .925$, $F(5, 150) 2.44$, $p = .037$, $\eta^2p = .075$, however there was no observed interaction between the two. Significant differences between conditions were obtained in the abilities factor $F(1, 154) = 9.08$, $p = .003$, $\eta^2p = .056$, resulting in more positive perceptions about the capabilities individuals with Autism Spectrum Disorder possess for those in the empathic condition. Additionally, there was a significant difference between conditions with the positive beliefs factor $F(1, 154) = 5.64$, $p = .019$, $\eta^2p = .035$, consisting of higher positive beliefs about those with ASD for participants in the empathic condition. Overall means for the factors can be found in Table 6. Results also generated significantly higher scores for participants with prior exposure to ASD (i.e., either had a close friend or family member with the disorder) in the abilities $F(1, 154) = 4.94$, $p = .028$, $\eta^2p = .031$ and knowledge $F(1, 154) = 4.88$, $p = .029$, $\eta^2p = .031$ factors on the ABS.

Table 1. Replication Statistics From Current Study. Means and SD provided for individual questions within each factor.

Factor	Condition	Mean	SD
Abilities	Empathy	3.15	.58
	Education	2.87	.54
Positive Beliefs	Empathy	4.78	.29
	Education	4.64	.37
Negative Beliefs	Empathy	1.72	.39
	Education	1.82	.41
Societal Tolerance	Empathy	2.41	.75
	Education	2.43	.91
Knowledge	Empathy	3.03	.50
	Education	2.98	.53

Table 2. Confirmatory Factor Analysis Structure of the ABS

Factor	Items
1. Abilities	1, 2, 3, 6, 7
2. Positive Beliefs	4, 8, 9, 10, 11, 12
3. Negative Beliefs	14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26
4. Societal Tolerance	19, 27, 28, 29
5. Knowledge	30, 31, 32

Table 3. Confirmatory Factor Analysis Structure of the IDP

Factor	Items
1. Discomfort in Social Interactions	1, 2, 3, 4, 5, 13, 15
2. Coping/Succumbing Framework	6, 7, 9, 11, 12, 16, 17, 18, 19,

Table 4. Correlations Between the ABS and IDP

IDP Scale	ABS				
	Abilities	Positive Beliefs	Negative Beliefs	Societal Tolerance	Knowledge
Discomfort in Social Interactions	.045	.259**	-.149**	-.065	.047
Coping/Succumbing Framework	-.179**	-.080	.333**	.090	-.160**

* $p < .05$, ** $p < .001$

Table 5. Total Factor Means

Factor	Condition	Mean
Abilities	Empathy	22.11
	Education	20.21
Positive Beliefs	Empathy	23.90
	Education	23.26
Negative Beliefs	Empathy	24.16
	Education	25.45
Societal Tolerance	Empathy	7.12
	Education	7.32
Knowledge	Empathy	9.10
	Education	9.02

DISCUSSION

Perceptions of Individuals with Autism Spectrum Disorder are plagued by stigma and misperceptions. Based on the socialization of negative views, the present study had two main goals. First, we wanted to ascertain the impact of two different styles of interventions regarding college students' perceptions and beliefs about their peers with Autism Spectrum Disorder. Second, we aimed to provide support for the reliability and validity of the Autism Beliefs Scale (ABS). Results showed that students who were exposed to the Empathic Training intervention exhibited significantly greater perceptions about the capabilities possessed by individuals with autism. These include thoughts about individuals with autism being able to raise children, live on their own as adults, and handle life tasks such as grocery shopping, paying bills, and keeping a job. Participants demonstrated significantly more positive beliefs about their ASD peers in this condition as well. However it was also hypothesized that the Empathic Training would be associated with higher scores for knowledge about this population, and lower scores for negative opinions and ideas about the treatment individuals with this disorder receive in society. No observed effects for these factors were found. Possibly, both interventions provided similar levels of information about the diagnosis, thus causing there to be no effect between the two for the Knowledge factor. Further, the Knowledge factor consists of only three items and is considered to be less developed than the other factors.

The absence of observed effects could also be due to a social desirability distortion which results in participants responding in ways that differ from their true beliefs in order to provide a more socially appropriate answer (Richman, Kiesler,

Weisband, & Drasgow, 1999). The questions that comprise the Negative Beliefs factor might provoke socially desirable responding due to the nature of the content (i.e., “People with autism are not loved as much by their families”). Additionally, the majority of missing data was encountered on questions that comprise the Negative Beliefs Factor. This highlights participants’ discomfort at providing a response to these items. Even though participants were assured of confidentiality, it is possible social desirability influenced responses to these statements.

Differences were found in prior exposure to ASD for individuals who stated they had a close friend or family member with the diagnosis. Students identifying in this type of relationship expressed significantly higher beliefs about the abilities of those with ASD as well as knowledge of the characteristics of the disorder. However, no significant variations existed when individuals with this relationship were shown the Empathic Training. Therefore, this group of individuals’ responses remained consistent regardless of training type.

In the secondary analysis of the factor structure of the Autism Beliefs Scale, support was found for the presence of all five factors. The pattern of item loadings was replicated with the exception of two questions appearing in different factors and the removal of four items. Differences could be due to inconsistencies between sample sizes in this study and those that utilized the ABS previously. Researchers should employ caution when interpreting the CFA results in this study due to the small sample size, which was only considered to be fair. Additionally, two factors were found in the Interactions With Disabled Persons Scale – Discomfort in Social Situations and Coping/Succumbing Framework. This aligns somewhat with prior research conducted by

MacLean and Gannon (1995) in which the Discomfort in Social Situations was found; however, the two studies differ in the second factor. This shared finding was expected and is consistent with the strong presence of the Discomfort in Social Situations factor in numerous prior studies (Wallymahmed, McKay-Moffat, & Cunningham, 2007). The inability of this study to successfully replicate the originally proposed six factors of the IDP scale is possibly a result of the small sample size. The original development of the scale was conducted using sample sizes ranging from 30 to 3,569 participants, and this study utilized 158.

A correlational analysis between the IDP and ABS supported previous findings that the two scales measure similar constructs. Each factor of the ABS had at least a small correlation with one of the two factors found for the IDP, with the exception of the Societal Tolerance factor. Interestingly, a medium effect was found between the Negative Beliefs factor and the Coping/Succumbing Framework. This suggests that a relationship exists between the items found in these factors in the two scales and provides further support for the utilization of the measures within the same population.

Data Limitations

There are a number of limitations for this study which must be noted. The Intergroup Contact Theory (Allport, 1954) proposes different forms of contact with out-group members will lead to reduced prejudicial thoughts. Other studies have demonstrated that by simply providing new information about out-group members attitudes are improved (Pettigrew & Tropp, 2006). Therefore the Educational Training provided a degree of contact by informing participants about the characteristics of Autism

Spectrum Disorder. This could have contributed to greater positive scores and fewer negative responses in this condition.

Second, this study depended upon self-report and had limited protection against social desirability and response bias. Participants were assured their identity would not be attached to their data and their responses were confidential. Future researchers should employ the Balanced Inventory of Desirable Responding (BIDR). This scale was designed by Paulhus in 1984 to detect and measure two aspects of socially desirable responding – self-deceptive enhancement and impression management (Gignac, 2013). Scores from this scale allow researchers to determine the likelihood of a participant engaging in socially desirable responding to the extent their data would be considered invalid.

Finally, the Empathic Training intervention utilized an individual originally diagnosed with Asperger's Syndrome. Due to his high-functioning characteristics, participants are exposed to information about his abilities and disabilities that contrast a person with the same diagnosis who is lower functioning. The spectrum quality of this diagnosis results in numerous accurate representations of how it manifests. The video used in this manipulation could have primed individuals without prior knowledge of ASD to come to different conclusions than had a different representation been utilized. Researchers should consider an intervention that allows participants to gather an understanding of the disorder as a spectrum.

Future Research and Conclusion

Future research should consider the properties of the ABS and IDP scales with larger sample sizes. This would assist in better delineating the reliability and validity of the measures. Additionally, utilization of a perspective-taking task combined with the Empathic and Educational Trainings is warranted as well. These tasks aim to reduce prejudicial thoughts and could establish a stronger intervention with greater effects in terms of the ABS factors.

In conclusion, this study provides support for the utility of an intervention for reducing stigma. The results align with previous research conducted with the Autism Spectrum Disorder population as well as other minority groups. It also contributes support for improving beliefs without meeting all conditions of the Intergroup Contact Hypothesis originally proposed. This allows future researchers to develop interventions aimed at being implemented in a practical manner. The ABS should be utilized in numerous studies before considered to be a valid and reliable measure; nevertheless, the replicated factors found in this study suggest a promising outlook for the scale. As the IDP factors continue to be refined, this study can provide support for the presence of the Discomfort in Social Interactions and Coping/Succumbing Framework constructs.

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APPENDICES

Appendix A

Empathic Training

<https://www.youtube.com/watch?v=W5kisLXFo04&feature=youtu.be>

Education Training

<https://www.youtube.com/watch?v=wKIMcLTqRLs>

Appendix B. Autism Beliefs Scale

Select the options below that reflect your initial thoughts:

1. When I think about someone diagnosed with an Autism Spectrum Disorder, I think of:
 - a) A low-functioning person with significant delays and impairments intellectually, socially, and/or physically.
 - b) A high-functioning person with mild delays and impairments intellectually, socially, and/or physically.
 - c) A person who experiences social challenges only.
 - d) I do not have enough information about the disorder to decide.

Instructions: For each statement below circle the number corresponding to the degree of truth that statement holds for you. (1 = Strongly Disagree, 5 = Strongly Agree)

2. People with Autism are capable of raising children.
3. People with Autism are capable of living on their own.
4. People with Autism can hold respectable jobs.
5. People with Autism can communicate effectively with others.
6. People who have Autism are capable of living on their own as adults.
7. People with Autism can handle life tasks such as grocery shopping and/or paying bills.
8. People with Autism can handle life tasks such as getting and keeping a job.
9. People with autism experience the same general feelings as everyone else (happy, sad, angry... etc.)
10. People with Autism should have the opportunity to go to college.
11. I should treat people with autism with the same respect that I treat people without Autism.
12. People without Autism should learn about the disorder in order to help those with Autism.
13. People with Autism are capable of showing love.
14. People with Autism are fearful.
15. People with Autism are not loved as much by their families.
16. People with Autism cost their families too much time and money in treatment.
17. People with Autism do not have friends.
18. People with Autism are a distraction to other students in a classroom setting.
19. People with Autism are not desirable to an employer.
20. People with Autism all act the same.
21. I always recognize someone with Autism in public.
22. People with Autism should not have children.
23. People with Autism are not safe to the general public.
24. People without Autism are superior to people with autism.
25. People with Autism should not get married.
26. People with Autism should not attend regular classes at

universities.

27. I avoid talking to and interacting with people with Autism.
28. People with Autism receive fair treatment from the rest of society.
29. People with Autism have the same opportunities as the rest of the general population.
30. People with Autism have an equal opportunity to achieve the American dream.
31. I am unfamiliar with Autism and its characteristics.
32. I feel confident about my knowledge and understanding of people with disabilities.
33. I feel confident about my knowledge and understanding of how people with disabilities interact with society.

Appendix C. Interactions with Disabled Persons

Instructions: For each statement below circle the number corresponding to the degree of truth that statement holds for you. (1 = Strongly Disagree, 6 = Strongly Agree)

1. It is rewarding when I am able to help.1 2 3 4 5 6
2. It hurts me when they want to do something and can't.1 2 3 4 5 6
3. I feel frustrated because I don't know how to help.1 2 3 4 5 6
4. Contact with a disabled person reminds me of my own vulnerability.1 2 3 4 5 6
5. I wonder how I would feel if I had this disability.1 2 3 4 5 6
6. I feel ignorant about disabled people.1 2 3 4 5 6
7. I am grateful that I do not have such a burden.1 2 3 4 5 6
8. I try to act normally and ignore the disability.1 2 3 4 5 6
9. I feel uncomfortable and find it hard to relax.1 2 3 4 5 6
10. I am aware of the problems that disabled people face.1 2 3 4 5 6
11. I can't help staring at them.1 2 3 4 5 6
12. I feel unsure because I don't know how to behave.1 2 3 4 5 6
13. I admire their ability to cope.1 2 3 4 5 6
14. I don't pity them.1 2 3 4 5 6
15. After frequent contact, I find I just notice the person not the disability.1 2 3 4 5 6
16. I feel overwhelmed with discomfort about my lack of disability.1 2 3 4 5 6
17. I am afraid to look at the person straight in the face.1 2 3 4 5 6
18. I tend to make contacts only brief and finish them as quickly as possible.1 2 3 4 5 6
19. I dread the thought that I could eventually end up like them.1 2 3 4 5 6

Appendix D. Demographic Data Form

Fill in the blank or circle the correct response.

Sex: ___ Male ___ Female

Major: ___ Psychology
___ Communication
___ Nursing
___ Political Science
___ Education
___ Accounting
___ Theatre
___ Computer Science
___ Other

Classification:

___ First-time Freshman (This is my first time to attend a university)
___ Other Freshman (I have left the university at least once and have now returned)
___ Sophomore
___ Junior
___ Senior
___ Unclassified (I am not classified as any of the above options)

Enrollment Status:

___ Full-Time
___ Part-Time

What is your ethnicity?

___ White/Non-Hispanic
___ Black/Non-Hispanic
___ Hispanic
___ Asian/Pacific Islander
___ Native American
___ Biracial/Multiracial
___ Unknown
___ Other: _____

I was born in the United States of America: ___ Yes ___ No

I am an international student: ___ Yes ___ No

If yes, please name your country of origin:

English is my first language: ___ Yes ___ No

If no, please rate how fluent you are in the English language.

___ Very Sufficient ___ Sufficient ___ Insufficient ___ Very Insufficient

A close friend or immediate family member has characteristics similar to Autism Spectrum Disorder: ___ Yes ___ No

If yes, please specify your relationship with this person:

I believe that I have characteristics similar to Autism Spectrum Disorder:
___ Yes ___ No

Appendix E. Interactions with Disabled Persons Scale – Revised

Instructions: For each statement below circle the number corresponding to the degree of truth that statement holds for you. (1 = Strongly Disagree, 6 = Strongly Agree)

1. It is rewarding when I am able to help. 1 2 3 4 5 6
2. It hurts me when they want to do something and can't. 1 2 3 4 5 6
3. I feel frustrated because I don't know how to help. 1 2 3 4 5 6
4. Contact with a disabled person reminds me of my own vulnerability. 1 2 3 4 5 6
5. I wonder how I would feel if I had this disability. 1 2 3 4 5 6
6. I admire their ability to cope. 1 2 3 4 5 6
7. After frequent contact, I find I just notice the person not the disability. 1 2 3 4 5 6
8. I feel ignorant about disabled people. 1 2 3 4 5 6
9. I am grateful that I do not have such a burden. 1 2 3 4 5 6
10. I feel uncomfortable and find it hard to relax. 1 2 3 4 5 6
11. I can't help staring at them. 1 2 3 4 5 6
12. I feel unsure because I don't know how to behave. 1 2 3 4 5 6
13. I feel overwhelmed with discomfort about my lack of disability. 1 2 3 4 5 6
14. I am afraid to look at the person straight in the face. 1 2 3 4 5 6
15. I tend to make contacts only brief and finish them as quickly as possible.
1 2 3 4 5 6
16. I dread the thought that I could eventually end up like them. 1 2 3 4 5 6