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Abstract

Research to-date on generalized prejudice has focused primarily on personality factors. Further work is needed identifying manipulable variables that directly inform anti-prejudice interventions. The current study examined three such variables: empathic concern, perspective taking, and psychological inflexibility/flexibility with prejudiced thoughts, as a test of the flexible connectedness model. A sample of 604 undergraduate students completed online surveys. A model indicated prejudice measures loaded onto a latent variable of generalized prejudice. In a second model, psychological inflexibility, flexibility, empathic concern and perspective taking were all significant, independent predictors of generalized prejudice. Psychological inflexibility also predicted prejudice above and beyond personality and general inflexibility variables. Results suggest the three components of the flexible connectedness model may be important targets for prejudice interventions.

Keywords: Psychological inflexibility; Empathy; Experiential avoidance; Prejudice; Acceptance and Commitment Therapy; Flexible connectedness

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generalized prejudice

Prejudice continues to have significant and pervasive consequences for those who are its

targets including in areas such as physical and mental health, employment, education, health

care, housing and financial systems (e.g., Pager & Shepherd, 2008; Pascoe & Richman, 2009;

Puhl & Heuer, 2009). Effective approaches are needed to reduce prejudice, but one challenge is

the almost unlimited range of specific targets: ethnic minorities, sexual minorities, women,

individuals with mental or physical health problems, and so on.

A promising direction for intervention development is to focus on the common features

of prejudice that compose a more general process, rather than solely on the specific attitudes and

behaviors directed toward particular groups. For decades it has been known that individuals tend

to show generalized prejudice: negative attitudes towards a range of groups (e.g., Allport, 1954).

More recently it has been shown that prejudicial attitudes towards a range of targets tend to

correlate and to comprise a latent variable (e.g., Bäckström & Björklund, 2007; Akrami,

Ekehammar & Bergh, 2011; McFarland, 2010). Thus, although unique forms of prejudice occur

towards specific target groups (e.g., Akrami et al., 2011), research indicates there is a significant

portion of the variance in prejudice that is common across target groups (e.g., Bäckström &

Björklund, 2007; McFarland, 2010). Research on generalized prejudice may inform broader

interventions targeting prejudice towards a wide range of groups.

A variety of personality variables have been identified that predict individual differences

in generalized prejudice including right wing authoritarianism, social dominance, and the Big

Five personality dimensions (Bäckström & Björklund, 2007; Ekehammar & Akrami, 2007;

McFarland, 2010). Although such factors help us understand the phenomenon of generalized

prejudice, they are not readily manipulable factors and thus have not directly informed anti-prejudice interventions. There are examples of existing prejudice interventions (e.g., intergroup contact) changing personality variables over time (e.g., Dhont, Van Hiel & Hewstone, 2014). However, there is a lack of interventions that are based on directly targeting such personality traits to reduce prejudice. For example, we are unaware of existing Right Wing Authoritarianism interventions that are specifically designed to reduce authoritarian personality traits. While identifying such personality variables may clarify relevant domains of prejudice to try to change, they do not necessarily indicate the specific methods that might be used to do so. By focusing on variables central to existing interventions, the field may be able to more directly identify functionally important variables that can be targeted for change in generalized prejudice reduction interventions.

An example is empathy, particularly the sub-components of empathic concern (i.e., feeling sympathy and compassion for others) and perspective taking (i.e., adopting others' psychological point of view; Davis, 1980). These variables have been found to significantly predict generalized prejudice, even when controlling for authoritarianism and social dominance (Bäckström & Björklund, 2007; McFarland, 2010). In addition, interventions that target empathic concern and perspective taking towards stigmatized groups have been found to reduce prejudice (Galinsky & Moskowitz, 2000; Paluck & Green, 2009; Todd et al., 2011). These psychological processes/skills are more directly amenable to interventions, but empathic concern and perspective taking alone do not fully account for the variance in generalized prejudice (e.g., McFarland, 2010) and other predictors need to be identified.

The flexible connectedness model, a recently proposed theory for predicting and influencing maladaptive social processes (Vilardaga, Estevez, Levin & Hayes, 2012),

hypothesizes three central psychological deficits that contribute to prejudice and have been directly targeted by evidence-based psychological interventions; low empathic concern, low perspective taking and psychological inflexibility. Although similar sounding in name to constructs such as need for cognitive closure and cognitive flexibility, psychological inflexibility is a relatively new and distinct variable originating from clinical psychological science (Bond et al., 2011). Psychological inflexibility refers to patterns of behavior in which actions are rigidly guided by internal experiences (i.e., thoughts, feelings, urges), rather than personal values or direct contingencies. In other words, it is the tendency to act based on how one thinks or feels rather than what would be most effective or meaningful in the moment. This higher order construct is composed of a key set of sub-processes that highlight sources of inflexibility including experiential avoidance (i.e., rigidly avoiding, suppressing or otherwise trying to control internal experiences) and cognitive fusion (i.e., the dominant control of thoughts in guiding actions). In contrast to psychological inflexibility, psychological flexibility refers to the capacity to engage in valued patterns of activity independent of the internal experiences that may arise. In other words, to be able to do what is important, even if psychological barriers (e.g., fear, lack of confidence, resentment, etc…) are present. In some ways psychological flexibility represents the opposite pole to psychological inflexibility, though there are unique features emphasized on both ends that make them somewhat distinct. Like inflexibility, psychological flexibility is composed of key sub-processes that reflect how one responds to psychological experiences including mindfulness (i.e., noticing experiences in the present moment without judging or reacting to them) and acceptance (i.e., being willing to experience unwanted internal experiences). Psychological inflexibility/flexibility is unique from other flexibility/rigidity constructs in that it focuses specifically on how individuals respond to internal experiences with inflexible (i.e.,

experiential avoidance, cognitive fusion) or flexible patterns of behavior (i.e., mindfulness, acceptance).

The flexible connectedness model theorizes the unique role of psychological inflexibility/flexibility, in addition to empathic concern and perspective taking, in maladaptive social processes including prejudice. Theoretically, in addition to being empathetic towards others and able to take their perspective, psychological skills are needed for how to cope with the automatic prejudiced reactions one might have towards stigmatized groups. A psychologically inflexible response pattern might include acting on one's prejudiced beliefs despite conflicting values (i.e., cognitive fusion) or avoiding interacting with stigmatized groups to avoid discomfort from prejudiced reactions (i.e., experiential avoidance) (Hayes, Niccolls, Masuda & Rye, 2002; Levin, Lillis et al., 2014). Alternatively, individuals might flexibly respond, being mindfully aware of their prejudiced reactions without acting on them, and instead engaging in what would be meaningful/effective in the moment despite the discomfort that might arise. These variables may also interact, such as whether one responds to uncomfortable emotions that perspective taking and empathy elicit in a psychologically inflexible (e.g., avoiding groups that elicit these feelings) or flexible manner (e.g., acknowledging the discomfort and continuing to engage with members of marginalized groups).

Psychological inflexibility is a promising variable to explore in the current study because it is well known to be directly manipulable through psychological interventions. Most notably, Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson 2011) is specifically designed to target psychological inflexibility through a combination of acceptance, mindfulness, and values-based intervention strategies. There have been over 100 randomized controlled trials evaluating ACT for a broad range of psychological problems (Association for Contextual

Behavioral Science, 2014), with a number of studies demonstrating that the impact of ACT on outcomes is mediated by reductions in psychological inflexibility (Ruiz, 2010). More specifically, studies have found that ACT can reduce prejudice towards ethnic minorities (Lillis & Hayes, 2007), substance abusing clients (Hayes et al., 2004), and mental illness (Masuda et al., 2007), with interventions as short as 75 minutes (Lillis & Hayes, 2007). Furthermore, these prejudice reduction effects are accounted for by reductions in psychological inflexibility (Lillis & Hayes, 2007; Hayes et al., 2004). Although, none of these studies used the specific measure of inflexibility with prejudice thoughts that was examined in the current study (although see Lillis & Hayes, 2007 for a related measure), these positive findings suggest it could be a useful and manipulable predictor to test with generalized prejudice.

There is a large body of research indicating that psychological inflexibility more generally contributes to a broad range of psychological problems (Ruiz, 2010). However, there are only a few studies examining the construct of psychological inflexibility in relation to prejudice, specifically attitudes towards individuals with mental illness (Masuda, Price et al., 2009; Masuda & Latzman, 2011), and these studies have used more general measures of psychological inflexibility which tend to refer to thoughts/feelings related to psychological distress rather than prejudice. Psychological inflexibility also has some overlap with variables that have been found to relate to prejudice including thought suppression (Galinsky & Moskowitz, 2000; Wenzlaff & Wegner, 2000) and lacking mindful awareness of one's experiences in the present (Gervais & Hoffman, 2013). Psychological inflexibility theoretically integrates these factors in relation to the shared feature of rigid, excessive control of psychological experiences in guiding actions. Research is needed that specifically examines the relationship of psychological inflexibility with prejudice thoughts and generalized prejudice.

The current study sought to test key components of the flexible connectedness model as applied to generalized prejudice using a sample of undergraduate students completing an anonymous online survey. This sample was previously used to refine and validate a measure of psychological inflexibility and flexibility with stigmatizing thoughts (called the Acceptance and Action Questionnaire – Stigma [AAQ-S]; Levin, Lillis et al., 2014). Factor analyses indicated a two factor solution highlighting distinct psychological flexibility and inflexibility subscales, both of which demonstrated convergent/divergent validity with related measures of psychological flexibility and predictors of prejudice (e.g., personality variables, empathy towards ethnic minorities). The current study seeks to build on these initial results by examining whether the AAQ-S can predict generalized prejudice alone and in combination with other manipulable and competing variables. This is a central question for determining which manipulable variables predict and could inform subsequent interventions for generalized prejudice.

The primary study hypothesis was that higher psychological inflexibility, lower psychological flexibility, lower empathic concern, and lower perspective taking would each be uniquely related to greater generalized prejudice. Although such a study does not directly test the impact of targeting these variables to reduce prejudice, the focus on variables known to be directly manipulable through existing intervention methods, suggest these findings could help inform future interventions seeking to target prejudice as a generalized process.

Methods

Participants and Procedures

The sample consisted of 604 undergraduate college students participating in an online survey. The sample was 67.7% female with a modal age of 18 ($M = 20.30$, $SD = 3.93$). The racial distribution of the sample included 70.2% White, 9.8% Asian, 4.6% Black or African American,

1.7% Native Hawaiian/Other Pacific Islander, .7% American Indian, 7.1% other race, and 5.9% multiracial. In addition, 14.8% identified their ethnicity as Hispanic or Latino.

Students were recruited to participate in the study through an online psychology research platform available to undergraduate students in psychology classes. The survey was described as a study of attitudes towards various groups. Participation involved completing online self-report measures of prejudice towards specific groups as well as psychological variables thought to contribute to generalized prejudice. Students were informed that the survey was completely anonymous and no identifiers (not even study IDs) were associated with their survey responses. Extra credit for a psychology class was provided for participating. Ethical approval for the study was provided by the University of Nevada, Reno Internal Review Board and was carried out in accordance with the provisions of the World Medical Association Declaration of Helsinki.

Demographics

Participant demographics were assessed in relation to several of the key prejudice measures including race/ethnicity, gender, body mass index (BMI) and sexual orientation. BMI was calculated based on answers to questions assessing height ("How tall are you?") and weight ("What is your weight [in pounds]?"). Sexual orientation was assessed by asking participants to select "which of the following statements is true for you" with the options being "I am sexually attracted to people of the opposite sex", "… of my same sex" or "… of both sexes." Although this provided some information regarding demographics, it is important to note this was limited due to assessing BMI through self-report only and the use of a single item related to sexual attraction in assessing sexual orientation (e.g., not assessing identity, etc.).

Measures of Prejudice

Self-report measures of prejudiced attitudes towards African Americans, obese individuals, gay men, women and substance abusers were examined. Measures that were less sensitive to social desirability were selected whenever possible, including modern racism/prejudice scales when available. Distinct from older, more blatant prejudicial attitudes, modern racism represents contemporary forms of bias that are more subtle and likely to be endorsed today, focusing on beliefs such as that discrimination no longer occurs and minority group members are receiving/demanding undue benefits from society (McConahay, 1986).

Modern Racism Scale (MRS; McConahay, 1986). The MRS is a 7-item measure of modern racism towards African Americans. Example items include "Discrimination against blacks is no longer a problem in the United States" and "Blacks are getting too demanding in their push for equal rights." Each item is rated on a 5-point scale ranging from 1 "strongly disagree" to 5 "strongly agree" with higher scores indicating greater racism. The MRS has been found to be a reliable and valid measure in past research (e.g., McConahay, 1986). In the current study, the internal consistency of the MRS was $\alpha = .83$.

Modern Homonegativity Scale (MHS; Morrison & Morrison, 2002). The MHS is a 12-item measure of modern prejudice towards gay men. Example items include "Gay men should stop shoving their lifestyle down other people's throats" and "Gay men and lesbians still need to protest for equal rights (*reverse scored*)." Responses are provided on a 5-point scale ranging from 1 "strongly disagree" to 5 "strongly agree" with higher scores indicating greater prejudice. The MHS has been found to have adequate reliability and validity in past studies (Morrison & Morrison, 2002). The MHS has also been found to have relatively low reactivity, with college students being more likely to endorse biased attitudes on the MHS relative to

traditional prejudice measures and that the MHS is not correlated with social desirability (Morrison & Morrison, 2002). In the current study the MHS the internal consistency was $\alpha = .93$.

Neosexism Scale (NS; Tougas, Brown, Beaton & Joly, 1995). The NS is an 11-item measure of neosexism towards women. Example items include "Women shouldn't push themselves where they are not wanted" and "Due to social pressures, managers frequently have to hire underqualified women." Responses options range from 1 "strongly disagree" to 7 "strongly agree" with higher scores indicating greater sexism. Past research has demonstrated adequate reliability and validity for the scale, including that NS was a better predictor of being unsupportive of equality practices for women relative to more traditional sexism measures (e.g., Tougas et al., 1995). The internal consistency of the NS in the current study was $\alpha = .82$.

Attitudes Toward Obese Persons (ATOPS; Allison, Basile & Yuker, 1991). The ATOPS is a 20-item measure of positive and negative attitudes towards obese individuals. Example items include "Severely obese people are usually untidy" and "Obese people are as happy as nonobese people (*reverse scored*)." Each item is rated on a 6-point scale ranging from 1 "I strongly disagree" to 6 "I strongly agree" with higher scores indicating greater prejudice. The ATOPS has been found to be a reliable and valid measure in past research (e.g., Allison et al., 1991). The internal consistency of the ATOPS in the current study was $\alpha = .81$.

Community Attitudes toward Substance Abusers (CASA; Hayes et al., 2004). The CASA is a 40-item measure of positive and negative attitudes towards substance abusers. Example items include "It is best to avoid anyone who has a drug or alcohol addiction" and "Virtually anyone can develop a drug or alcohol addiction (*reverse scored*)." Response options range from 1 "very strongly disagree" to 7 "very strongly agree" with higher scores indicating

greater prejudice. The CASA has been found to be a reliable and valid measure in past research (Hayes et al., 2004). The internal consistency of the CASA in the current study was $\alpha = .91$.

Measures of Psychological Inflexibility and Empathy

  Acceptance and Action Questionnaire – Stigma (AAQ-S; Levin, Lillis et al., 2014). The 21-item AAQ-S was used in the current study as a measure of psychological inflexibility and flexibility with prejudice thoughts. Domain specific measures are commonly used to study psychological inflexibility given the focus on the function of internal experiences, which requires that this information be contextualized (i.e., what are the relevant thoughts, feelings, and behaviors), preferably within the area of interest. Consistent with this, research has found that such domain specific measures of psychological inflexibility are more sensitive than more general measure of psychological inflexibility (e.g., Gifford et al., 2004).

  The AAQ-S includes two subscales, psychological flexibility and psychological inflexibility. Response options range from 1 "never true" to 7 "always true" with higher scores indicating greater inflexibility. Example inflexibility items include "My biases and prejudices affect how I interact with people from different backgrounds" and "When I have judgments about others, they are very intense" Example flexibility items include "I am aware when judgments about others are passing through my mind" and "When I evaluate someone negatively, I am able to recognize that this is just a reaction, not an objective fact." These items were developed to be applicable to a broad range of stigmatized groups and thus refers to negative thoughts about others generally (i.e., judgments, biases, evaluations, prejudiced thoughts). The psychological inflexibility subscale is scored such that higher scores represent greater inflexibility, while psychological flexibility is scored such that higher scores represent greater flexibility.

As previously examined in this study sample, the AAQ-S demonstrates adequate convergent validity with related measures of prejudice and stigma including social dominance, authoritarianism, ethnocultural empathy and social distancing as well as more general measures of psychological inflexibility (Levin, Lillis et al., 2014). However, it has not been tested yet as a predictor of generalized prejudice alone or in combination with other variables in the flexible connectedness model (the primary aims of the current study). As previously mentioned, psychological inflexibility/flexibility as measured by the AAQ-S is distinct conceptually from other flexibility/rigidity constructs such as need for cognitive closure, which focuses on a cognitive style preferring predictability, order, decisiveness, and discomfort with ambiguity. For example, in the current study sample a related cognitive style, personal need for structure (PNS; Neuberg & Newsom, 1993), is unrelated to AAQ-S psychological flexibility ($r = .03$, $p = .45$) and has only a small correlation with AAQ-S inflexibility ($r = .20$, $p < .001$). In the current study, the internal consistency for the psychological inflexibility and psychological flexibility subscales were $\alpha = .85$ and $\alpha = .82$ respectively.

Although, psychological flexibility and inflexibility may be conceptualized as two ends of a dimension, there are some potential differences between these two constructs as measured by the AAQ-S. Initial exploratory factor analyses with the AAQ-S indicated a clear two factor solution and with a relatively low correlation between the two subscales ($r = -.24$; Levin, Lillis et al., 2014). Using the same dataset, a subsequent confirmatory factor analysis also indicated that a two factor solution with items loading separately on a psychological inflexibility and psychological flexibility subscale fits the data better, $RMSEA = 0.064$ 95% CI (0.059, 0.069), $SRMR = .06$, $AIC = 40682.30$, than a one factor solution with all items loading onto a single AAQ-S total score factor, $RMSEA = 0.121$, 95% CI (0.116, 0.126), $SRMR = .13$, $AIC =$

41883.33. Thus, the AAQ-S subscales were tested separately as predictors of generalized

prejudice to further explore how these constructs relate to prejudice.

Interpersonal Reactivity Index (IRI; Davis, 1980). The IRI is a multidimensional 28

item self-report measure of empathy that contains perspective taking and empathic concern

subscales, both of which have been shown to relate to generalized prejudice (McFarland, 2010).

Responses are given on a 4-point scale ranging from 1 "Does not describe me well" to 4

"Describe me very well" with higher scores indicating greater empathy. The perspective taking

subscale assesses the tendency to adopt others' psychological point of view with example items

including "Before criticizing somebody, I try to imagine how I would feel if I were in their

place." and "I sometimes try to understand my friends better by imagining how things look from

their perspective." The empathic concern subscale assesses the tendency to feel sympathy and

compassion for others with example items including "I often have tender, concerned feelings for

people less fortunate than me." and "I would describe myself as a pretty soft-hearted person."

The IRI has been found to be valid in reliable in previous studies (Davis, 1980). The internal

consistency of the perspective taking and empathic concern subscales in the current study were α

= .76 and α = .77 respectively.

Additional Predictors

Additional variables were included to further examine the incremental validity of the

AAQ-S in predicting generalized prejudice.

Personal Need for Structure (PNS; Neuberg & Newsom, 1993). The 12-item PNS was

used to assess cognitive rigidity, more specifically the degree to which one prefers simple

structure. Items are rated on a 6-point scale from 1 "strongly disagree" to 6 "strongly agree." The

PNS has been found to be a predictor of stereotyping, though not prejudice per se (Newheiser &

Dovidio, 2012) and to have adequate reliability and validity (Neuberg & Newsom, 1993). In the current study the internal consistency of the PNS was α = .65.

Right Wing Authoritarianism (RWA; Zakrisson, 2005). The 15-item version of the RWA was used to assess personality characteristics defined by rigid following of traditional norms/authority. Items are rated on a 9-point scale from 1 "very negative" to 9 "very positive." The RWA has been found to be a strong predictor of generalized prejudice (e.g., Bäckström & Björklund, 2007) as well as to be correlated with the AAQ-S (*r* = .36; Levin, Lillis et al., 2014). In the current study the internal consistency of the RWA was α = .76.

Social Dominance Orientation (SDO; Sidanius & Pratto, 2001). A 16-item version of the SDO was used to assess preference for social hierarchy. Items are rated on a 9-point scale ranging from 1 "very negative" to 9 "very positive." The SDO has been found to be a strong predictor of generalized prejudice (e.g., Bäckström & Björklund, 2007) as well as to be correlated with the AAQ-S (*r* = .43; Levin, Lillis et al., 2014). In the current study the internal consistency of the SDO was α = .94.

Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011). The 10-item version of the AAQ-II was included as a general measure of psychological inflexibility. The AAQ-II assesses inflexible/flexible responding to a broader set of psychologically distressing content, particularly anxious and depressive thoughts and feelings. This is distinct from the AAQ-S, which focuses on inflexible/flexible responding more specifically with stigmatizing thoughts towards others. Items are rated on a 5-point scale ranging from 1 "never true" to 7 "always true." Example items include "Its OK if I remember something unpleasant" and "Emotions cause problems in my life." The AAQ-II has been found to be a reliable measure with college students and to predict a broad range of psychological disorders (e.g., Levin, MacLane et

al., 2014) as well as to be moderately correlated with the AAQ-S ($r = .44$; Levin, Lillis et al., 2014). In the current study the internal consistency of the AAQ-II was $\alpha = .89$.

Data Analytic Strategy

Participants had the option to skip any question they did not want to answer in the survey, which resulted in 3.17% missing data. In order to maintain statistical power and reduce undue bias, missing values were imputed using the expectation maximization procedure in SPSS/PASW 17.0. Expectation maximization is an imputation approach that provides less stringent assumptions on its latent causes than traditional imputation techniques and takes into account researchers' modeling strategy (Graham, 2009).

Structural equation modeling was conducted using Amos 18.0.0 to test the study aims. Visual inspection of the variables using histograms and kurtosis/skewness statistics suggested they all approximated a normal distribution. Therefore a maximum likelihood (ML) estimation approach was used, which has been shown to be one of the most robust estimation procedures (Olsson, Foss, Troye, & Howell, 2000). The Chi-Square statistic tends to rend significant values in large samples, and is very sensitive to the number of parameters entered in the model (Bollen, 1990), so alternative indices were used to assess goodness of fit for each model. The Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) were used as non-centrality fit statistics, Standardized Root Mean Square Residual (SRMR) as an absolute fit index, and Bentler-Bonett Normed Fit Index (NFI) as a relative fit index. Recommendations by Hu and Bentler (1999) for scores indicating good model fit (CFI $\geq .95$, NFI $\geq .95$, SRMR $\leq .08$, and RMSEA $\leq .06$) were taken into account when interpreting fit statistics, but were not used as ultimate cutoff scores as their accuracy may vary depending on a variety of factors (Marsh, Hau & Wen, 2004).

A measurement model of generalized prejudice was first tested. The model was

constructed with generalized prejudice as a second-order latent variable composed of five first-

order latent variables representing each of the prejudice measures. Each first-order latent variable

was composed of three domain representative parcels for the scale (each parcel summarizing a

third of the items, sampling across subscales/factors to parallel the total score). A subsequent

predictive model tested the AAQ-S psychological inflexibility subscale, psychological flexibility

subscale, perspective taking, and empathic concern as independent predictors of generalized

prejudice. Follow up SEM analyses examined the interactions between each AAQ-S subscale

and empathic concern as well as perspective taking. Lastly, given that psychological inflexibility

is a relatively new construct applied to prejudice, a series of SEM analyses tested the incremental

validity of the AAQ-S in predicting generalized prejudice above and beyond related measures

including personality variables (RWA, SDO), personal need for structure (PNS), and general

psychological inflexibility (AAQ-II).

<p style="text-align:center">Results</p>

Measurement Model

A measurement model of generalized prejudice was first tested (see Figure 1). The

second-order latent variable of generalized prejudice was indicated by five first-order variables

representing prejudice towards specific groups (African Americans [MRS], obese individuals

[ATOPS], gay men [MHS], women [NS], and substance abusers [CASA]). Although the Chi-

Square was significant, $\chi^2(85) = 239.37$, $p < .001$, this is a common issue with larger sample

sizes (Bollen, 1990) and thus other goodness-of-fit statistics were also examined. All of the other

goodness-of-fit statistics were supportive of this measurement model, $RMSEA = .055$ (90% CI =

.05, .06), $CFI = .97$, $NFI = .96$, $SRMR = .057$. Each first-order prejudice variable significantly

loaded onto the second-order generalized prejudice latent variable, with factor loading values ranging between .37 and .80. These results indicated that scores on self-report measures of prejudice towards African Americans, obese individuals, gay men, women, and substance abusers all comprised a latent variable of generalized prejudice in the current sample.

Structural Equation Model

A structural equation model tested whether psychological inflexibility, psychological flexibility, empathic concern and perspective taking each predicted the generalized prejudice latent variable generated in the previous step (see Figure 2). Covariances were estimated between each predictor variable as they are theoretically related constructs and previous research has shown significant associations between them (e.g., Levin, Lillis et al., 2014; Vilardaga et al., 2012). As expected given the large sample size, the Chi-Square statistic indicated problems in model fit, $\chi^2(141) = 388.32$, $p < .001$, but additional goodness-of-fit statistics generally indicated adequate fit for the predictive model, *RMSEA* = .054 (90% CI = .05, .06), *CFI* = .962, *NFI* = .942, *SRMR* = .054. Each predictor was significantly related to generalized prejudice such that higher psychological inflexibility ($\beta = .28$, $p < .001$), lower psychological flexibility ($\beta = -.11$, $p = .013$), lower perspective taking ($\beta = -.14$, $p = .003$), and lower empathic concern ($\beta = -.31$, $p < .001$) were each related to higher generalized prejudice. These four predictors in combination accounted for approximately 36% of the variance in generalized prejudice.

A second model including demographic predictors of generalized prejudice (gender, sexual orientation, body mass index, and ethnic minority status) as well as flexible connectedness predictors was also tested. However, fit statistics indicated marginal model fit, $\chi^2(219) = 654.36$, $p < .001$, *RMSEA* = .057 (90% CI = .05, .06), *CFI* = .935, *NFI* = .907.

Comparisons of AIC scores between the model with demographics (AIC = 343.46) and without

demographics (AIC = 524.32) further indicated that excluding demographics improved model fit.

A series of additional analyses tested the interaction between each AAQ-S subscale with

empathic concern and perspective taking in the predictive model. The only significant interaction

was between the psychological flexibility subscale and empathic concern (β = .091, p = .024)

such that the combination of being less flexible and less empathetic was predictive of greater

prejudice above and beyond either of these predictors alone. All of the other interaction effects

with psychological inflexibility and perspective taking were non-significant ($p > .10$).

Further Examination of Psychological Inflexibility

Additional analyses tested the incremental validity of the AAQ-S in predicting

generalized prejudice. One model tested the AAQ-S flexibility and inflexibility subscales as

predictors of generalized prejudice when also including RWA and SDO as predictors. These two

personality variables are known to be strong predictors of prejudice (e.g., Bäckström &

Björklund, 2007) and to be related to measures of inflexible cognitive styles (e.g., Cornelis &

Van Hiel, 2006). Model fit indices indicated a significant Chi Square, $\chi^2(141) = 455.58$, $p < .001$,

but otherwise adequate goodness of fit besides a somewhat low NFI value, $RMSEA = .061$ (90%

CI = .06, .07), $CFI = .954$, $NFI = .935$, $SRMR = .056$. Results indicated that higher

authoritarianism (β = .37, $p < .001$) and social dominance (β = .55, $p < .001$) were both

predictive of greater generalized prejudice. Further, the psychological inflexibility subscale

continued to predict generalized prejudice above and beyond these measures (β = .13, $p < .001$),

despite the model accounting for 71% of the variance. However, the psychological flexibility

variable was no longer predictive of generalized prejudice (β = -.01, p = .76).

Another model tested the AAQ-S flexibility and inflexibility subscales as predictors of generalized prejudice when also including the PNS as a more general personality variable related to rigidity/inflexibility (though note not of the kind directly focused on with the construct "psychological inflexibility" as measured by the AAQ-S and AAQ-II). Model fit indices showed a significant Chi Square value, $\chi^2(127) = 342.96$, $p < .001$, but additional goodness-of-fit statistics indicated generally adequate fit for the predictive model, $RMSEA = .053$ (90% CI = .05, .06), $CFI = .965$, $NFI = .946$, $SRMR = .055$. Results indicated that both the AAQ-S inflexibility ($\beta = .38$, $p < .001$) and AAQ-S flexibility subscales ($\beta = -.21$, $p < .001$) were predictive of generalized prejudice, while the PNS was not a significant predictor of generalized prejudice ($\beta = .04$, $p = .39$); with 23% of the variance in generalized prejudice accounted for by the model. The PNS was predictive of generalized prejudice when it was included as the only predictor ($\beta = .12$, p = .011), but it only accounted for 1.5% of the variance. However, this low correlation between the PNS and prejudice is consistent with past research, which has found personal need for structure to predict stereotyping but not prejudice per se (Newheiser & Dovidio, 2012).

Research on psychological inflexibility has typically found domain-specific measures such as the AAQ-S to be more sensitive when examining specific contexts (e.g., Gifford et al., 2004). Another model tested this by examining whether the AAQ-S predicted generalized prejudice above and beyond the AAQ-II, a general measure of psychological inflexibility. Although there was a significant Chi Square value, $\chi^2(127) = 347.37$, $p < .001$, additional goodness-of-fit statistics indicated generally adequate fit for the predictive model, $RMSEA = .054$ (90% CI = .05, .06), $CFI = .965$, $NFI = .946$, $SRMR = .057$. Results indicated that both the AAQ-S inflexibility ($\beta = .42$, $p < .001$) and AAQ-S flexibility subscales ($\beta = -.22$, $p < .001$) were predictive of generalized prejudice, while the AAQ-II had only a statistical trend for a

relationship to generalized prejudice ($\beta = .09$, $p = .071$), with 23% of the variance in generalized prejudice accounted for. The AAQ-II was predictive of generalized prejudice when it was included as the only predictor (B = .16, p < .001), but it only accounted for 2.5% of the variance.

Discussion

The current study replicated previous findings that measures of prejudice towards a range of groups load onto a latent generalized prejudice factor; in this case with a notable variety of groups including obese individuals, substance abusers, gay men, women and African Americans. These results lend further support to the idea that prejudice reduction interventions need to target core, general factors that give rise to a range of prejudicial attitudes. Furthermore, this study examined potential predictors of generalized prejudice that could be amenable to interventions based on the flexible connectedness model (Vilardaga et al., 2012). Results showed that psychological inflexibility, psychological flexibility, perspective taking and empathic concern, were all significantly related to generalized prejudice, accounting for a large portion of the variance. Psychological inflexibility with prejudiced thoughts, and in some cases flexibility with prejudice, predicted generalized prejudice above and beyond a general measure of psychological inflexibility, right wing authoritarianism and social dominance, further highlighting the potential unique role of this construct in understanding and intervening on prejudice. Although this study did not test whether these processes could be directly targeted in an intervention to reduce generalized prejudice, it does highlight a set of promising, potentially manipulable variables to inform such intervention efforts.

The finding that empathic concern and perspective taking significantly predict generalized prejudice is consistent with past research (Bäckström & Björklund, 2007; McFarland, 2010). Both empathic concern and perspective taking are common targets in many

prejudice reduction interventions (Paluck & Green, 2009) and findings from laboratory-based studies indicate the utility of perspective taking for reducing prejudice (e.g., Galinsky & Moskowitz, 2000; Todd et al., 2011). This study lends further support to the importance of empathic concern and perspective taking as methods for targeting prejudice broadly defined.

This is the first study to show to our knowledge that the clinical construct of psychological inflexibility/flexibility with prejudiced reactions also contributes to generalized prejudice. Psychological inflexibility may help account for how prejudiced thoughts and feelings can lead to discriminatory actions, even when they stand counter to one's values such as when feeling empathy towards and taking the perspective of others. This may be particularly relevant to contemporary forms of prejudice, such as aversive racism, in which individuals are conflicted between explicitly stated egalitarian values and implicit biases against marginalized groups (Gaertner & Dovidio, 2005). However, results are preliminary and research is needed examining *how* psychological inflexibility contributes to prejudice. Psychological inflexibility can occur through a variety of sub-processes, each of which warrants additional study (i.e., experiential avoidance, cognitive fusion, mindfulness, acceptance). The AAQ-S is somewhat limited in that it provides a general measure of psychological inflexibility rather than more specific sub-processes. The relatively weaker, though independent, relations found between the AAQ-S psychological flexibility subscale and generalized prejudice further suggest that this "pole", as assessed by the AAQ-S subscale, may be measuring somewhat distinct sub-processes (i.e., mindfulness, acceptance) of relevance to prejudice. However, it is unclear the degree to which these differences in AAQ-S subscales are due to differences in content validity (i.e., assessing different aspects of psychological inflexibility/flexibility across subscales) as opposed to differences in the relevance of each "pole" of inflexibility/flexibility to generalized prejudice.

Furthermore, some of these findings might be due to assessing psychological flexibility outside the context of intervention, in which the meaning of being aware of and accepting internal experiences might have a different function. Overall, these preliminary findings provide a starting point for future studies and highlight the need for further research on both subscales of the AAQ-S.

The findings of the current study may inform future anti-prejudice interventions. Previous research has found that interventions targeting psychological inflexibility, specifically using ACT-based approaches focusing on acceptance, mindfulness and values-based psychological processes, can reduce prejudiced attitudes and behavioral intentions (Hayes et al., 2004; Lillis & Hayes, 2007; Masuda et al., 2007). These ACT interventions encourage an alternative approach to relating to prejudice thoughts and feelings in which individuals take an open, aware and compassionate stance towards their prejudice reactions and are taught to simply notice them for what they are (i.e., a thought or feeling) without giving into, agreeing with, acting on, judging or fighting with them. In addition, individuals learn to identify what actions they value and to engage in values-based actions despite whatever aversive thoughts and feelings, including prejudice reactions, arise. A variety of psychosocial interventions teach similar skills (e.g. acceptance, mindfulness, values) to target various forms of psychological inflexibility and could be used to develop innovative treatments to impact prejudice towards a broad range of groups (Hayes, Villatte, Levin & Hildebrandt, 2011). However, these interventions were primarily developed as methods for distressed individuals seeking treatment. Key adaptations will be needed in translating them for prejudice reduction, particularly among those who are unaware and/or unmotivated to change prejudiced attitudes and behaviors. Positive findings from initial adapted interventions for prejudice reduction with college students suggest this is feasible (e.g.,

targeting mindful awareness of prejudiced thoughts, clarifying social values, perspective taking exercises), although further work is needed (e.g., Lillis & Hayes, 2007; Masuda et al., 2007).

The flexible connectedness model, hypothesizes that the combination of empathic concern, perspective taking and psychological inflexibility processes is key for building and supporting healthy social functioning and prosocial behaviors, while deficits in these areas may account for maladaptive social functioning (Vilardaga et al., 2012). Although the ability to adopt others' perspectives and to feel sympathy/concern for them is key for positive social functioning, theoretically these processes may not always be sufficient for promoting prosocial behavior, particularly when encountering intense negative thoughts and feelings (i.e., feelings of guilt/shame, automatic/implicit prejudiced reactions, personal distress from empathic responding). In such cases, it may also be important for individuals' to have a way to flexibly relate to these difficult experiences (i.e., with mindfulness and acceptance), rather than inflexibly responding in a way that continues to drive maladaptive behavior (i.e., avoidance in response to shame, discrimination in response to implicit prejudice). Consistent with this theoretical model and the current study's findings, previous research found that empathic concern, perspective taking and psychological inflexibility were all significant independent predictors of social anhedonia among college students, accounting for a large proportion of the variance in combination (Vilardaga et al., 2012). However, the flexible connectedness model would also predict that these processes interact in leading to generalized prejudice, but there was a general lack of such interaction effects, with only one analysis suggesting that empathic concern was more strongly related to prejudice among those lower in psychological flexibility.

The flexible connectedness model highlights the potential efficacy of interventions targeting this combination of empathic concern, perspective taking and psychological

inflexibility. Acceptance and mindfulness-based methods that target psychological inflexibility may also enhance empathic concern and perspective taking (Block-Lerner et al., 2007). In addition, teaching empathic concern and perspective taking skills provides an alternative, more flexible, way of interacting with individuals belonging to marginalized groups (i.e., rather than inflexibly responding to prejudiced thoughts and feelings, one can respond empathetically and with an awareness of others' unique perspectives and experiences). Future research would benefit from examining the utility of an intervention that integrated methods targeting empathic concern, perspective taking, and psychological inflexibility for generalized prejudice. This model highlights a set of psychological skills for effectively interacting with marginalized groups, which hypothetically might also be combined with other situational interventions known to impact prejudice such as intergroup contact (Paluck & Green, 2009). Future research might thus examine whether flexible connectedness processes could further enhance the effectiveness of such existing interventions.

This study also tested the incremental validity of the AAQ-S in predicting generalized prejudice above and beyond two personality variables that are well known to be very strong predictors (right wing authoritarianism and social dominance). The present results show that psychological inflexibility, but not flexibility, did so. It is important that these findings are interpreted within the goals of this study, which were largely to focus on more manipulable variables that are directly connected to existing intervention methods (e.g., ACT for stigma reduction), rather than personality variables as such. Thus, although these findings suggest that psychological flexibility may be a weaker predictor and to not account for additional variance over personality variables (which accounted for the vast majority of variance in prejudice), the overall pattern of results still suggest its potential relevance to prejudice and to interventions

designed to reduce prejudice. In the context of how much variance is accounted for by these personality variables, it is noteworthy that psychological inflexibility continued to be a significant predictor even when these well known personality variables were added.

There were some notable limitations in the current study. The use of a college student population, which could be lower in prejudice as compared to the general population, may have affected the results and limited the generalizability of findings to other populations. The use of a cross sectional design does not allow for determining the temporal relationship between predictor variables and generalized prejudice. The study relied on self-report assessment and responses could have been affected by social desirability. We attempted to minimize this effect by using modern prejudice and other subtle measures of prejudice whenever possible, as well as designing a completely confidential online study and reassuring participants about the anonymity of their answers. The fact that the distribution of our variables was not highly skewed suggests this strategy might have been successful. Future studies might benefit from alternative recruitment methods, such as online recruitment methods, and implicit or behavioral measures of prejudice. Although this study focused on the common shared variance across prejudice measures, future research in other samples could also examine how flexible connectedness variables might interact with situational variables in leading to more specific, targeted forms of prejudice.

This study highlights a set of potential manipulable variables that might be targeted in a flexible connectedness intervention and future studies are now needed to test the impact of such an intervention on generalized prejudice. The AAQ-S is limited in that research has not specifically tested whether acceptance and mindfulness-based interventions can effectively target this process. Given that the use of such domain specific measures of inflexibility is key in this research area, additional work is now needed to examine whether the AAQ-S is sensitive to and

mediates prejudice reduction interventions. Furthermore, the AAQ-S is a relatively new measure and some of the findings in this study suggest that the two subscales may be measuring somewhat distinct processes, rather than their intended purpose of assessing two poles of a single construct. This somewhat limited the ability to interpret whether differences between AAQ-S subscales in predicting prejudice are due to differences in what is being measured in these scales versus differences in how psychological inflexibility and flexibility play a role in prejudice.

Although research on personality variables has identified strong predictors of generalized prejudice, it is not readily discernible how such findings would inform intervention efforts. The current study provides an example of how focusing on variables that are functionally important to generalized prejudice *and* amenable to interventions could be a fruitful method for informing the development of more effective, broadly applicable prejudice reduction interventions. Validated interventions have been developed that target empathic concern, perspective taking and psychological inflexibility, but they have not been fully applied to intervening on prejudice as a generalized process. Although empathic concern, perspective taking and psychological inflexibility were examined in this study other manipulable predictors of generalized prejudice should also be explored.

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Figure caption

Figure 1. Measurement model of generalized prejudice. MRS = Modern racism towards African Americans, ATOPS = Negative attitudes towards obese individuals, MHS = Modern prejudice towards gay men, NS = Neosexism towards women, CASA = Negative attitudes towards substance abusers. Bolded numbers represent standardized path coefficients and numbers in italics represent portion of variance explained.

Figure 2. Structural equation model with predictors of generalized prejudice. Bolded numbers represent standardized path coefficients and numbers in italics represent portion of variance explained.