HUMILITY SHAPING SOCIAL JUDGMENTS:

THE EFFECT OF HUMILITY ON STEREOTYPING

MEDIATED BY EGALITARIAN BELIEFS

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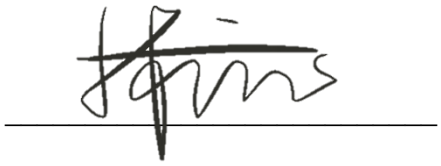
DECLARATION

I hereby declare that this thesis is my original work and it has been written by me in its entirety. I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.



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SUMMARY

Humility is considered as one of the neglected virtues in the scientific world. Based on the prosocial nature of humility derived from its conceptualization, this research hypothesized that humility can decrease stereotyping and the effect is mediated by egalitarian beliefs. Four studies were conducted to examine the hypotheses. Study 1 investigated the association between dispositional humility and gender stereotyping. The results showed that humility negatively predicted gender stereotyping regardless of the valence of the stereotypes, the gender of participants, or the gender of target groups. Study 2 showed that this association between dispositional humility and stereotyping was mediated by egalitarian beliefs. Study 3 further replicated the mediating role of egalitarian beliefs in an experimental setting using a blockage manipulation design. Finally, Study 4 was a longitudinal study examining whether humility would predict prejudice change using a large Singaporean sample. The results revealed that humility predicted more positive attitudes towards the homosexuals over time. Overall, the current research provides consistent evidence that humility can reduce the use of stereotypes and prejudice. The effect of humility on stereotyping is mediated by the egalitarian beliefs: humble individuals regard others in a more egalitarian way and therefore are less likely to use overgeneralized stereotypes in making social judgments.

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INTRODUCTION

Reviewing empirical research concerning humility 20 years prior to 2000, Tangney (2000) discovered only a handful of studies, most of which treated the construct as secondary focuses. Aside from the relatively few received attention on this topic, the past literature before Tangney's (2000) review often considered humility as a negative trait. However, recent literature otherwise contended that humility is overall a positive virtue. In particular, most literature has identified humility with following intrapersonal and interpersonal attributes (Chancellor & Lyubomirsky, 2013; Owens et al., 2013; Tangney, 2000, 2002): a) a willingness to acquire accurate perceptions; b) secure self-identity; c) openness to new information; d) other-focus.

The conceptualization of humility reveals its prosocial properties. Humble individuals—by shifting their focus from self to others—are more mindful of other's needs and appreciative of their advantages. Multiple empirical studies supported this notion, revealing that humility is associated with a number of social interaction outcomes such as gratitude (Kruse et al., 2014), generosity (Exline & Hill, 2012), forgiveness (Powers et al., 2007), helpfulness (LaBouff et al., 2012), trust (McElroy et al., 2014), and stronger social bonds (Davis et al., 2013).

Nevertheless, these encouraging findings have primarily focused on the emotional and behavioral outcomes—how individuals with a humble disposition feel and their tendency to help, repay, forgive, trust, or bond with other social beings. Few empirical studies have examined on humility from a social cognitive

perspective, namely, how humility influences perceptions, judgments, memories, and information processing of social stimuli.

One of the most essential processes in cognition is categorization (Fiske & Lee, 2008). It describes the process in which perceived objects are grouped and organized mentally for differentiation and understanding. As perceived objects, humans are also cognitively categorized into different groups by virtue of shared characteristics.

The primary product of this social categorization process that has attracted much research attention is stereotypes, which are usually defined as perceiver's cognitive structures about certain social groups (Mackie et al., 1996). Such structures could be comprised of the knowledge, beliefs, or expectancies of the group. The social categorization process classified other individuals into different groups based on their physical or social qualities (e.g., men vs. women; Chinese vs. Europeans). The mental representations of these groups—the social categories—store generalized information about them. For example, women are emotional; Chinese are skilled in math. These generalized beliefs display the stereotypes of assorted groups.

Stereotyping—judging individuals by applying stereotypes of their groups—can lead to undesirable social outcomes in current societies. Stereotypes are regarded as sources of prejudice and discrimination (Allport, 1954; Tajfel, 1969; Taylor, 1981). For instance, stereotypes about African Americans can increase the rate of shooting decisions towards unarmed African American in simplified video games (Correll, Park, Judd, & Wittenbrink, 2002; Correll, Park,

Judd, & Wittenbrink, 2007; Correll, Park, Judd, Wittenbrink, et al., 2007; Correll, Wittenbrink, Crawford, & Sadler, 2015). Gender stereotypes could result in a decrease in the performance rating for women in male gender-typed positions (Lyness & Heilman, 2006). Stereotyping widely engages in ordinary social life. Therefore, studying stereotyping and its predictors has obvious practical values in reducing the negative real-life impact of stereotyping.

Nonetheless, research to date has not determined the relation between humility and stereotyping. To fill this gap, this research aims to investigate the association between humility and stereotyping. Furthermore, it also intends to fill the gap that little research has been conducted on humility in social cognitive perspective. As stereotyping is a cognitive process in person perception and judgment, the findings could offer insights in how attributes of humility can predict its influences in other cognitive processes.

Humility should reduce stereotyping based on existing theories. The virtue is theorized to be prosocial by a shift of focus from self to others. Chancellor and Lyubomirsky (2013) further contended that the other-focus attribute of humility should lead to egalitarian beliefs. In particular, humble individuals tend to regard other individuals—from either ingroups or outgroups—as equal and independent beings. Humility can thus maintain the individuality of targets from the stereotyped groups, which can be regarded as a reverse process of social categorization. Past research also showed that egalitarian beliefs can inhibit stereotypical thinking (Moskowitz & Li, 2011); moreover, individuals holding

anti-egalitarian beliefs were found to exhibit stronger stereotyping tendencies and prejudice (Guimond, Dambrun, Michinov, & Duarte, 2003; Whitley, 1999).

Therefore, this thesis hypothesizes that humility can reduce stereotyping via the mediation of egalitarian beliefs. Specifically, Study 1 tested the association between dispositional humility and stereotyping. Study 2 examined whether the association was mediated by egalitarian beliefs using the statistical mediation analysis. Study 3 investigated the mediation in an experimental setting using the mediation block design to make a clear causal chain. Study 4 further tested the temporal relationship between humility and prejudice by employing a longitudinal design.

REVIEW OF THE LITERATURE

Background and Conceptualization of Humility

Humility was regarded as a desirable virtue in ancient times. As recorded in the *Analects*, Confucius believed that humility is an essential quality for excellent and noble people (Chen, 2016). In the *Bible*, humility is also considered as a favorable virtue displayed in Jesus and God's chosen people (e.g., Colossians 3:12; Matthew 11:29; Proverbs 15:33 New International Version).

Nevertheless, the valence of humility may have been reversed in more contemporary times. Specifically, modern American culture emphasizes an appreciation of self and individualism; people born in the period starting from the 1970s to the 2000s are more prone to attend to their inner needs, desires, and distress (Lasch, 2018; Twenge, 2006). The culture and its prevalence seemed to alter the public opinions towards humility—a self-transcended trait. The cultural trend of the US inclined towards greater individualism is evident in the contents of publications. By examining books published in the 20th century, Kesebir and Kesebir (2012) found that the use of the word cluster of humility (i.e., humility, humbleness, and modesty) showed a precipitous decrease with an average drop of 51.5% in the frequency of these words from 1901 to 2000. Another manifestation can be observed in the definition entries in common dictionaries, in which the word "humble" is interpreted as seeing oneself as ordinary, lacking importance, or low in social rank ("Humble", n.d.-a, n.d.-b).

This negative perspective equating humility with low self-esteem has been challenged by most recent theoretical literature arguing humility is overall a

positive trait. For example, Tangney (2000) articulated the positive aspects of humility in psychological science. Contrary to the view equating humility with low self-esteem, she contended that humility facilitates a process in which individuals discard their egocentric focus and become more open to appreciating others' strengths and potential. To this end, she proposed 6 key elements of humility: a) an accurate assessment of one's abilities and achievements; b) an ability to acknowledge one's mistakes, imperfections, gaps in knowledge, and limitations; c) openness to new ideas, contradictory information, and advice; d) keeping one's abilities and accomplishments—one's place in the world—in perspective; e) a relatively low self-focus, a "forgetting of the self", while recognizing that one is but part of the larger universe; and f) an appreciation of the value of all things, as well as the many different ways that people and things can contribute to our world (Tangney, 2002, p. 413). Similarly, Chancellor and Lyubomirsky (2013, p. 823-827) identified 5 hallmarks of humility: a) secure, accepting identity; b) freedom from distortion; c) openness to new information; d) other-focus; e) egalitarian beliefs. Owens, Johnson, and Mitchell (2013, p. 1518) posited that humility connotes a) a manifested willingness to view oneself accurately, b) a displayed appreciation of others' strengths and contributions, and c) teachability. Worthington et al. (2017) believed that humility involves 3 core aspects: an accurate assessment of self, a modest self-presentation, and an interpersonal stance that is other-oriented rather than self-oriented.

It is visible that the definition of humility is still under debate in this field (Worthington et al., 2017). Therefore, it is important to clarify the stance of this

research in defining humility. In particular, this research regard that low self-focus is the central theme of humility; it connotes several intrapersonal and interpersonal qualities reflecting the core indicators of humility.

At the intrapersonal level, the low self-focus empowered humble individuals with the motivation to view themselves accurately. Humility, by lowering self-focus, provides the ability to view oneself in a less self-biased way. Therefore, according to Nielsen et al. (2010), humble individuals are eager to adjust their self-knowledge using the information gathered from interactions with others. Their focuses are usually on a proactive perspective—what they can do to learn and improve. Conversely, individuals with negative self-concepts (e.g., individuals with depression) tend to interpret the ambiguous information in a negative way, whereas individuals with aggrandizing self (e.g., narcissists) tend to overlook their mistakes and to blame others for their failures (Chancellor & Lyubomirsky, 2013).

A humble state can also enable people to be more open-minded about new ideas and information. The low self-focus can make one more open to ego-threatening information. Hence, humble persons are often posited to be open to new ideas, contradictory information, and advice (Tangney, 2000, 2002). Furthermore, the openness makes humble people more engaged in improving themselves. They are teachable, willing and eager to learn new knowledge about themselves and the world (Owens et al., 2013; C. Peterson & Seligman, 2004).

The relative lack of self-focus is not equal to a negative self-view. On the contrary, humble individuals are less likely to exaggerate or deny perceived

information in a self-enhancing or self-debasing manner (C. Peterson & Seligman, 2004). They are posited to own a secure, accepting self-identity (see Chancellor & Lyubomirsky, 2013; Tangney, 2000, 2002). As humility can motivate individuals to obtain information about their strengths and limitations, they are less likely to be pessimistic because of failures. Hence, humility can protect one's self-identity by assisting individuals in realizing their advantages and potentials. A preliminary study conducted by Exline and Geyer (2004) also provide consistent evidence that humility was distinguished from low self-esteem and overall regarded as a favorable trait.

At the interpersonal level, the low self-focus manifests in the shifted focus from self to others. Humble individuals are more other-oriented than self-oriented in interpersonal interactions. In particular, as humility can reduce the egocentric focus, one may not need to boost their ego through the social comparison process. Hence, humble individuals are more prone to increase the valuation of others (Means et al., 1990), attend to other's needs or mental states, and appreciate other's strengths (Ou et al., 2014; C. Peterson & Seligman, 2004; Tangney, 2000). The positive correlation between humility and empathy also supported this notion (Davis et al., 2011; Kruse et al., 2017), suggesting that humble individuals are better at comprehending other's feelings and thoughts.

Although most existing literature and measures view humility as a personality trait (e.g., Ashton & Lee, 2008; Davis, Worthington, & Hook, 2010; Owens et al., 2013), researchers also recognize the value of studying humility as a state (see Chancellor & Lyubomirsky, 2013; Tangney, 2002). At certain moments,

people can particularly feel humble. The dictionary entries for the word "humility" is actually describing a sense of feeling "humble" or lack of pride and importance ("Humility," n.d.-a; "Humility," n.d.-b; also see Tangney, 2000). The approach to study humility as a state also offers several advantages (see Chancellor & Lyubomirsky, 2013). It allows researchers to expect and predict that humility can be changed over a short period of time. Hence, they can observe how humble experience relates to other relevant emotions and behaviors. Moreover, as Tangney (2002) pointed out, the state approach of humility indicated that humility can be altered. Researchers can discover the mechanisms or antecedents of humility and highlight the potential of intervention techniques to enhance the virtue.

Measurements of humility in this research

One of the major challenges in humility research is the measurement of humility. On one hand, the divergent conceptualizations of humility in the field have produced measures on divergent theoretical foundations. On the other hand, although a number of humility measures have been developed to date, few of them have been widely acknowledged in the field as the credible measures of humility (for a review, see McElroy-Heltzel et al., 2019). Attempting to minimize the impact of measurement challenges, this research took several actions trying to ensure its validity.

To begin with, this research tried to include several relatively authentic and widely used trait measures of humility. Specifically, the Honesty-Humility (H-H) subscale of HEXACO-PI (Ashton & Lee, 2005; Lee & Ashton, 2004,

2018) and the Expressed Humility Scale (EHS, Owens et al., 2013) and its extended version (Ou et al., 2014) were selected as the trait measures across different studies. The H-H subscale of HEXACO-PI is the most widely used and accepted measure of humility (Davis et al., 2010; McElroy-Heltzel et al., 2019). Its validity can be demonstrated in hundreds of empirical studies. Nevertheless, many humility researchers questioned H-H as a valid measure of humility. As the H-H as a personality dimension is captured through the analysis of adjectives in the descriptions of the personality, its face validity as a humility measure is dubious (Davis et al., 2010; McElroy-Heltzel et al., 2019). As the scale was not developed based on the conceptualization of humility, one may question whether this scale precisely measured the dispositional humility proposed by the theory. However, it should be noted that H-H has demonstrated strong positive correlations with other humility measures developed based on humility theory (e.g., Davis et al., 2011; Kruse et al., 2017; Owens et al., 2013), suggesting that it may still measure the same construct as other relatively strong humility measures do.

In contrast to H-H, EHS is a dispositional measure developed by the conceptualization of humility, consisting of 3 facets—a) "a manifested willingness to view oneself accurately", b) "a displayed appreciation of others' strengths and contributions", and c) "teachability" (Owens et al., 2013). The extended version includes 3 more facets into the scale—low self-focus, self-transcendent pursuit, and transcendent self-concept (Ou et al., 2014). This scale is certainly more in accordance with the conceptualization of humility in this

research. It covered most core indicators of humility including the motivation to have accurate self-knowledge, openness to new information, and an other-oriented interpersonal stance. The scale overall showed good evidence of estimated internal reliability and construct validity (McElroy-Heltzel et al., 2019; Owens et al., 2013). Hence, although EHS may not be as well-established as H-H, it was also included in this research to measure dispositional humility.

In addition to the dispositional measures of humility, this research also attempted to manipulate state humility to test its causal effect on stereotyping. Participants were primed with a humble state rather than completing the dispositional measures. Hence, this approach can avoid the potential problems raised by dispositional humility measures. If the results are consistently similar across studies using the dispositional humility measures and state humility manipulations, it would certainly provide evidence for the validity of this research and address the measurement concern to a certain degree.

Humility and Prosociality

Based on the conceptualization of humility, the prosocial nature of humility is evident (see Chancellor & Lyubomirsky, 2013; Ou et al., 2014; Owens et al., 2013; Tangney, 2000, 2002). Humble individuals are willing to acquire accurate information. This willingness motivates humble individuals to put more efforts into collecting more authentic information about themselves and others. It sets the premise for them to be more successful in social interactions. Humble individuals are thus better able to acknowledge strengths and weaknesses for both themselves and others and are less likely to perceive themselves in a self-

enhancing way (Chancellor & Lyubomirsky, 2013; Peterson & Seligman, 2004; Tangney, 2000). From this vantage point, humble individuals can avoid acting in an overly self-enhancing way. Existing research indeed support this proposition that humility is linked to self-diminishing emotions such as awe (Stellar et al., 2018). Research using open-ended questions revealed that humility was perceived to comprise characteristics such as "kindness and caring towards others" and "refraining from bragging" (Exline & Geyer, 2004). The finding again indicated that humility is overall a prosocial and self-transcendent virtue.

Psychological research abounds with evidence that self-enhancing tendencies can be harmful to social relationships. Self-enhancement was found to be linked with poor social skills and maladjustment in a ten-year longitudinal study (Colvin et al., 1995). Participants with self-enhancing tendencies also performed more poorly in social interaction tasks (Colvin et al., 1995). Moreover, individuals with enhanced self-image are found to be less likable and attractive in social relationships (Bond et al., 1982; Forsyth et al., 1981; Robinson et al., 1995). Hence, as a self-transcendent trait, humility might be a beneficial factor to social relationships.

Moreover, other-orientation is also theorized as one of the primary attributes in the humility virtue cluster (e.g., Chancellor & Lyubomirsky, 2013; Tangney, 2000). Humble individuals focus less on themselves and are more attentive to the needs and feelings of others. They are less likely to be self-biased and therefore more likely to act in a prosocial manner. Supporting this notion, past research showed that people high in humility was found to perform better in

caregiving jobs (Johnson et al., 2011), indicating that humility can endow individuals with better social skills and competence. People with a humble disposition also tended to report stronger motives to act kindly to others (Exline & Hill, 2012) and expressed less negative attitudes towards outgroup members (Van Tongeren et al., 2016). Furthermore, a longitudinal study conducted by Davis et al. (2013) found that humility could facilitate the processes to bond and repair social relationships for participants.

Consistent with these theoretical considerations, empirical research has found that humility is related to both emotional and behavioral prosocial outcomes. Up to now, a number of studies have related humility with several prosocial emotions. For example, Exline (2012) found that individuals high in humility were more likely to experience positive emotions when receiving kind gestures from others. Studies using implicit or state measures of humility also found positive correlations between humility and empathy, which is an essential emotion for people to interpret other's feelings in social interactions (Kruse et al., 2017; LaBouff et al., 2012). A positive correlation was also observed between humility and gratitude (Dwiwardani et al., 2014; Rowatt et al., 2006), an emotion that enhances social relationships through responsive interactions (Algoe, 2012; Algoe et al., 2008). Furthermore, Kruse et al. (2014) designed a longitudinal study exploring the temporal effects between humility and gratitude. In that study, participants were asked to complete a daily online questionnaire including measures of state gratitude and humility for a period of two weeks. Results showed that the daily change of humility and gratitude predicted each other

measured on the next day, revealing their reciprocal relations in enhancing each other in a more real-life situation.

The existing body of research on humility also examined its association with potential behavioral outcomes. The most prominent findings are on its relations with forgiveness. For instance, Powers et al. (2007) found that participants with high dispositional humility and spiritual transcendence reported a higher tendency to forgive others than those low in dispositional humility or spiritual transcendence. In addition, a longitudinal study conducted by Davis et al. (2013) revealed that humility predicted forgiveness in subsequent time waves. A positive correlation between humility and forgiveness was observed in a number of cross-sectional studies (Davis et al., 2011; Dwiwardani et al., 2014; McElroy et al., 2014; Rowatt et al., 2006; Shepherd & Belicki, 2008). Aside from forgiveness, humility is also found to facilitate other prosocial behaviors. In particular, a series of studies conducted by LaBouff et al. (2012) investigated the relationships between humility and helping behaviors. In that research, dispositional humility was found to be positively correlated with helpfulness measured by scales. Also, participants with a humble disposition were more likely to help someone in need with an unexpected opportunity in relation to those lower in dispositional humility. Humble individuals were also found to be more generous. They were more prone to make donations and to mail back a survey as a favor (Exline & Hill, 2012). Research on intellectual humility showed that humility was linked to trust measures framed in social interaction context (McElroy et al., 2014). Moreover, participants higher in Honesty-Humility exhibited more cooperative

behaviors in dictator games and ultimatum games (Hilbig & Zettler, 2009). Participants implicitly primed with humility acted less aggressively towards people holding different religious views compared to participants in the control condition (Van Tongeren et al., 2016). Research in management also revealed that humility could foster better management, empowering humble leaders with the ability to collaborate, make joint decisions, and possess a shared vision (Ou et al., 2014; Ou, Waldman, & Peterson, 2015). Taken together, the existing research on humility provided consistent evidence showing that humility can boost altruistic behaviors.

Relatively fruitful findings revealed that humility is associated with prosocial emotional and behavioral outcomes. However, few studies have explored the influences of humility on social cognitive processes—how humility would impact on the cognitive processing of other social beings. For example, how do humble individuals categorize other individuals? How do humble individuals perceive other social groups? To fill this gap, the present research aims to investigate the effects of humility on stereotyping—an essential process in social categorization that has attracted the interests of psychologists for at least half a century (see Schneider, 2004; Stroebe & Insko, 1989).

Social Cognition and Stereotyping

Men are strong and aggressive; women are emotional and caring; Blacks are good at sports. These are some common examples of stereotypes. The concept of stereotypes was first introduced to the academic world by Lippmann (1922) in his book *Public Opinions*, in which he acknowledged that stereotyping as part of

the human nature affects one's thoughts and behaviors. Scientific research later explored the contents of stereotypes of different racial groups. For example, Katz and Braly (1933, 1935) explored the stereotypical traits that university students believed to be attached to the provided ethnic groups; those stereotypes were then found to be indicative of prejudice towards those ethnic groups. They concluded that stereotypes were reflections of cultural opinions towards those groups and thus fostered prejudice and discrimination.

Researchers taking a cognitive approach to study stereotypes can be traced back to Allport (1954) in his book *The Nature of Prejudice*, which underscored categorization processes as the fundamental process of producing stereotypes. With the rapid development of cognitive science since the 1970s, the cognitive approach soon took the predominant position stereotyping research because stereotypes are similar abstract knowledge structure to schemas and prototypes (Hamilton, 2015; Jones, 1982; Schneider, 2004; W. G. Stephan, 1989). Though stereotypes have been defined in various ways (see Hilton & Von Hippel, 1996; Schneider, 2004), most researchers largely agree that stereotypes are cognitive structures pertaining to one's knowledge, beliefs, and expectancies associated with certain social groups (e.g., Mackie, Hamilton, Susskind, & Rosselli, 1996).

Taking the cognitive approach shifted the focus of research on stereotypes from the contents of stereotypes to the cognitive processes involved in stereotyping (Hamilton et al., 1994). Researchers have studied extensively on potential factors that can influence the stereotypic thinking on its formation, maintenance, application, and change—as well as the consequences of the

stereotypical thinking on social information processing, social perception, and behavioral outcomes (see Banaji & Greenwald, 1994; Hamilton et al., 1994, 1994; Hilton & Von Hippel, 1996; Mackie et al., 1996). For example, researchers have found that motivation can enhance or suppress stereotypic thinking through various cognitive processes (e.g., Crocker & Luhtanen, 1990; Ditto & Lopez, 1992; Klein & Kunda, 1992). Affect can also facilitate the formation, maintenance, and application of stereotypes by perceiving the target group in a more homogenous way (Stroessner & Mackie, 1993), or by placing a greater reliance on stereotypes as heuristic cues (Bodenhausen, Kramer, et al., 1994; Bodenhausen, Sheppard, et al., 1994). Affect can also prohibit stereotypical thinking by reducing illusory correlations associating negative behaviors to minority group members due to their shared distinctiveness in societies (Hamilton et al., 1993; Stroessner et al., 1992).

Most researchers in social cognition agree that social categorization is the foundation of stereotyping (e.g., Fiske & Lee, 2008; Mackie et al., 1996; Taylor, 1981). Social categorization involves the mental process in which individuals are classified into various social groups. Stereotyping—applying the cognitive knowledge structures to certain social groups—provides useful and convenient information of those groups (Oakes & Turner, 1990). In this vein, social categorization and stereotyping are functional cognitive processes that assist individuals to fast handle a large amount of information existing in the complex social world (Allport, 1954; Mackie et al., 1996; Macrae et al., 1994).

However, although stereotypes are cognitive structures containing both positive and negative contents with adaptive functions, most researchers consider them as detrimental and inaccurate in most cases due to its tendency to overgeneralize social groups and their members (e.g., Fiske & Lee, 2008; Schneider, 2004). As stereotypes stem from the social categorization process emphasizing the differentiation of ingroups and outgroups, stereotyping often targets at disadvantaged minority groups that are divergent from the dominant groups in their societies: non-white (e.g., in the US), female, homosexuals, etc.

Stereotypes are indeed predictive of prejudice, which is the negative attitudes towards social groups. Allport (1954) contended that prejudice is based on the faulty or inflexible stereotypes of the target groups. Numerous studies have supported this notion: stereotypes were found to be associated with prejudice towards homosexuals (Gailliot et al., 2008; Haddock et al., 1993; Stangor et al., 1991), gender groups (Burgess & Borgida, 1999; Eagly et al., 1994; Eagly & Mladinic, 1989; C. W. Stephan et al., 2000), and racial or ethnical groups (Bobo & Kluegel, 1997; Katz & Braly, 1935; Link & Oldendick, 1996; Locke et al., 1994; Maio et al., 1994; Stangor et al., 1991, 1996; W. G. Stephan et al., 1999).

Furthermore, stereotyping and prejudice can be translated into discriminative outcomes. For example, stereotypes and prejudice towards African Americans influenced the shooting decisions towards unarmed African American in simplified video games (Correll, Park, Judd, & Wittenbrink, 2002; Correll, Park, Judd, & Wittenbrink, 2007; Correll, Park, Judd, Wittenbrink, et al., 2007; Correll, Wittenbrink, Crawford, & Sadler, 2015). Race, ethnicity, and gender can

be common identifiers to activate stereotypes about the competence of corresponding minority groups. Those stereotypes can form the disparate standards in making ability inferences, which in turn reinforce the stereotyping in the first place (Fiske & Lee, 2008; Foschi, 2000). Past research revealed that gender stereotypes hindered the career advancement of females (Burgess & Borgida, 1999). Stereotypes about females also biased the performance rating of them on the male dominant jobs (Lyness & Heilman, 2006). Existing research also showed that prejudice is predictive of the discriminative hiring decisions on immigrants (Evans & Kelley, 1991). Black employees were recalled as less competent by interviewers even when they hired equal portions of black and white job applicants (Frazer & Wiersma, 2001).

It should be noted that individual differences play important roles in stereotyping, prejudice, and discrimination. For example, authoritarianism is a personality reflecting one's obedience to authorities. This personality was found to be correlated with prejudice towards homosexuals (Haddock et al., 1993; Whitley Jr, 1999), gender groups (Duncan et al., 1997), and various other minority groups (Altemeyer, 1998; Haddock et al., 1993; B. E. Peterson et al., 1993). In a similar vein, the current research proposes that humility, often regarded as a prosocial trait (e.g., Chancellor & Lyubomirsky, 2013; Tangney, 2000), can also interfere with interpersonal processes and reduce the stereotyping and prejudice.

The Current Research: Humility Reducing Stereotyping Mediated by Egalitarian Beliefs

Stereotypes are generalizations (Schneider, 2004). People generalize the stereotypical information about different social groups and apply them to new acquaintances from those groups. In this regard, stereotypes discourage thinking at the individual levels. Humility, in contrast, conceptually encourages the opposite cognitive process promoting thinking about individuals. Humility can shift one's focus from self to other individuals. Humble people are more attentive to the needs, feelings, and advantages of other individuals (Chancellor & Lyubomirsky, 2013; Tangney, 2000). Hence, they should be less prone to apply overgeneralized information to perceive others from the stereotyped groups. Research on self-enhancement offered some indirect supporting evidence. In a study conducted by Stangor and Thompson (2002), self-enhancement—an opposite psychological process to humility noted earlier—was found to elicit social categorization, which is the process simplifying the perception of individuals by categorizing them into social groups.

This research proposed that such an effect of humility on stereotyping is mediated by egalitarian beliefs humble individuals tend to have. Egalitarian beliefs connote the beliefs in human quality. Individuals hold egalitarian beliefs tend to regard others having the same intrinsic value and importance as themselves (Chancellor & Lyubomirsky, 2013). Humble individuals tend to hold egalitarian beliefs. Past research found a negative correlation between dispositional humility scores and Social Dominance Orientation scale scores (Lee et al., 2010). The latter scale, developed by Pratto, Sidanius, Stallworth, and Malle (1994), measured the degree to which responders agree to the anti-

egalitarian beliefs about how group hierarchy should constitute (Sidanius et al., 2000). A similar correlation was also observed between state humility and Social Dominance Orientation scores (Kruse et al., 2017). Furthermore, the relation between humility and egalitarian beliefs was observed in behavioral measures. In a study conducted by Hilbig et al. (2012), dispositional humility was found to predict more altruistic behaviors in the public goods game, indicating that humble individuals tended to hold egalitarian beliefs and were thus more prone to treat others in an equal way.

Moreover, research on egalitarian beliefs revealed its negative association with stereotyping and prejudice. Participants lower in social dominance orientation scores tended to be less prejudiced in relation to those higher in social dominance orientation scores (Guimond et al., 2003). The association between social dominance orientation and prejudice was found to be mediated by stereotyping towards the target groups (Whitley Jr, 1999). Consistently, empirical research also showed that egalitarian beliefs could inhibit stereotypical thinking. In a series of studies, Moskowitz and Li (2011) manipulated the egalitarian goals by instructing participants to recall an experience that they did not live up to fulfill the egalitarian standards. The results showed that participants primed with egalitarian goals inhibit the activation of stereotypes compared to the participants in control conditions.

Taken together, this research hypothesizes that humility would reduce stereotyping through the mediation of egalitarian beliefs. In particular, humility

may increase the chances that one holds egalitarian beliefs, which can reduce the stereotypical thinking in perceiving others.

AN OVERVIEW OF STUDIES

Four studies were designed to test the hypotheses. In Study 1, participants completed measures of dispositional humility and gender stereotyping to examine the association between humility and stereotyping. Study 2 investigated whether the association between dispositional humility and stereotyping is mediated by the egalitarian belief. Study 3 tested the mediation in an experimental setting by applying a blockage mediation design. Given Study 1-3 are either cross-sectional or empirical studies examining how humility influences stereotyping, Study 4 aims to further test how humility influences social judgments in a more real-life setting. To this end, prejudice was measured as the outcome variable to investigate whether the effect of humility on stereotyping can further translate to the influence on attitudes of stereotyped groups. Study 4 employed a longitudinal design with a large sample which is more representative of the Singaporean population to investigate whether humility can predict prejudice change over time.

Power analysis: Pilot Study A

A priori power analysis was conducted to estimate the appropriate sample size for the four studies. As few studies have investigated the effects of humility on social cognitive processes, it would be hard to estimate the effect size based on existing research on humility. Therefore, Pilot Study A, in which participants completed the measures of dispositional humility and stereotyping, was conducted to estimate the effect size.

Past research showed that the estimates of effect sizes in observational studies and experimental studies (i.e., randomized, control trials) are similar (Benson & Hartz, 2000). Hence, the effect size of Pilot Study A was also used to estimate the minimum sample size for the experimental study in this research (i.e., Study 3).

Some statisticians criticized the use of the pilot study for priori power analyses (e.g., Kraemer, Mintz, Noda, Tinklenberg, & Yesavage, 2006). The major concern towards this approach lies in the usual small sample sizes of those pilot studies—they may not be stable enough to estimate the effect sizes. In other words, an appropriately large sample size is required for the priori power analysis to achieve a stable estimation of effect size. Schönbrodt and Perugini (2013) posited a method to determine the minimum sample size per condition for stable effect estimation. They argued that the effect size estimation could be considered as stable when it only fluctuates around the true value of the effect size in a prespecified range. This range is defined as the *corridor of stability* (COS) denoted by its width *w*. With a fixed COS (by specifying the value of *w*), a statistical point pertaining to sample size could be calculated using Monte-Carlo simulations so that the estimated effect size will only fluctuate within the COS when sample sizes are larger than that point. This point, termed *point of stability* (POS), can be regarded as the minimum sample size for stable effect size estimation.

The *w* to calculate the POS in a typical social psychology study could be determined by Richard, Bond Jr, & Stokes-Zoota's (2003) study. They examined

more than 25,000 social psychology studies of 8 million people and concluded that the average effect size is $r = .21$. Based on this value, Lakens and Evers (2014) suggested that $w = .2$ can be a lower bound in determining the minimum sample size per condition for a stable estimation of the effect size. According to their calculation, the minimum sample size recommended for a pilot study to achieve stable effect size estimation on a small effect (i.e., $r = .1$ or Cohen's $d = 0.20$) with 80% confidence based on a corridor $w = .2$ is 61. As this research is relatively novel in social psychology with no obvious referential studies, the effect size of the association between humility and stereotyping was assumed to be small for the conservative purpose. Therefore, the minimum sample size of Pilot Study A was set to exceed 61.

Participants and Procedure

A total of 87 undergraduate students (35 men, 52 women, with a mean age of 21.36 years) from National University of Singapore were recruited by rewarding credits for participation as part of a course requirement. They were asked to complete the measures of humility and stereotyping, awareness check and demographic items before being thanked and debriefed.

It should be noted that 61 is only the minimum sample size to achieve the stable effect size estimation with 80% confidence based on a corridor $w = .2$. Larger sample size will certainly provide a more stable estimation of the effect size. Thus, Pilot Study A recruited the maximum number of participants available to ensure the stability of the effect size estimation.

Measures.

Dispositional Humility

The 16 items (α = .85) from Honesty-Humility subscale of the HEXACO Personality Inventory were used to measure dispositional humility (see Appendix A; Ashton & Lee, 2005; Lee & Ashton, 2004). Each item was rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Although some researchers argued that the Modesty and Greed-Avoidance facets of H-H might be treated as valid measures of humility, most of the humility studies use the entire subscale with four facets as the trait humility measure (e.g., Davis et al., 2011; Kruse et al., 2017; LaBouff et al., 2012; Owens et al., 2013). This research followed this convention using the 16-item version of H-H to measure trait humility.

Stereotyping

The 12-item gender stereotyping scale (α = .85) was administered to measure gender stereotyping (Lammers et al., 2009). Participants were asked to rate to what degree they thought the 12 gender stereotypical traits applied to males and females respectively. The traits could be categorized as negative male traits (i.e., aggressive, dominant, and blunt), positive male traits (i.e., rational, assertive, and technical), negative female traits (i.e., neurotic, dependent, and unstable), positive female traits (i.e., talkative, sensitive, and considerate). Each item was rated on a 9-point scale (1 = not at all, 9 = very much).

Results

A regression analysis was conducted to determine the effect size. The results showed that dispositional humility (M = 3.45, SD = 0.61) negatively predicted stereotyping (M = 6.16, SD = 0.90), b = -.41, t = -2.69, p = .009. A

Pearson correlation analysis showed they were negatively correlated, $r = -.28$, $p = .009$.

Two power analyses were conducted accordingly using G*Power software (Faul et al., 2009) to calculate the sample sizes for the studies using linear regression tests (i.e., Study 1, Study 2, and Study 4) and the study using analyses of variance (i.e., Study 3). The results indicated that a sample size of 95 would be sufficient to detect a significant effect of humility on stereotyping in linear regression tests with a power of .80 with the criterion of statistical significance (alpha level) set at .05. For analyses of variance, the sufficient sample size to detect a significant effect is 48 per condition under the same power and alpha level of regression tests. Accordingly, the sample sizes of Study 1-4 have been ensured to meet these minimum criteria.

It should also be noted that the power analyses only set the least required sample sizes for studies with the desired power level set at .80. The sample sizes of Study 1-4 all exceeded this minimum criterion in order to obtain a greater power for more reliable statistical inferences.

STUDY 1

Study 1 investigates the association between dispositional humility and stereotyping. Dispositional humility and gender stereotyping were measured and analyzed. Additionally, some past literature regarded humility conceptually related to low self-esteem (see Tangney, 2000). Hence, a measure of dispositional self-esteem was also administered to compare their effects.

Method

Participants and Procedure

One hundred sixty-three undergraduates of National University of Singapore (53 men, 110 women, with a mean age of 21.7 years) completed an online questionnaire including the measures of dispositional humility and stereotyping. The participants were recruited by rewarding credits for participation as part of a course requirement.

Measures

Humility scale

The 16 items (α = .85) from Honesty-Humility subscale of the HEXACO Personality Inventory were used to measure dispositional humility (Ashton & Lee, 2005; Lee & Ashton, 2004). Each item was rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree).

Stereotyping

The same 12-item gender stereotyping scale (α = .80) used in Pilot Study A was administered to measure gender stereotyping (Lammers et al., 2009). Each item was rated on a 9-point scale (1 = not at all, 9 = very much).

Self-esteem

Rosenberg Self-Esteem Scale (α = .85) were administered to measure dispositional self-esteem (see Appendix A; Rosenberg, 1965). Example items are "On the whole, I am satisfied with myself," and "I feel that I am a person of worth, at least on an equal place with others." All the 10 items were rated on a 4-point scale (1 = strongly agree, 4 = strongly disagree).

Results

Humility on stereotyping

A simple regression analysis was conducted to test the association between dispositional humility and stereotyping. The results revealed that dispositional humility negatively predicted gender stereotyping, β = -0.18, $t(161) = -2.35$, $p = .020$.

Gender effects

Due to the unbalanced number of male and female participants, it may be argued that gender could confound the effect of humility on gender stereotyping. To test the effects involving target group gender (i.e., the stereotypes were describing females or males) and participants gender, a General Linear Mixed Model analysis was conducted using SPSS program (IBM Corp, 2011). Gender stereotyping was entered into the model as the outcome variable. Target group gender (within-subject factor: stereotypical traits describing males vs. stereotypical traits describing females) and participant gender (between-subject factor: male vs. female)—were entered into the model as categorical predictors. Dispositional humility was entered into the model as the continuous predictor. To

test the two-way and three-way interactions between the continuous predictor and the other two categorical variables, the main effect and the interaction terms were forced to enter the model by specifying a custom model (see Field, 2009).

Descriptive statistics are presented in Table 1. The results showed that the association between dispositional humility and gender stereotyping persisted after target group gender and participant gender were entered into the model (see Table 2). However, no significant effect involving the two categorical factors were found.

Table 1
Means and *SD*s on stereotyping scores as a function of participants gender and target group gender in Study 1

	Male stereotyping		Female Stereotyping	
	M	*SD*	*M*	*SD*
Male participants	5.84	1.17	5.59	1.04
Female participants	5.86	1.04	5.53	1.03

Table 2
General Linear Mixed Model predicting stereotyping from target group gender, participant gender, and humility in Study 1

	F	*p*	η_p^2
Target group gender	0.76	.386	.005
Participant gender	0.18	.668	.001
Humility	4.21	.042	.026
Target group gender × Participant gender	1.05	.308	.007
Target group gender × Humility	2.31	.130	.014
Participant gender × Humility	0.15	.702	.001
Target group gender × Participant gender × Humility	0.99	.321	.006

Note. All *df*s = 1.

As humility is conceptually considered as a prosocial virtue according to recent research, one may argue that the results could be interpreted as a positive response tendency of participants high in dispositional humility. In other words, participants with a humble disposition might be less prone to use stereotypes towards target groups only on negative traits but not on positive traits. However, based on the hypothesis of this research, the effect of humility on stereotyping is mediated by egalitarian beliefs, viewing others as independent equal individuals with the same intrinsic values as themselves. Thus, participants with a humble disposition should be less likely to use stereotypes as heuristic cues regardless of their valence. To test these two competing views, a General Linear Mixed Model analysis was conducted accordingly. Gender stereotyping was entered into the model as the outcome variable. Trait valence (positive vs. negative) was entered into the model as the within-subject factor. Dispositional humility was entered into the model as the continuous predictor. The model was customized so that the interaction term of dispositional humility and trait valence was forced to enter the model. The results showed that there was no significant difference between ratings on positive stereotypical traits ($M = 5.73$, $SD = 0.99$) and negative stereotypical traits ($M = 5.67$, $SD = 0.99$), $F(1,161) = 0.07$, $p = .795$, $\eta_p^2 < .001$. The negative association between dispositional humility and stereotyping remained significant, $F(1,161) = 5.10$, $p = .025$, $\eta_p^2 = .031$. The moderation between trait valence and dispositional humility on stereotyping was not significant, $F(1,161) = 0.22$, $p = .639$, $\eta_p^2 = .001$. The results suggested that the

effect of dispositional humility on stereotyping was not dependent on the valence of stereotypical traits.

Self-esteem

A simple regression analysis showed that dispositional self-esteem did not significantly predict gender stereotyping, $\beta = 0.02$, $t(161) = 0.24$, $p = .813$.

Discussion

Study 1 revealed a negative association between dispositional humility and stereotyping. Participants in high dispositional humility tended to perceive others in a less stereotypical manner. Analyses on target group gender and participant gender showed that the two factors did not confound this association between humility and stereotyping.

Moreover, the analysis included trait valence found that the moderation between trait valence and humility was not significant. This finding indicates that the association between humility and stereotyping was not dependent on the valence of the stereotypes. Participants high in dispositional humility reduced the use of negative stereotypes and positive stereotypes equally. The finding is consistent with the hypothesis of this research that the association is mediated by egalitarian beliefs. As humble individuals tend to hold egalitarian beliefs, they view others as independent and equal individuals with the same importance and intrinsic values as themselves. Thus, they tend to avoid using stereotypes as cognitive short cuts in perceiving others.

Lastly, as some literature may argue humility is conceptually similar to low self-esteem, this study found that self-esteem, compared to humility,

associated with gender stereotyping in different ways. The negative association between humility and gender stereotyping was not found in low self-esteem.

Some researchers have questioned the use of H-H as a dispositional measure of humility due to its face validity (see Davis et al., 2010; Hill et al., 2016; McElroy-Heltzel et al., 2019). In particular, as the scale is a personality dimension generated through the lexical analysis of personality, it may not capture the theoretical conceptualization of humility. To address this concern, the Expressed Humility Scale, another dispositional humility measure more consistent with the conceptualization of humility in this research, was included in Study 2 to compare the difference between the two scales.

STUDY 2

This research proposes that humility can reduce stereotyping as they perceive others as equal and independent individuals with the same importance and intrinsic values as themselves. The egalitarian beliefs roots in the attributes of humility identified by past literature (e.g., Chancellor & Lyubomirsky, 2013; Tangney, 2000). Accordingly, the present research hypothesized that egalitarian beliefs mediated the association between humility and stereotyping. Study 2 aimed to test this mediation by measuring dispositional humility, egalitarian beliefs, and stereotyping concurrently. The egalitarian beliefs were measured by the Social Dominance Orientation scale. The scale measures the respondent's preference for inequality among social groups (Pratto et al., 1994), and therefore can be used as a measure of anti-egalitarian at the group level (Sidanius et al., 2000).

The Honesty-Humility subscale used in Study 1 has been questioned on its face validity, as its construction was not based on the conceptualization of humility theories (see Davis et al., 2010; Hill et al., 2016). To address this concern and measure the dispositional humility consistent with the conceptualization in this research, an extension of Owens et al.'s (2013) Expressed Humility Scale was also administered (Ou et al., 2014) to compare its difference with the Honesty-Humility subscale.

Method

Participants and procedure

A total of 415 high school students (171 males, 244 females, with a mean age of 18.7) who volunteered to participate in the study were recruited from a high school in China. For juvenile participants (under the age of 18), permissions from their guardians were obtained before their participation. All experiment sessions were held in classrooms or lecture theaters. After a short introduction of the research, each participant received and completed a booklet containing measures of dispositional humility, social dominance orientation scale, measures of stereotyping, and demographic items. At the end of the sessions, they were thanked and debriefed.

Measures

Dispositional humility

The official Chinese version of the 16 items from Honesty-Humility subscale of the HEXACO Personality Inventory (Lee & Ashton, 2004, 2018) were included to measure dispositional humility on 5-point scales (1 = strongly disagree, 5 = strongly agree). The Chinese version of the 19 items from this scale was administered on 6-point scales (1 = strongly disagree, 6 = strongly agree). All the items from the two measures were standardized and averaged to composite the dispositional humility measure in this study ($\alpha = .77$).

Stereotyping

Seven items describing gay men stereotypical traits adapted from Madon (1997) study (i.e., soft voice, have a lot of female friends, walk like girls, sensitive, feminine, tough, masculine; with the last two items reverse-scored) were translated into Chinese following a back-translation procedure. Participants

were asked to rate to what degree they think each trait applied to gay men on 7-point scales (1 = not at all, 7 = very much).

Social dominance orientation

Both the original Social dominance orientation scale (Pratto et al., 1994) and its short international version in Chinese (SSDO; Pratto et al., 2013) was administered to measure anti-egalitarian beliefs in this study. The original version was translated into Chinese following a back-translation procedure. Participants were asked to rate to what degree they agree to all the 20 items (α = .83) on 7-point scales (1 = strongly disagree, 7 = strongly agree). All the items were averaged to composite the measure of social dominance orientation in this study.

Results and Discussion

Descriptive statistics of each measure are presented in Table 3.

Table 3
Means, standard deviations, and correlations of variables in Study 2

Variable	1	2	3	4	5
1. H-H	-				
2. EHS-L	.14**	-			
3. SSDO	-.19***	-.24***	-		
4. SDO-L	-.32***	-.20***	.49***	-	
5. Gay men stereotyping	-.18***	-.12*	.13**	.22***	-
Cronbach's α	.75	.75	.50	.81	.70
M	3.50	4.72	2.44	3.01	4.34
SD	0.51	0.48	0.97	0.78	0.73

Note. H-H = Honesty-Humility subscale of the HEXACO Personality Inventory (Lee & Ashton, 2004, 2018), EHS-L = extended version of Expressed Humility Scale (Ou et al., 2014), SSDO = short version of Social Dominance Orientation Scale (Pratto et al., 2013), SDO-L = original version of Social Dominance Orientation Scale (Pratto et al., 1994). *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

Social dominance orientation

As predicted, a regression analysis revealed that dispositional humility negatively predicted social dominance orientation, $\beta = -.38$, $t(413) = -8.32$, $p < .001$.

Stereotyping

A regression analysis revealed that dispositional humility negatively predicted stereotyping, $\beta = -.16$, $t(413) = -3.38$, $p = .001$.

Mediation

Social dominance orientation was hypothesized to mediate the effect of dispositional humility on stereotyping. To test this hypothesis, a bootstrapped mediation analysis was conducted with 5000 resamples using PROCESS (Hayes, 2013; Model 4). The indirect effect was significant (see Figure 1), 95% confidential interval = [-.16, -.04].

Additional analyses were conducted to test alternative models that can provide a competing explanation of the current model. Alternative mediation models were tested to examine whether other competing mediation models were also supported by the data. Honesty-Humility subscale, the extended version of Expressed Humility Scale and Social Dominance Orientation Scale were designed as measures of personality traits (Lee & Ashton, 2004, 2018; Ou et al., 2014; Owens et al., 2013; Pratto et al., 1994, 2013). In contrast, stereotyping involves the cognitive process in which people apply their generalized information towards other social groups. Given the dispositional nature of personality traits, it is highly unlikely that the cognitive processes such as stereotyping would predict

personalities. The competing mediation model alternative to the current model under the context of this research appeared to be that humility mediates the effect of egalitarian beliefs on stereotyping. Accordingly, a bootstrapped mediation analysis was conducted to test this model with 5000 resamples using PROCESS (Model 4). The indirect effect was not significant, 95% confidential interval = [-.01, .04]. The data did not support the alternative model that humility mediates the effects of egalitarian beliefs on stereotyping.

The correlation between the two dispositional humility measures was significant (see Table 3). This finding is consistent with the past literature revealing that overall H-H is positively correlated with other humility measures (Davis et al., 2011; Kruse et al., 2017; Owens et al., 2013), though the correlation was not immensely strong. To further compare these two measures, two indirect effect analyses were conducted to examine whether the two scales reflect differential mediation patterns. Accordingly, two bootstrapped mediation analysis was conducted to test the mediation models with 5000 resamples using PROCESS (Model 4). The results showed that the indirect effect was significant for both H-H, [-.14, -.03] (see Figure 2), and EHS-L, [-.14, -.03] (see Figure 3). The consistent results suggested that the mediation persisted regardless of the scales used. Although the H-H as a measure of dispositional humility is under debate, this finding indicated that it still provided similar results compared to other strong measures built on the contemporary conceptualization of humility. Taken together, the results supported the hypothesis that the association between humility and stereotyping was mediated by the egalitarian belief.

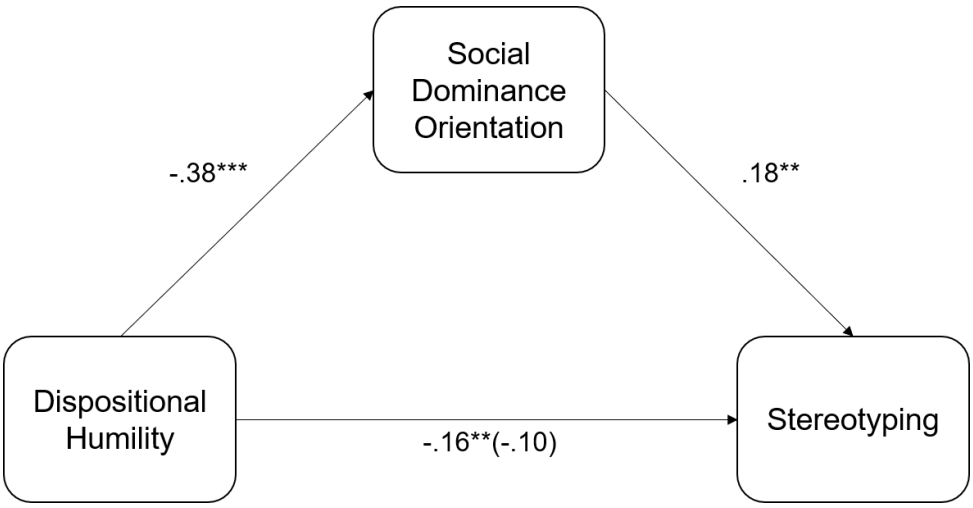

Figure 1. Social dominance orientation mediates the effect of dispositional humility on stereotyping. Values presented were standardized regression coefficients and their significance level (*p < .05, **p < .01, ***p < .001).

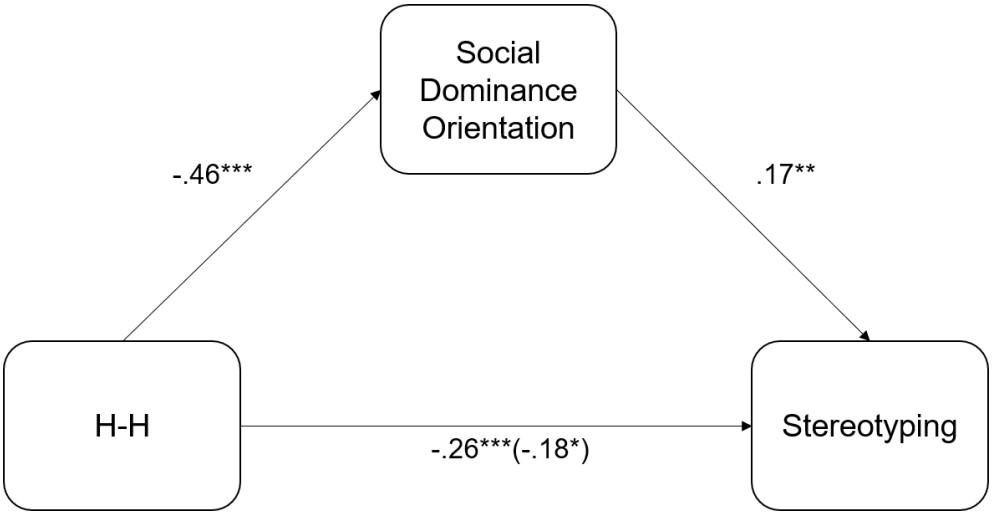

Figure 2. Social dominance orientation mediates the effect of dispositional humility (H-H) on stereotyping. H-H = Honesty-Humility subscale of the HEXACO Personality Inventory (Lee & Ashton, 2004, 2018). Values presented

were standardized regression coefficients and their significance level (*p < .05, **p < .01, ***p < .001).

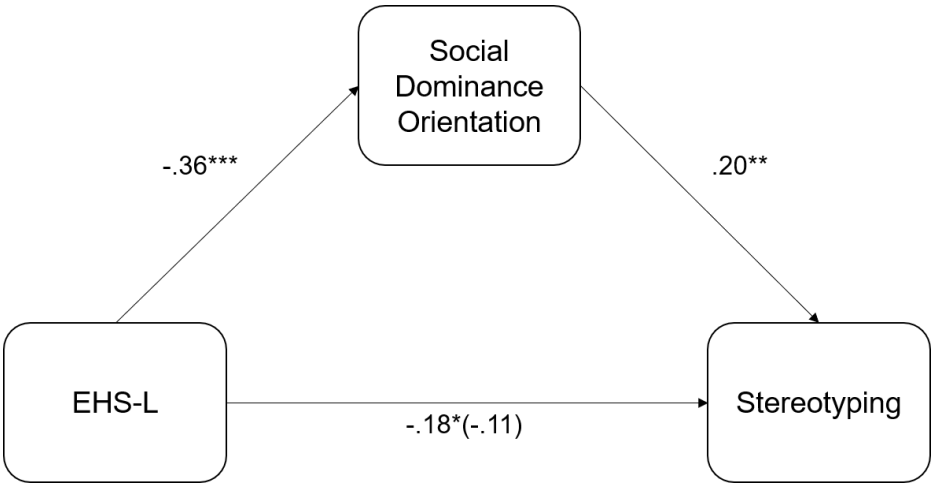

Figure 3. Social dominance orientation mediates the effect of dispositional humility (EHS-L) on stereotyping. EHS-L = extended version of Expressed Humility Scale (Ou et al., 2014). Values presented were standardized regression coefficients and their significance level (*p < .05, **p < .01, ***p < .001).

STUDY 3

Study 2 successfully found that egalitarian belief mediated the association between humility and stereotyping in a cross-sectional design. However, one may argue that the correlational design may pose a risk of confounding (see Pirlott & MacKinnon, 2016). The correlational design could not provide evidence to show that humility precedes the decrease of stereotyping temporally. The causal directions of the association of humility and stereotyping should be interpreted with caution.

To address this concern, Study 3 adopted the experimental design in which both humility and egalitarian beliefs were manipulated to verify the mediation effect. A blockage manipulation design was employed to test the mediating role of egalitarian belief (Pirlott & MacKinnon, 2016; Spencer et al., 2005). In this design, the effects of the mediator are blocked in one of the experiment conditions in the experiment. The mediation relation will be supported if the effects of the independent variable on the dependent variable are observed in the experimental condition but not in the condition in which the mediator is blocked. Accordingly, participants in Study 3 were asked to complete the stereotyping measures after they were randomly assigned to 3 conditions—humility condition, humility/anti-egalitarian condition (i.e., the mediation blockage condition), and control condition to examine whether egalitarian belief mediates the effects of humility on stereotyping. In the humility condition, participants were first primed with a motivation to be humble. Then, they were asked to think of and simulating a humble figure they know. In the humility/anti-egalitarian condition, after

receiving the same humility prime, participants were asked to think of a situation where the humble figure that they thought of might violate the egalitarian ideal and simulated themselves to be the figure in that situation. This task aimed to block the egalitarian beliefs by priming an anti-egalitarian beliefs state. In the control condition, participants were instructed to recall their routine activities.

Two pilot studies were conducted to examine the effectiveness of the manipulation procedures in priming state humility and anti-egalitarian beliefs in Study 3. Hauser and Schwarz (2016) pointed out that manipulation checks measured at the same point of experiment procedures might intervene in the manipulation process and thus confound the results. For example, the behavioral or verbal measures as manipulation checks would influence the effect of the manipulation, inducing new processes into the experiments that would not occur if they were not implemented. In other words, the manipulation checks may interact, reduce, or increase the effects of the manipulations. A better approach Hauser and Schwarz (2016) recommended is to conduct the manipulation checks in pilot studies on independent samples. Pilot Study B and Pilot Study C were conducted accordingly to test the effectiveness of the manipulation procedures.

Pilot Study B

Pilot Study B aims to test whether the manipulation is effective in priming state humility. Participants were randomly assigned to the three conditions (i.e., humility condition, humility/anti-egalitarian belief condition, and control condition) and followed the same priming procedures in the main study. Then, they completed the state humility measures and demographic items before they

were thanked and debriefed. As humility and humility/anti-egalitarian conditions manipulated the state humility, participants assigned to these two conditions were expected to report higher state humility than those in the control condition.

Methods

Participants

A total of 101 participants (36 men, 65 women, with a mean age of 31.10 years) were recruited from National University of Singapore and Amazon's Mturk. Mturk is an online platform where the users (Mturkers) can complete tasks in exchange for payment. Research showed that data collected on Mturk is at least as reliable as those recruited from other traditional ways (Buhrmester et al., 2011; Hauser & Schwarz, 2016; Horton et al., 2011). The demographics of Mturk workers are more population-representative than the demographics of other convenient samples such as college students (Berinsky et al., 2012; Casler et al., 2013; Mason & Suri, 2012; Paolacci et al., 2010). Each Mturker was paid $0.5 to "give responses about your experience and opinions" in this study.

Procedure

Participants completed the study online. A web page randomly redirected them to the links for the three experiment conditions—humility condition, humility/anti-egalitarian condition, and control condition. Participants followed the same priming procedures that were used in the main study.

In the humility condition, participants were first instructed to recall and describe an experience where they could have been humble but failed to be. This task aims to prime them with the motivation to be humble by having them reflect

and identify the discrepancy between their behaviors (i.e., failed to be humble) and desired outcomes (i.e., to be humble). Past research showed that similar procedures successfully primed the participants with the desired motivation (e.g., Monteith, 1993; Moskowitz & Li, 2011). Then, participants were asked to describe a humble person they know and to simulate the person to complete the rest of the study. This manipulation procedure is adapted from McElroy et al.'s (2014) study on intellectual humility. Similar manipulation procedures were found effective in priming mental states such as social power (Dubois et al., 2010).

In the humility/anti-egalitarian condition, participants completed the same manipulation procedures in the humility condition. To manipulate the state anti-egalitarian beliefs, they were then asked to think about and describe a situation where the humble person they described may violate the egalitarian ideal. They were then advised to simulate being the person in that situation to complete the rest of the study.

In the control condition, participants were instructed to describe an everyday routine activity and to simulate themselves in the state doing that activity while completing the rest of the study.

The detailed instructions for the three conditions are presented in Appendix B.

After completing the manipulation procedures, all participants completed the state humility measure, awareness check, and demographic items. At the end of the study, they were thanked and debriefed.

Measure

The State Humility Scale (SHS, $\alpha = .77$; see Appendix A) was administered to measure state humility as a manipulation check (Kruse et al., 2017). Participants were asked to rate six items describing their feelings at the moment on 6-point scales (1 = strongly disagree, 6 = strongly agree). The example items include "I feel that I do not deserve more respect than other people" and "I feel that I do not have very many weaknesses" (reverse coded). Instead of directly asking to what degree the participants feel humble, this measure gauges humility by assessing certain attributes of humility. Such an approach may be advantageous in overcoming the paradox that those who claim to be humble are likely not (Davis et al., 2010).

Results

Descriptive statistics of Pilot Study B are presented in Table 4. A one-way between-subjects analysis of variance revealed that the manipulation has a significant effect on state humility scores across the 3 conditions, $F(2,98) = 3.45$, $p = .036$, $\eta^2 = .066$. To test whether the humility and humility/anti-egalitarian conditions successfully primed state humility, a planned contrast comparing those two conditions with the control condition was conducted. The results showed that state humility was significantly higher in the humility and humility/anti-egalitarian conditions than in the control condition, $t(98) = 2.49$, $p = .014$. State humility was not significantly different between the humility condition and the humility-anti-egalitarian condition, $t(98) = 0.94$, $p = .351$. Overall, the data showed that the humility condition and humility/anti-egalitarian condition

successfully increased the state humility of participants in relation to the control condition. The priming procedure of state humility was effective.

Table 4
Descriptive statistics of state humility across three conditions in Pilot Study B

	State Humility		
	N	*M*	*SD*
Humility	32	4.90	1.11
Humility/anti-egalitarian	37	4.67	1.05
Control	32	4.24	0.85

Pilot Study C

Pilot Study C aims to test whether the designed manipulation of anti-egalitarian beliefs is effective. Participants were randomly assigned to the three conditions (i.e., humility condition, humility/anti-egalitarian belief condition, and control condition). Then, they completed measures of anti-egalitarian beliefs.

Methods

Participants

A total of 68 participants (26 males, 42 females, with a mean age of 31.75 years) were recruited from Amazon's Mturk. Each Mturker was paid $0.5 to "give responses about your experience and opinions" in this study.

Procedure

Participants completed the study online. A web page randomly redirected participants to the links for the two experiment conditions—anti-egalitarian

condition (N = 35) and control condition (N = 33). Participants in the anti-egalitarian condition were first instructed to think of a person whom they have neutral feelings about. To manipulate the anti-egalitarian beliefs, they were then asked to think about and describe a situation where the person they just described may violate the egalitarian ideal. They were then advised to simulate being the person in that situation to complete the rest of the study. Participants in the control condition completed the same tasks used in Pilot Study B.

After completing the manipulation procedures, all participants completed the state egalitarian belief measures, awareness check, and demographic items. At the end of the study, they were thanked and debriefed.

Measure

To quantify the mental state in which participants believed in the egalitarian ideology, seven items were constructed based on some items from SDO scale (Pratto et al., 1994) to constitute the state egalitarian belief scale. The scale was administered to measure the state anti-egalitarian beliefs as a manipulation check (see Table 5; α = .88). Participants indicated to what degree they agree to each item by dragging a slider on a straight horizontal line on the web page of the online questionnaire. The left end labeled as “not at all” was valued at 0; the right end labeled as “highly” was valued at 100. The slider was placed at the middle position (valued at 50) of the line by default.

Table 5
The state anti-egalitarian scale for manipulation check

Items
1. I feel that some people just don't deserve to be given an equal chance.
2. To be honest, I feel that this country would be better off if we care less about how equal all people are.
3. I feel that some people are more worthy than others.
4. I feel that certain people should be kept in their place.
5. I feel that everyone should be treated equally and fairly.
6. I feel that we should strive to make incomes as equal as possible.
7. I feel that we would have fewer problems if people were treated equally.

Note. Items 5-7 are reverse-scored.

Results

An independent-samples t-test was conducted to compare the state anti-egalitarian beliefs in the anti-egalitarian condition and the control condition. The results showed that there was a significant difference in anti-egalitarian beliefs between anti-egalitarian condition ($M = 38.93$, $SD = 22.10$) and control condition ($M = 18.84$, $SD = 17.59$), $t(66) = 4.13$, $p < .001$. The manipulation procedure of the anti-egalitarian belief was effective.

Methods in the Main Study

Pilot Study B and Pilot Study C showed that the manipulation procedures successfully induced state humility and anti-egalitarian beliefs respectively. Therefore, Study 3 followed identical manipulation procedures.

Participants and procedure

A total of 266 participants (115 men, 151 women, with a mean age of 33.1 years) were recruited on Amazon's Mturk and completed the study online. Each Mturker was paid $1.0 to "give responses about your experience and opinions". A web page randomly redirected participants to the links for the three experiment

conditions—humility condition, humility/anti-egalitarian condition, and control condition. Participants completed the same manipulation procedures described in Pilot Study B. After the manipulation, participants were instructed to simulate being the person they described to complete the measures of stereotyping (for detailed instructions, see Appendix B). At the end of the study, they completed the awareness check, demographic items, and were thanked and debriefed on a separate web page.

Measures

The same 12-item gender stereotyping scale (α = .81, Lammers et al., 2009) in Study 1 was administered. Twelve items (α = .88) describing gay men trait adapted from Madon (1997) study (i.e., artsy looking, soft voice, fashionable, open about feelings, walk like girls, feminine, sensitive, emotional, artistic, have a lot of female friends, masculine, tough; with the last two items reverse-scored) were administered to measure stereotyping. Participants were asked to rate to what degree they thought the provided stereotypical traits applied to gay men on 9-point scales (1 = not at all, 9 = very much). All the items (α = .90) were averaged into a composite measure of stereotyping.

Results

Primary analyses

Six participants who completed the study twice and five participants aware of the study purpose were excluded from data analyses. Descriptive statistics are presented in Table 6.

Table 6
Descriptive statistics of manipulation conditions on stereotyping in Study 3

	Stereotyping		
	N	*M*	*SD*
Humility	85	5.49	0.83
Humility/anti-egalitarian	85	5.91	0.87
Control	85	5.70	1.04

A one-way between subjects analysis of variance found a significant effect of the manipulations on stereotyping, $F(2,252) = 4.41$, $p = 0.013$, $\eta^2 = 0.034$. Planned contrast showed that stereotyping in humility condition was significantly lower than the humility-anti-egalitarian condition and control condition, $t(252) = 2.57$, $p = .011$. There was no significant difference between humility-anti-egalitarian condition and control condition, $t(252) = 1.50$, $p = .136$.

Additional analyses

Given the same gender stereotyping scale from Study 1 was used in this study, the same additional analyses were conducted to test the potential confounding variables.

To examine whether target group gender and participant gender confounded the effect of humility on gender stereotyping, a 3 (Humble conditions: humility vs. humility/anti-egalitarian vs. control) × 2 (Target group gender: male vs. female) × 2 (Participant gender: male vs. female) mixed analysis of variance with target group gender as the only within-subject factor was conducted on gender stereotyping. The descriptive statistics are presented in Table 7. The analysis results are presented in Table 8. Only the main effects of the three factors were found to be significant. The main effect of humility was identical to

that found in the primary analyses. The significant main effect of target group gender suggested that participants were more prone to use stereotypes to judge the male group than the female group. The significant main effect of participant gender implied that male participants are more likely to use stereotypes in judging gender groups than female participants. However, no significant interactions were found. Target group gender and participant gender did not justify the effect of humility conditions on gender stereotyping.

Table 7
Means and *SD*s on stereotyping scores as a function of participants gender and target group gender in Study 3

		Male stereotyping		Female Stereotyping	
		M	*SD*	*M*	*SD*
Humility condition	Male participants	5.95	1.13	5.27	1.08
	Female participants	5.85	1.31	5.18	1.20
Humility/anti-egalitarian condition	Male participants	6.59	0.77	5.79	1.19
	Female participants	6.43	0.91	5.11	1.27
Control condition	Male participants	6.21	1.23	5.75	1.39
	Female participants	6.05	0.93	5.23	1.37

Table 8
Analysis of variance results in Study 3

	F	*df*	*p*	η_p^2
Target group gender	87.91	1	<.001	.261
Participant gender	5.45	1	.020	.021
Humility conditions	3.91	2	.021	.030
Target group gender × Participant gender	2.95	1	.087	.012
Target group gender × Humility conditions	2.57	2	.079	.020
Participant gender × Humility conditions	0.60	2	.549	.005
Target group gender × Participant gender × Humility conditions	0.84	2	.432	.007

To investigate whether the effect of humility conditions on gender stereotyping is dependent on the valence of the stereotypes, a 3 (Humble conditions: humility vs. humility/anti-egalitarian vs. control) × 2 (Trait valence: positive vs. negative) analysis of variance with trait valence as the within-subject factor was conducted on gender stereotyping. The descriptive statistics are presented in Table 9. The results revealed that the main effect of humility conditions on gender stereotyping was significant, $F(2, 252) = 4.25$, $p = .015$, $\eta_p^2 = .033$. Again, the effect was identical to the effect found in the primary analyses. The main effect of trait valence was significant, $F(1, 252) = 215.02$, $p < .001$, $\eta_p^2 = .460$. Participants were more prone to use positive stereotypes to judge other groups than to use negative stereotypes. In contrast, the interaction between humility conditions and trait valence was not significant, $F(2, 252) = 0.37$, $p = .689$, $\eta_p^2 = .003$.

Table 9
Means and *SD*s on stereotyping scores as a function of participants gender and target group gender in Study 3

	Positive stereotyping		Negative Stereotyping	
	M	*SD*	*M*	*SD*
Humility condition	6.11	1.03	4.98	1.14
Humility/anti-egalitarian condition	6.48	0.98	5.48	1.22
Control condition	6.28	1.03	5.29	1.30

Discussion

The purpose of this study is to test the hypothesis that egalitarian belief mediates the effect of humility on stereotyping in an experimental design. The results supported this hypothesis. The stereotyping score in the humility/anti-egalitarian condition was not significantly different from the control condition; whereas the stereotyping in the humility condition was significantly higher than the humility/anti-egalitarian and control conditions. Taken together, the results showed that the manipulation of anti-egalitarian belief blocked the effect of primed state humility on stereotyping. In other words, egalitarian belief mediated the effect of humility on stereotyping.

One may argue that the anti-egalitarian belief manipulation can also be a goal failure task to prime participants with an egalitarian goal. The manipulation procedure is similar to what was used in Moskowitz and Li's (2011) study. However, the manipulation in this study is, in fact, different from that in Moskowitz's research in several ways. To begin with, to trigger the compensation of goal failure, participants usually have to be aware of the discrepancy between the behaviors and desired goals. However, in this study, participants were not

explicitly reminded of the discrepancy between the egalitarian goal and the anti-egalitarian behaviors. On the contrary, they were instructed to think about a certain situation that actually justifies the anti-egalitarian behaviors. Also, the manipulation of anti-egalitarian belief is a role imagination task rather than a recall task. The discrepancy, if any, was not on participants themselves. Hence, they might not be motivated to address such discrepancies. The results of Pilot Study C also supported this notion that the manipulation was successful in priming a state of anti-egalitarian beliefs.

Another concern may be about the uneven numbers of manipulation tasks across 3 conditions. Participants in humility condition completed a task recalling humility failure experiences and a humble figure description task. In contrast, participants in the humility-anti-egalitarian conditions completed the same tasks as those in the humility condition with an additional task to describe a situation in which the humble person can act in an anti-egalitarian manner. Participants in the control condition only need to complete a task to write routine activities. Past research with similar designs employed the same procedure. In a task to induce hypocrisy, Son Hing, Li, and Zanna (2002) asked all the participants to write an antiracism essay in the first task. Only participants in the hypocrisy condition wrote another hypocritical incident to induce hypocrisy. Participants in the control condition wrote nothing. This research followed a similar priming procedure with the concern that additional neutral tasks might interfere with the effects of manipulations.

Consistent with the findings in Study 1, the additional analyses on target group gender and participant gender showed that neither their two-way interaction nor their three-way interaction with humility was significant on gender stereotyping. In other words, participants did not show a tendency to evaluate their own gender groups more favorably. Similarly, the interaction effect between valence and humility was not significant, which supports the position that humility reduces the tendency to use stereotypes regardless of its valence.

STUDY 4

Studies thus far have examined the effect of humility on stereotyping and its underlying mechanism. Given that stereotypes can be the knowledge bases for social judgments (Eagly, 1995; Hilton & Von Hippel, 1996), it is important to examine whether the effect of humility on stereotyping can be further translated to attitudinal change of stereotyped groups in real-life situations. In this quest, Study 4 employed a longitudinal design with a more representative large sample of Singaporean population aiming to identify the real-life impact of humility on social judgments.

The longitudinal design can provide relatively strong temporal precedence evidence for the causal relationship between humility and prejudice. Moreover, participants completed the online questionnaires via links received through e-mails, which provided a more real-life and comfortable environment for them to engage in the research. Hence, this study could be a valuable addition to studies conducted thus far with greater ecological validity. The large sample with varied occupations and age groups can also contribute to the external validity of this research. The results can provide evidence on whether the existing findings discovered on college, high school students, or online Mturkers could be observed in a more general population.

In this study, the homosexual groups were selected as the target groups to measure the attitudes change. Past research has found that the homosexuals are received in a relatively negative and stereotypical way in Singapore. For example,

news coverage on homosexuality is often framed as promiscuous and contrary to traditional values (Goh, 2008). A survey on a sample largely representative of the general Singapore population also reported that the respondents held negative attitudes towards lesbians and gay men (Detenber et al., 2007). Therefore, as a potentially stereotyped and stigmatized group in Singapore, homosexual groups are selected as the target group to test whether humility can change the attitudes towards a negatively perceived minority group over time.

Some constructs related to humility and stereotyping were included in Study 4 to test whether the effect of humility on stereotyping is independent and unique. Humility is often conceptualized as a contrary construct to pride or arrogance (Davis et al., 2011; Rowatt et al., 2006; Tangney, 2000, 2002). Some researchers also regard humility as an adaptive form of pride (Weidman et al., 2016). In particular, Tracy and Robins (2007) identified two types of pride—hubristic and authentic pride. Hubristic pride is defined as the "negative" form pride conceptually closer to arrogance. Authentic pride is a constructive pride facet which is built on successful experience. Humility is posited to be more similar to the authentic pride; whereas it is contrary to the hubristic pride. In addition, another potentially related construct is gratitude. Research has shown that humility and gratitude are intercorrelated (e.g., Dwiwardani et al., 2014; Rowatt et al., 2006); and gratitude and humility can mutually increase each other over time (Kruse et al., 2014). Therefore, scales measuring gratitude and two aspects of pride were included to compare with humility of their effects on the prejudice change towards the homosexual groups.

Method

Participants and procedure

This research used a dataset that is part of larger research the purpose of which is to examine the relations between religion and emotion. The procedure and measures were designed according to the hypothesis of the larger study. Participants were randomly selected from Qualtrics' panel database, which draws upon multiple market research panels, and were sent an email invitation describing the study and incentives with a link to the online survey. As participants were drawn from different market research panels, different incentives were available (e.g. gift cards, redeemable points, vouchers). Data were cleaned of problem participants, such as those who did not complete the questionnaires, responded multiple times (based on having the same IP address and demographic data), responded in a short time period (less than one-quarter of the median duration), and straight-lined their responses across multiple scales.

A total of 1827 Singaporean participants (895 men, and 932 women, with a mean age of 39.5) were recruited at the beginning of this study. The longitudinal data were collected within 3 waves, from late September 2017 (Time 1), late October or early November 2017 (Time 2), and early January 2018 (Time 3). A total of 1827 participants enrolled at Time 1; 1113 of them participated at Time 2; the remaining 674 of them participated at Time 3. Participants were instructed to complete the online questionnaire via the provided link sent through e-mails at each time wave.

Materials

Humility scale

The Expressed Humility Scale (Owens et al., 2013) was administered across all three time waves in this study. This measure is considered to have satisfactory psychometric performance (McElroy-Heltzel et al., 2019).

This scale is traditionally regarded as a measure of dispositional humility. Although the conventional view in personality psychology contends that personality remains consistent over time, numerous studies in recent decades revealed that traits can still change in adulthood (e.g., Chung et al., 2014; Haan et al., 1986; Helson & Moane, 1987; Mroczek & Spiro, 2003; Roberts et al., 2001, 2003, 2006; Roberts & Mroczek, 2008; Srivastava et al., 2003). Given this study recruit participants from various age groups and humility is its primary focus, it would better to measure the trait humility across the three time waves for the conservative purpose. Therefore, the EHS was administered across all three time waves.

Attitudes towards the homosexuals

A feeling thermometer item was adapted to measure the attitudes towards the homosexuals (Abelson et al., 1982). Participants were asked to indicate their feelings towards the homosexual groups on a 6-point scale (0 = cold, 5 = warm). This item was measured across all three time waves.

Control Variables

Gratitude. The 6-item scale measuring dispositional gratitude was administered at Time 1 in this study (McCullough et al., 2002). Participants were asked to rate to what degree they agreed to each item on a 7-point scale (1 =

strongly disagree, 7 = strongly agree). Example items include “I have so much in life to be thankful for” and “when I look at the world, I don’t see much to be grateful for” (reverse scored).

Pride. Dispositional pride was measured at Time 1 by the scale developed by Tracy and Robins (2007) consisting of two facets of pride—authentic pride and hubristic pride. Each subscale contains 7 items (for authentic pride: “confident”, “productive”, etc.; for hubristic pride: “stuck up”, “snobbish”, etc.). Participants were asked to rate to what degree they agreed to each item in describing themselves on a 5-point scale (1 = Strongly disagree, 5 = strongly agree).

Social desirability. Social desirability was measured at Time 2 by the short version of the Marlowe–Crowne Scale of Social Desirability (Reynolds, 1982). As one important construct in humility research, Study 4 included the scale to address the concern that their relation has not been tested in other studies of this research. Participants were instructed to indicate whether the 13 statements were true or false for them. The “true” responses were coded as 1; the “false” responses were coded as 0. The score of 13 items was averaged (see Reynolds, 1982) as a measure of the degree of social desirability of each participant. This construct was included to control for the tendency that participants would answer in a manner to be viewed positively by others.

Results and discussion

Preliminary analyses.

Before running the analyses to test the assumptions, two one-way analyses of variance were conducted to test whether the participants who dropped out of the study after Time 1 ($N = 704$), or Time 2 ($N = 439$), and those participants completed the study at all 3 time waves ($N = 674$) are different on the two main variables of this study—dispositional humility and attitudes towards homosexuals (measured at Time 1). Descriptive results are presented in Table 10. Results showed that no significant differences are found among these groups on dispositional humility, $F(2, 1713) = 1.70$, $p = .184$, and attitudes towards homosexuals, $F(2, 1824) = 1.24$, $p = .289$. As the primary goal of this study is to investigate the temporal association between humility and attitudes, these analyses indicated that those participants who dropped out of the study were not significantly different in these two main variables. So those participants could be considered as dropping out at random for this study.

Table 10
Means and standard deviations of attitudes towards homosexuals and dispositional humility among participants completed the study at 3 waves and those who dropped after Time 1 and Time 2 in Study 4

	Attitudes towards the homosexuals (Time 1)		Dispositional humility (Time 1)	
	M	*SD*	*M*	*SD*
Participants who dropped after Time 1 ($N = 714$)	2.46	1.39	5.20	0.91
Participants who dropped after Time 2 ($N = 439$)	2.47	1.28	5.25	0.88
Participants completed the study at all 3 waves ($N = 674$)	2.36	1.32	5.30	0.86

The descriptive statistics of all the measures are presented in Table 11. To investigate the association between humility and attitudes towards the

homosexuals within each time wave, the two variables, as well as the control variables (i.e., gratitude, hubristic pride, authentic pride, and social desirability), were entered into a multilevel model (Model 1). Dispositional humility as a time-variant predictor was included in Level 1 of the model; the control variables as time-invariant variables were entered into the model at Level 2. Therefore, the model is as follows:

Table 11

Cronbach's α, means, standard deviations, and correlations of variables in Study 4

Variable	Cronbach's α	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Humility Time 1	.95	5.25	0.88	-								
2. Humility Time 2	.94	5.26	0.87	.66**	-							
3. Humility Time 3	.94	5.21	0.84	.61**	.65**	-						
4. Attitudes towards Homosexuals Time 1	-	2.42	1.34	.20**	.19**	.17**	-					
5. Attitudes towards Homosexuals Time 2	-	2.44	1.25	.16**	.21**	.19**	.56**	-				
6. Attitudes towards Homosexuals Time 3	-	2.36	1.22	.20**	.23**	.20**	.61**	.57**	-			
7. Hubristic Pride	.92	2.53	0.78	-.18**	-.20**	-.24**	-.02	.04	.04	-		
8. Authentic Pride	.89	3.29	0.66	.38**	.19**	.26**	.11**	.12**	.15**	.28**	-	
9. Gratitude	.71	4.69	0.81	.59**	.45**	.46**	.16**	.12**	.12**	-.26**	.36**	-
10. Social Desirability	.56	1.36	0.19	.01	-.08*	-.02	.01	-.01	-.06	-.11**	.05	.07*

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$

Level-1 model :

$$Attitudes_{ij} = \beta_{0j} + \beta_{1j} Humility_{ij} + r_{ij}$$

Level-2 model :

$$\text{Intercept: } \beta_{0j} = \gamma_{00} + \gamma_{01} Gratitude_j + \gamma_{02} hubristic\_pride_j + \gamma_{03} Authentic\_pride_j + \gamma_{04} Social\_disirability_j + u_{0j}$$

$$\text{Slope} \quad : \beta_{1j} = \gamma_{10}$$

Model 1 used the maximum likelihood estimation. All variables were grand mean centered before being entered into the models. The results can be found in Table 12. Consistent with the findings of this research thus far, humility was found to positively associated with attitudes towards the homosexuals above and beyond the control variables, $b = 0.17$, $t(1709) = 5.43$, $p < .001$. Based on this finding, further analyses would be conducted to test how humility would predict attitudes change.

Primary analyses.

To test how humility would predict attitudes change over time, three nested multilevel models were built (Model 2a, 2b, and 2c). All these models used the maximum likelihood estimation; only random intercepts were estimated because random slopes were not predicted by theory. All variables were grand mean centered before being entered into the models.

Model 2a is an autoregressive model serving as a baseline model for the model comparison with Model 2b. The attitudes towards the homosexuals

measured at the preceding time wave were entered into the model as the predictor in the first level. The model was as follows:

Level-1 model :

$$Attitudes_{ij} = \beta_{0j} + \beta_{1j} Attitudes_{(i-1)\,j} + r_{ij}$$

Level-2 model :

Intercept: $\beta_{0j} = \gamma_{00} + u_{0j}$

Slope : $\beta_{1j} = \gamma_{10}$

In contrast to Model 2a, Model 2b added the humility measured at the preceding time wave into the model at level 1 to predict the attitudes at the current wave. The model was as follows:

Level-1 model :

$$Attitudes_{ij} = \beta_{0j} + \beta_{1j} Attitudes_{(i-1)j} + \beta_{2j} Humility_{(i-1)\,j} + r_{ij}$$

Level-2 model :

Intercept: $\beta_{0j} = \gamma_{00} + u_{0j}$

Slope : $\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

The coefficient results of Model 2a and 2b are presented in Table 12. The model comparison between Model 2a and 2b tests whether humility measured at the preceding time wave explained additional variance in attitudes measured at the current time wave. Since this additional variance is the variance that cannot be explained by attitudes measured at the preceding time wave (i.e., the change of attitudes between the two time waves), the model comparison actually tests

whether humility can predict the attitude change between each two consecutive time waves. Accordingly, a likelihood ratio test comparing Model 2a and 2b were conducted. Past research revealed that the likelihood ratio test performs better than *t*-test in assessing coefficient significance (Manor & Zucker, 2004). The results showed that Model 2b was significantly better in fitting the longitudinal data than Model 2a, $\chi^2(df = 1) = 11.76$, $p < .001$. The results indicated that humility could foster more positive attitudes of the participants towards the homosexuals over time.

In contrast to Model 2b, Model 2c included the control variables (i.e., gratitude, hubristic pride, authentic pride, and social desirability) in the model at level 2. The model was as follows:

Level-1 model :

$$Attitudes_{ij} = \beta_{0j} + \beta_{1j} Attitudes_{(i-1)\,j} + \beta_{2j} Humility_{(i-1)\,j} + r_{ij}$$

Level-2 model :

$$\text{Intercept: } \beta_{0j} = \gamma_{00} + \gamma_{01} Gratitude_j + \gamma_{02} hubristic\_pride_j + \gamma_{03} Authentic\_pride_j + \gamma_{04} Social\_disirability_j + u_{0j}$$

$$\text{Slope: } \beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

The coefficient results of Model 2c are presented in Table 12. The results showed that humility significantly predicted a positive change of attitudes above and beyond the control variables, $b = 0.08$, $t(627) = 2.45$, $p = .014$. The model comparison between Model 2b and Model 2c examines whether the control variables explained additional variance in attitudes towards the homosexuals. A

likelihood ratio test compared the model fits of Model 2b between Model 2c was conducted. The results showed that Model 2c was not significantly better than Model 2b in fitting the longitudinal data, $\chi^2(df = 4) = 7.19$, $p = .126$. This finding indicated that Model 2b is a more parsimonious model than Model 2c. In other words, the control variables (i.e., gratitude, hubristic pride, authentic pride, and social desirability) failed to explain significant additional variance in attitude change compared to humility.

Table 12
Coefficients of multilevel models predicting attitudes towards the homosexuals from humility

Parameter	*b*	*SE*	*t*	*df*	*p*
Model 1					
Intercept	0.01	0.03	0.17	1709	.864
Humility	0.17	0.03	5.43	1709	<.001
Gratitude	0.10	0.05	1.99	1108	.047
Hubristic Pride	0.07	0.05	1.37	1108	.171
Authentic Pride	0.10	0.06	1.84	1108	.067
Social Desirability	-0.03	0.17	-0.20	1108	.843
Model 2a					
Intercept	0.02	0.02	0.62	1080	.533
Attitudes Towards the Homosexuals (preceding time wave)	0.54	0.02	28.29	628	<.001
Model 2b					
Intercept	0.01	0.02	0.57	1080	.570
Humility (preceding time wave)	0.10	0.03	3.43	627	.001
Attitudes Towards the Homosexuals (preceding time wave)	0.52	0.02	26.99	627	<.001
Model 2c					
Intercept	0.02	0.02	0.72	1076	.469
Humility (preceding time wave)	0.08	0.03	2.45	627	.014
Attitudes Towards the Homosexuals (preceding time wave)	0.52	0.02	26.73	627	<.001
Gratitude	0.03	0.04	0.76	1076	.446
Hubristic Pride	0.06	0.04	1.56	1076	.120
Authentic Pride	0.04	0.04	0.98	1076	.326
Social Desirability	-0.10	0.13	-0.76	1076	.445

GENERAL DISCUSSION

Existing research has shown that humility relates to a number of prosocial emotional and behavioral outcomes. For example, humility is found to be associated with empathy(Kruse et al., 2017; LaBouff et al., 2012), gratitude (Dwiwardani et al., 2014; Kruse et al., 2014; Rowatt et al., 2006), forgiveness (Davis et al., 2011, 2013; Dwiwardani et al., 2014; McElroy et al., 2014; Powers et al., 2007; Rowatt et al., 2006; Shepherd & Belicki, 2008), helpfulness (LaBouff et al., 2012), and cooperation (Hilbig & Zettler, 2009). However, few studies on humility have explored its effects on social cognitive processes. The current research was conducted to fill this gap by examining how humility influences stereotyping and prejudice. In addition, past literature theorized that humble individuals tend to hold egalitarian beliefs regarding others as equal and independent individuals with the same importance and intrinsic values like themselves (see Chancellor & Lyubomirsky, 2013), which would motivate humble individuals to process stereotype-inconsistent information and thus reduce the tendency to stereotype. Hence, the present research also aimed at testing the potential mediation role of egalitarian beliefs on the relationship between humility and stereotyping.

To this end, four studies were conducted. Study 1 was a cross-sectional study and the results revealed that dispositional humility was negatively associated with the tendency to use stereotypes to perceive gender groups, whereas dispositional self-esteem was not significantly associated with stereotyping. Study 2 further found that egalitarian beliefs mediated the

association between dispositional humility and stereotyping. Study 3 replicated the mediation finding but in an experimental mediator-block design in which both state humility and egalitarian beliefs were manipulated. To test the effects of humility on social judgments in a more real-life setting, Study 4 was a longitudinal study using a large sample more representative of Singaporean population to test how humility influenced prejudice over time. The results showed that humility measured at the preceding time point predicted a less prejudiced view of the homosexuals measured at the current time wave. Taken together, the four studies consistently revealed that humility can reduce stereotyping and prejudice; the effect of humility on stereotyping is mediated by egalitarian beliefs.

The unique role of humility in social judgments

Across four studies, humility was found to have consistent influences on stereotyping and prejudice. Study 1 and Study 2 found that dispositional humility was negatively associated with stereotyping. Study 3 showed that a state humility priming could reduce the tendencies to use stereotypes to perceive other social groups. Results of Study 4 revealed that humility can reduce prejudice over time. In addition to these findings, the current research also showed that the influences of humility on stereotyping and prejudice are unique and independent from other variables such as self-esteem and prosocial emotions.

Some traditional theoretical views and public opinions regarded humility to be a self-abasing trait conceptually related to low self-esteem (see Tangney, 2000, 2002). Hence, one may argue that the effects of humility on stereotyping or

prejudice could a result of the low self-esteem of participants. However, recent theories about humility posited that humility is a virtue that can promote an accepting and secure self-identity (e.g., Chancellor & Lyubomirsky, 2013; Davis, Worthington, & Hook, 2010; Owens, Johnson, & Mitchell, 2013; Tangney, 2000, 2002). To resolve the two contradictory views, Study 1 included a measure of dispositional self-esteem (Rosenberg, 1965). Statistical tests revealed that dispositional humility was negatively associated with stereotyping, whereas low self-esteem did not correlate with stereotyping. Thus, the relationship between humility and stereotyping appears to be distinctive from that of self-abasing traits.

Likewise, Study 4 showed that humility exerts a distinctive effect on prejudice in contrast to some other prosocial emotions that are conceptually close to humility. Statistical analyses showed that humility predicted positive attitudes change towards the homosexuals. In other words, people with a humble disposition tend to gradually reduce their prejudice towards stereotyped groups. Statistical tests also showed that humility contributed unique variance in explaining the change of attitudes compared to the control variables including prejudice, gratitude, hubristic pride, authentic pride, and social desirability. This finding indicated that the influence of humility on prejudice is unique compared to the aforementioned variables.

Moreover, Study 1 and 3 also revealed that the valence of the stereotypical traits did not moderate the association between humility and stereotyping. Participants higher in dispositional humility were less likely to apply stereotypical traits in perceiving others regardless of the valence of the traits. In other words,

the effect of humility on stereotyping does not merely encourage more prosocial judgments on social groups. The results indicated that humble individuals are willing to discard the cognitive shortcuts and make more efforts in perceiving the individuals from stereotyped groups from a broader perspective despite the valence of the traits, in which egalitarian beliefs could play a key role.

Egalitarian beliefs as the mediator

Past literature has posited that humble individuals tend to hold egalitarian beliefs, viewing others as "having the same intrinsic value and importance as oneself" (Chancellor & Lyubomirsky, 2013, p. 827). Existing studies supported this notion finding that individuals high in dispositional humility reported a preference for egalitarian relations over hierarchical relations among social groups (Lee et al., 2010).

The current research indeed showed that humility had an indirect effect on stereotyping via the mediation of egalitarian beliefs. Study 2 and 3 consistently supported this mediation hypothesis. The results showed that, since humble individuals are more likely to hold egalitarian beliefs—regarding others as having the same intrinsic value and importance as themselves, they are less prone to perceive others in a stereotypical way.

Past research showed that motivational factors can influence the cognitive processes of stereotyping (Hilton & Von Hippel, 1996). For example, people who were motivated to meet a person from stigmatized groups expressed more positive stereotypes of that group than less motivated people (Klein & Kunda, 1992). Another study showed that participants whose self-esteem were threatened

showed evidence of stereotype activation compared to the non-threatened participants (Crocker & Luhtanen, 1990), indicating that participants were motivated to activate stereotypes to secure their self-identity through social comparisons. Similarly, egalitarian goals have been found to be effective in inhibiting stereotypes (Moskowitz & Li, 2011). The present finding on the mediation suggests that the egalitarian beliefs could motivate the individuals with a humble disposition to be less prone to use heuristic cues to perceive others. Rather, they are willing to make more cognitive efforts in perceiving others because they see others as independent and equal persons as themselves.

Prejudice, discrimination, and humility intervention

Study 4 showed a temporal influence of humility on prejudice. Employing a longitudinal design with a sample largely representative of Singaporean population, Study 4 found that humility could gradually reduce the prejudice towards the stereotyped groups. Participants high in dispositional humility are more likely to reduce their prejudice towards the stereotyped groups than participants low in dispositional humility over time.

As having been shown in Study 1 and 3, humility reduced both positive and negative stereotyping. One may expect that humility may not influence the attitudes towards stereotyped groups because the positive and negative stereotypes towards a group could neutralize their effect. However, stereotypes about outgroups are found to be typically more negative (Esses et al., 1993; Hilton & Von Hippel, 1996; Stroebe & Insko, 1989). Hence, the attitudes towards outgroups predicted by their stereotypes are more likely to be negative. Moreover,

the effect of stereotypes on attitudes towards outgroups may also be sensitive to a negativity bias—negative stereotypes are given greater weight in perceiving other groups than positive stereotypes (see Rozin & Royzman, 2001). Past research on stereotypes and prejudice has found that intergroup attitudes are more likely to be predicted by negative stereotypes, whereas the association was not found on positive stereotypes (Stangor et al., 1991). Taken together, as negative stereotypes exert more salient influence on forming attitudes towards stigmatized groups, humility is posited to reduce prejudice towards those groups. The findings of Study 4 indeed support this notion.

Stereotypes and prejudice can cause serious social problems. Stereotypes and prejudice towards minority groups (e.g., females, African Americans) could lead to discriminative behaviors towards those groups (see Fiske & Lee, 2008). For example, highly prejudiced employers were less likely to hire the immigrants even if it compromised their economic profits (Evans & Kelley, 1991). Females in leadership positions were devalued compared to their male counterparts when they violated the gender stereotypes attached to female roles (Eagly et al., 1992). A meta-analysis of 57 studies also showed that prejudice is predictive of discrimination (Talaska et al., 2008). Racism is also considered as the direct cause of radicalized violence towards minority groups. For example, recent multiple mass shootings happening in the US are reported to be committed by white nationalists (Palmer, 2019; Zurcher, 2019).

The current research implicated a potential way to reduce discrimination. As noted earlier, the state approach in studying humility indicated the potential to

facilitate and cultivate humility. In Study 3, state humility was successfully manipulated, which supports the potential to develop intervention therapy to boost state humility when needed. The practices of eliciting state humility may stabilize and gradually boost dispositional humility, which, as the present research has shown, could reduce the stereotyping and prejudice towards stigmatized groups, and therefore may help lower the chance of discriminative behaviors.

In fact, humility—a virtue with an emphasis on open and receptive awareness—has been integrated into psychotherapies such as mindfulness and mentalization-based therapies (Sandage et al., 2016). It shows that humility has been recognized by psychiatrists as a possible solution to resolve psychological misfunctions caused by self-centered western culture (Lasch, 2018; Twenge, 2006). Among the existing intervention therapies, the intervention workbook designed by Lavelock et al. (2014) appears to be the only one targeting to promote humility. The 80-page workbook guides participants to promote their humility through five steps: 1) Pick a time when they weren't humble; 2) Remember the place of their abilities and achievements within the big picture; 3) Open themselves and be adaptable; 4) Value all things to lower self-focus; 5) Examine their limitations and commit to a humble lifestyle. The workbook was found to be effective in promoting dispositional humility by comparing the pretest and the follow-up test two weeks after the completion of the workbook in the experiment condition; the increase of trait humility was not observed in the control condition.

Based on the findings of the current research, humility interventions might be helpful in mitigating the impact of severe prejudice and discrimination.

Humility cultivation programs may be beneficial in reducing sexism and racism which are commonplace in working environments (see Fiske & Lee, 2008), and discrimination in school environments (see Rosenbloom & Way, 2004; Stone & Han, 2005; Wong, Eccles, & Sameroff, 2003). The intervention may also be employed as a potential way to moderate the discrimination resulting from psychological disorders. For example, people with a narcissistic personality disorder seem to be the most obvious candidates for humility intervention (Sandage et al., 2016). The lack of humility in narcissists has been supported by both theoretical literature (e.g., Chancellor & Lyubomirsky, 2013; Tangney, 2000, 2002) and empirical studies (Book et al., 2015; Sandage et al., 2017). Given that narcissistic personality disorder could indeed lead to racist behaviors (Bell, 1978, 1980), the humility intervention may be able to lower the chance of discriminative behaviors or even radical hate crimes (e.g., Dunbar, Quinones, & Crevecoeur, 2005).

The internal and external validity of this research

Most research on humility to date is cross-sectional, correlational studies (McElroy-Heltzel et al., 2019; Toussaint & Webb, 2016), which Study 1 and 2 in the present research also used. However, this research design is under the criticism of its relatively low internal validity because the independent variables and dependent variables are simultaneously measured—whether observed changes in dependent variables can be attributed to the independent variables is unclear (e.g., Brewer, Reis, & Judd, 2000; Carlson & Morrison, 2009). To address this problem, Study 3 of the current research employed an experimental design to

control for the possible confounding variables and detect the causal relationship between humility and stereotyping.

Moreover, one common criticism towards behavioral sciences concerns their samples recruited mostly from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies (Henrich et al., 2010). Past research on humility shares the same criticism of their external validity because most of their samples are convenient samples of college students (McElroy-Heltzel et al., 2019; Toussaint & Webb, 2016). In contrast, this research strives to include more diverse samples from different national, cultural, and age groups. Across all the four studies, the samples are recruited from Singapore, China, and North America. The four studies also tried to include more diverse age groups: Study 1 recruited university students with a mean age of 21.7 years; Study 2 recruited high school students with a mean age of 18.7 years; Study 3 recruited Mturkers with a mean age of 33.1 years; Study 4 recruited Singaporeans from Qualtrics' panel database with a mean age of 39.5 years.

Moreover, Study 4 adds to the internal and ecological validity of this research. The longitudinal design could provide relatively more valid evidence for the causal inference than the correlational cross-sectional design used in Study 1 and 2. Also, participants completed measures at each time point by completing an online questionnaire sent to them through e-mails. This allowed them to answer the questions in more comfortable real-life environments. Therefore, with a sample more representative of Singaporean population was recruited, the study showed satisfactory ecological validity compared to some other humility research.

Limitations and future directions

One of the major challenges towards humility research is the lack of well-accepted psychometrical instruments to measure this construct (Hill et al., 2016; Toussaint & Webb, 2016). This research is also limited to the lack of a well-accepted measure of humility. To address this issue, multiple measures of humility were administered in this research. In particular, Honesty-Humility (H-H) subscale of HEXACO-PI (Lee & Ashton, 2004, 2018), Expressed Humility Scale (Owens et al., 2013), and an extended version of Expressed Humility Scale (Ou et al., 2014) were administered to measure the dispositional trait; State Humility Scale (Kruse et al., 2017) was administered to measure the state humility.

One may criticize the face validity of Honesty-Humility to measure dispositional humility (see Davis et al., 2010). Since Honesty-Humility as a factor was generated from a cross-cultural lexical methodology, the facets and items of this subscale do not align with the conceptualization of humility by psychologists (e.g., Tangney, 2000). Therefore, whether Honesty-Humility subscale measures the same construct conceptualized by humility literature is argued to be unclear. However, it should be admitted that Honesty-Humility subscale is the first and most widely used measure of dispositional humility. According to McElroy-Heltzel et al. (2019), it is the only measure of dispositional humility that has been validated by research in personality judgment field including use of round-robin and other dyadic models. Many humility measures developed based on the psychological conceptualization of humility showed strong correlations with the Honesty-Humility subscale (e.g., Davis et al., 2011; Kruse et al., 2017; Owens et

al., 2013). The facets of the Honesty-Humility subscale do seem to have convergence with some other approaches to gauge humility (Hill et al., 2016). Hence, the measure may still be considered as a valid assessment of the dispositional humility in this research.

To address the potential face validity problem of the Honesty-Humility subscale, Study 2 also included the extended version of Expressed Humility Scale developed by Ou et al. (2014) together with the Honesty-Humility subscale. Their correlation was significant. Study 4 included the Expressed Humility Scale (Owens et al., 2013). Using different measures of humility, the results across the studies consistently showed that humility decreased the tendency to stereotype and prejudice, which is indicative of the convergent validity of the dispositional humility measures in this research. However, humility research is still craving for a less biased and more valid dispositional humility measure (McElroy-Heltzel et al., 2019). Future research is certainly needed to establish a well-accepted assessment tool for humility.

To investigate the influence of humility on stereotyping, this research limited its focus on the mediating role of egalitarian beliefs to investigate the mechanism of the effect. As noted earlier, egalitarian beliefs play the role of a motivational factor that affects the stereotyping processes. In addition to motivational factors, past literature also highlighted the essential role of cognitive processes in stereotyping (see Hilton & Von Hippel, 1996). In contrast to motivational factors which usually determine when stereotyping would emerge, cognitive processes usually establish the mechanism for the motivational factors

to take effect, determining how motivations influence perceptions, judgments, and behaviors. Therefore, future research may further explore whether humility will change stereotyping by influencing certain cognitive factors such as self-control.

Existing research showed that self-control is associated with social judgments. For example, Gailliot et al. (2008) found that participants in the self-control enhanced condition, compared to those in the control condition, described a gay man in a less stereotypical way. Also, high-prejudice participants in the enhanced self-control condition exhibited less prejudice than those in the control condition. In addition, another study conducted by Payne (2005) found that the self-regulatory ability moderates the effects of stereotyping on social judgments. Specifically, participants with good executive control were less likely to express prejudice and discriminative behaviors. These findings suggested that self-control indicates the quantity of mental resources that people can use to process stereotype-inconsistent information and thus could inhibit the stereotypical information from influencing one's judgments and behaviors.

Past research indeed showed that humility can facilitate self-control (Tong et al., 2016). In four studies, participants primed with state humility were found to perform better in sustaining their physical stamina in a handgrip task, resisting indulgence of chocolates, and persevering in a frustrating tracing task than those in control conditions. Therefore, it would be an intriguing question to examine the role that self-control plays in the effect of humility on stereotyping and how self-control interacts with egalitarian beliefs in that effect.

Given one of the major findings of the current research is that humility could reduce stereotyping towards other social groups, it may be interesting to further test the effect of humility on stereotyping at an intrapersonal level. In particular, a large number of published studies found that people tend to conform to the negative stereotypes about their social groups in related tasks (for a review, see Spencer, Logel, & Davies, 2016). The phenomenon is termed "stereotype threat" by social psychologists. Stereotype threat is considered detrimental because it exerts negative effects on one's performance. For example, African American participants were found to underperform in the ability diagnostic tests in relation to Caucasian participants if the racial stereotype about their intellectual ability was activated (Steele & Aronson, 1995). Likewise, female participants were also found to fulfill the stereotype linking them with incompetent mathematical ability and performed poorly in related tests (Spencer et al., 1999). In contrast, past research also found an opposite process named "stereotype boost" in which the positive stereotypes about one's social group can enhance performance (Shih, Pittinsky, & Ho, 2012). For example, Asian-American women performed better in mathematical exams when their ethnic identity was activated (Shih, Pittinsky, & Ambady, 1999).

Taken together, the findings of stereotype threat and stereotype boost indicated that the stereotypical knowledge about one's group can influence their own aspirations and performance in stereotype-related tasks. Since one major finding of this research is that humility can reduce the use of stereotypes in judging individuals from stereotyped social groups, it is intriguing to test whether

humble individuals would also be influenced by the stereotypes of their own social groups in related tasks.

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APPENDIX A: INSTRUMENTS

Instrument A1

Honesty-Humility subscale of HEXACO-PI (Lee & Ashton, 2004)

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

5 = strongly agree

4 = agree

3 = neutral (neither agree nor disagree)

2 = disagree

1 = strongly disagree

Please answer every statement, even if you are not completely sure of your response.

1. If I want something from a person I dislike, I will act very nicely toward that person in order to get it. (R)

2. If I knew that I could never get caught, I would be willing to steal a million dollars. (R)

3. Having a lot of money is not especially important to me.

4. I am an ordinary person who is no better than others.

5. I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.

6. I would be tempted to buy stolen property if I were financially tight. (R)

7. I would like to live in a very expensive, high-class neighborhood. (R)

8. I wouldn’t want people to treat me as though I were superior to them.

9. If I want something from someone, I will laugh at that person's worst jokes. (R)

10. I would never accept a bribe, even if it were very large.

11. I would like to be seen driving around in a very expensive car. (R)

12. I think that I am entitled to more respect than the average person is. (R)

13. I wouldn't pretend to like someone just to get that person to do favors for me.

14. I’d be tempted to use counterfeit money, if I were sure I could get away with it. (R)

15. I would get a lot of pleasure from owning expensive luxury goods. (R)

16. I want people to know that I am an important person of high status. (R)

Notes. Items marked with (R) are reverse scored.

Chinese version:

1. 为了从自己不喜欢的人手中得到一些东西, 我会假装对那个人很友善。
2. 如果知道我自己永远不会被抓，我也想要去偷一百万。
3. 对我来说，拥有很多金钱不是特别重要。
4. 我认为自己是个普普通通的人，并不比其他人优秀。
5. 即使我相信用巴结的方式可以得到奖励，我也不会做。
6. 如果手头很紧, 我可能会禁不起诱惑去购买赃物。
7. 我想住在一个很昂贵, 高级的社区。
8. 我不想要别人对待我的方式好像我比他们优秀。

9. 如果我想从某人手中得到一些东西, 即使那个人讲的笑话再不好笑，我也会哈哈大笑。
10. 即使贿赂的价值很大，我也绝不会接受。
11. 我想让别人看到我开着名贵轿车。
12. 我认为我比一般人有资格得到更多的尊重。
13. 我不会为了让某人帮我做事而假装喜欢那个人。
14. 我会禁不住诱惑用伪钞，如果我确定绝不会被抓到。
15. 如果有机会可以拥有昂贵的奢侈品，我会获得很大的快乐。
16. 我想让别人知道我是个地位高的重要人物。

Instrument A2

Rosenberg Self-Esteem Scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement. (1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree)

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

Scoring: Items 2, 5, 6, 8, 9 are reverse scored. Give “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Instrument A3

Expressed Humility scale (Owens, Johnson, & Mitchell, 2013; Ou et al., 2014)

The following is a series of statements with which you might or might not personally identify. To what extent do you agree/disagree with each of the following statements? Please indicate by using the rating scale below (1 = strongly disagree, 6 = strongly agree).

1. I actively seek feedback, even if it is critical.
2. I acknowledge when others have more knowledge and skills than myself.
3. I admit when I don't know how to do something.
4. I show appreciation for the contributions of others.
5. I take notice of the strengths of others.
6. I often compliment others on their strengths.
7. I am willing to learn from others.
8. I am open to the ideas of others.
9. I am open to the advice of others.
10. I do not like to draw attention to myself.
11. I keep a low profile.
12. I am not interested in obtaining fame for myself.
13. I have a sense of personal mission in life.
14. I devote my time to the betterment of the society.
15. My work makes the world a better place.
16. I believe that all people are a small part of the universe.

17. I believe that no one in the world is perfect, and I am no better or worse than others.

18. I believe that something in the world is greater than I.

19. I believe that not everything is under my control.

Note. Items 1 to 9 were from Owens, Johnson, and Mitchell (2013). Items 10 to 19 were developed by Ou et al. (2014). Self-awareness (Items 1-3), appreciation of others (Items 4-6), openness to feedback (Items 7-9), low self-focus (Items 10-12), self-transcendent pursuit (Items 13-15), transcendent self-concept (Items 16-19).

Chinese version:

1. 我会主动寻求别人对自己的反馈，即使反馈是批评性的。
2. 我会认识到有人比我更有知识或技能。
3. 我会承认自己不懂得做某件事情。
4. 我能看到别人的优点。
5. 我经常称赞别人的长处。
6. 我对别人的贡献表示赞赏。
7. 我愿意向别人学习。
8. 我对别人的想法持开放的态度。
9. 我对别人的建议持开放的态度。
10. 我不喜欢把注意力引到自己身上。
11. 我为人处事保持低调。

12. 我对于为自己提高名气不是很感兴趣。

13. 我努力让更多的人过的更好。

14. 我觉得我的生命意义在于完成一个使命。

15. 我所做的很多事情是让这个世界变得更好。

16. 我相信所有的人都只是宇宙中很小的一部分。

17. 我相信这个世界上没有人是完美的，我也不比别人好多少。

18. 我相信这个世界上有东西超越自己，比我自己更伟大。

19. 我相信不是所有事情都是在自己的控制之下。

Instrument A4

Social dominance orientation scale

Short version of Social Dominance Orientation Scale (Pratto et al., 2013)

1. In setting priorities, we must consider all groups.

2. We should not push for group equality.

3. Group equality should be our ideal.

4. Superior groups should dominate inferior groups.

Chinese version:

1. 在确定优先顺序时，我们必须考虑所有群体。

2. 我们不应该推动群体平等。

3. 群体平等应该成为我们的理想。

4. 优势群体应当支配弱势群体。

Original version of Social Dominance Orientation Scale (Pratto et al., 1994)

1. Some groups of people are simply inferior to other groups.

2. In getting what you want, it is sometimes necessary to use force against other groups.

3. It's OK if some groups have more of a chance in life than others.

4. To get ahead in life, it is sometimes necessary to step on other groups.

5. If certain groups stayed in their place, we would have fewer problems.

6. It's probably a good thing that certain groups are at the top and other groups are at the bottom.

7. Inferior groups should stay in their place.

8. Sometimes other groups must be kept in their place.

9. It would be good if groups could be equal.

10. Group equality should be our ideal.

11. All groups should be given an equal chance in life.

12. We should do what we can to equalize conditions for different groups.

13. Increased social equality.

14. We would have fewer problems if we treated people more equally.

15. We should strive to make incomes as equal as possible.

16. No one group should dominate in society.

Items 9-16 should be reverse-coded.

Chinese version:

1. 有些群体就是比其他群体地位更低。

2. 在达到你目的的过程中，有时必须对其他群体使用武力。

3. 在生活中，一些群体比其他群体拥有更多机会是可以接受的。

4. 想要在生活中成功，把其他群体当垫脚石有时是必要的。

5. 如果某些群体待在他们该待的地方，我们的麻烦会少一些。

6. 有些群体居于顶端，有些群体位于下层，这也许是一件好事。

7. 下等的群体应该留在属于他们的位置。

8. 有时其他群体必须被限制在属于他们的地方。

9. 所有群体都平等，这会是一件好事。

10. 我们的理想是所有群体都平等。

11. 所有群体都应该给予平等的生存机会。

12. 我们应该尽我们所能让不同的群体处于平等的境遇。

13. 增加社会平等。

14. 如果我们更平等地对待每一个人，我们的麻烦就会少一些。

15. 我们应该努力让收入尽可能地平等。

16. 没有一个群体应该支配社会。

Instrument A5

Dispositional gratitude (McCullough et al., 2002)

Please indicate how strongly you agree with the following statements. (1 = Strongly disagree, 7 = Strongly agree)

1. I have so much in life to be thankful for
2. If I had to list everything that I felt grateful for, it would be a very long list
3. When I look at the world, I don't see much to be grateful for
4. I am grateful to a wide variety of people
5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history
6. Long amounts of time can go by before I feel grateful to something or someone

Notes. Two items (grat3 and grat6) reverse scored.

Instrument A6

Dispositional pride (Tracy & Robins, 2007)

Please indicate your agreement with the following statements.

As humans, all of us feel all kinds of emotions. It is OK and normal to feel these emotions. Please rate them in a way that is honest and true to yourself. I generally feel (1 = strongly disagree, 5 = strongly agree):

1. Accomplished
2. Achieving
3. Confident
4. Fulfilled
5. Productive
6. Self-worth
7. Successful
8. Arrogant
9. Conceited
10. Egotistical
11. Pompous
12. Smug
13. Snobbish
14. Stuck-up

Notes. Items 1-7 measure authentic pride. Items 8-14 measure hubristic pride.

Instrument A7

Marlowe–Crowne Scale of Social Desirability (Reynolds, 1982)

Please indicate whether each of the following statements are true or false for you:

1. It is sometimes hard for me to go on with my work if I am not encouraged.
2. I sometimes feel resentful when I don't get my way.
3. On a few occasions, I have given up doing something because I thought too little of my ability.
4. There have been times when I felt rebelling against people in authority even though I knew they were right.
5. No matter who I'm talking to, I'm always a good listener.
6. There have been occasions when I took advantage of someone.
7. I'm always willing to admit it when I make a mistake.
8. I sometimes try to get even rather than forgive and forget.
9. I am always courteous, even to people who are disagreeable.
10. I have never been irked when people expressed ideas very different from my own.
11. There have been times when I was quite jealous of the good fortune of others.
12. I am sometimes irritated by people who ask favours of me.
13. I have never deliberately said something that hurt someone's feelings.

APPENDIX B: EXPERIMENT MANIPULATION INSTRUCTIONS IN STUDY 3

Manipulation instructions in humility condition

Please recall a real-life situation in which you could have been humble but WASN'T.

Note that by "humble" in this research we do NOT mean a ‘humiliating’ incident, one that made you feel ashamed, guilty, or foolish. Rather, we are interested in experiences that provided you with a down-to-earth perspective of yourself in relation to all other beings. As the saying goes, “Humility is not thinking less of yourself, but thinking of yourself less.”

Picture this situation in your mind. Try and remember as vividly as you can what this situation was like. When you have this memory in mind, please describe this event in typing on the next page.

In the blank below, please write about the experience in which you could have been humble but WASN'T (as detailed as possible). For example, what you did, what you should have done to be humble, why you should have been humble, etc.

You do not need to restrict yourself to these questions. Describe the event in a way that will allow us to understand what you went through and how you felt. As much as possible, describe the incident so that someone reading it would feel the same that you felt. Also, write it in such a way that you will feel the it as you

describe it. Do not be concerned about spelling or grammatical errors. What's more important is that your description fully conveys your humility to yourself and the reader.

Please think of a person who you know to be humble. The person could be a historical figure, a living famous person, or someone you know.

Note that by "humble" we do NOT mean a 'humiliating' incident, one that made you feel ashamed, guilty, or foolish. Rather, we are interested in experiences that provided you with a down-to-earth perspective of yourself in relation to all other beings. As the saying goes, "Humility is not thinking less of yourself, but thinking of yourself less."

In the blank below, please describe that person (as detailed as possible). For example, why you think the person is humble, how they usually think of and treat other people, how they act in daily lives, etc.

We are interested in how role play can influence the way people think and react. Please try to complete the rest of the study imagining that *you were the humble person*.

Manipulation instructions in humility/antiegalitarian condition

Please recall a real-life situation in which you could have been humble but WASN'T.

Note that by "humble" in this research we do NOT mean a ‘humiliating’ incident, one that made you feel ashamed, guilty, or foolish. Rather, we are interested in experiences that provided you with a down-to-earth perspective of yourself in relation to all other beings. As the saying goes, “Humility is not thinking less of yourself, but thinking of yourself less.”

Picture this situation in your mind. Try and remember as vividly as you can what this situation was like. When you have this memory in mind, please describe this event in typing on the next page.

_____

In the blank below, please write about the experience in which you could have been humble but WASN'T (as detailed as possible). For example, what you did, what you should have done to be humble, why you should have been humble, etc.

You do not need to restrict yourself to these questions. Describe the event in a way that will allow us to understand what you went through and how you felt. As much as possible, describe the incident so that someone reading it would feel the same that you felt. Also, write it in such a way that you will feel the it as you describe it. Do not be concerned about spelling or grammatical errors. What’s

more important is that your description fully conveys your humility to yourself and the reader.

Please think of a person who you know to be humble. The person could be a historical figure, a living famous person, or someone you know.

Note that by "humble" we do NOT mean a ‘humiliating’ incident, one that made you feel ashamed, guilty, or foolish. Rather, we are interested in experiences that provided you with a down-to-earth perspective of yourself in relation to all other beings. As the saying goes, “Humility is not thinking less of yourself, but thinking of yourself less.”

In the blank below, please describe that person (as detailed as possible). For example, why you think the person is humble, how they usually think of and treat other people, how they act in daily lives, etc.

Egalitarian beliefs involve treating all people as equal and deserving equal rights and opportunities.

Sometimes even great people can have negative thoughts towards others. Please try to imagine a certain situation where *the humble person you previously described* could #violate# the egalitarian ideal.

In the blank below, please write about the situation in which the humble person could violate the egalitarian ideal in detail. For example, what happened to him/her, what he/she feels, why he/she act in this way, etc.

_____

We are interested in how role play can influence the way people think and react. Please try to complete the rest of the study imagining that *you were the humble person*.

Manipulation instructions in control condition

An everyday routine activity is something that is done so regularly such that it does not evoke any feelings in you and you feel neutral while doing it. It can be events such as going to school, doing household chores etc.

Think of a particular time when you were doing an everyday routine activity.

Try to recall as many details of the incident as you can. Picture this situation in your mind. Try and remember as vividly as you can what this situation where you did your routine activity was like. Think of what happened that made you do the routine activity, and what it was like to be doing that routine activity in this particular situation. When you have this memory in mind, please describe this event in typing on the next screen.

In the blank below, please describe the steps involved when you did your routine activity.

Do not restrict yourself to this guideline. Describe your routine activity in all its details and in any way that will allow us to understand how it was and what you went through. As much as possible, write your description so that someone reading it would know how it was just by reading about your description. Also, write it in such a way that you will feel like you are doing that routine activity as you describe it. Do not be concerned about spelling or grammatical errors. What's

more important is that your description fully conveys the act of doing that routine activity to yourself and the reader.

We are interested in how role play can influence the way people think and react. Please try to complete the rest of the study imagining that *you were doing the activity described above*.