Generalized Stigma: Assessment, Predictors, and Interventions

by

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Statement of Originality

I, LEUNG, Chi Kin Donald, hereby declare that I am the sole author of this thesis and that the material presented in the thesis is my original work except as indicated in the acknowledgments. I further declare that I have followed the university's policies and regulations on academic honesty, copyright and plagiarism in writing the thesis, and no material in this thesis has been submitted for a degree at this or other universities.

Abstract

Stigma affects the lives, health and well-being of a considerable segment of the population. Without an instrument to assess stigma that is applicable to a wide range of stigmatized conditions, it is difficult to target public stigma in community settings. This thesis proposes a psychological construct termed *generalized stigma* to represent a set of cognitions, affects, and behaviors toward individuals with a socially discredited attribute. Generalized stigma reflects a broad tendency to stigmatize others because a person who holds prejudicial attitudes toward members of one stigmatized group is likely to behave similarly toward members of other stigmatized groups. Three studies were conducted to establish theoretical conceptualizations of generalized stigma and investigate two approaches to counteract it. In Study 1, the Generalized Stigma Scale (GSS) was developed and validated as a new measurement tool. Notably, generalized stigma predicted stigmatizing attitudes toward a range of conditions above and beyond social dominance orientation. In Study 2, the results of mediation tests showed that lovingkindness and compassion were associated with increased concern for all humanity and decreased desire for hierarchy and dominance; in turn, these tendencies were associated with lower levels of generalized stigma and schizophrenia stigma. Furthermore, the experimental results of a single 10-min exercise (Study 3a) and 4-week longitudinal trial (Study 3b) showed that participants who received lovingkindness meditation (LKM) or compassion meditation (CM) training reported more significant decreases in generalized stigma than their counterparts in the active control groups. Together, these findings highlight the importance of generalized stigma in developing an effective stigma reduction intervention and the potential role of LKM and CM in counteracting stigma. Further implications of these findings for combating stigma and future research are discussed.

Keywords: stigma, stigma reduction, lovingkindness, compassion

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Table of Contents

List of Tables

List of Figures

Abbreviations

ASD	Autism spectrum disorder
CBCT	Cognitively based compassion training
CCT	Compassion cultivation training
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
CM	Compassion meditation
CMT	Compassionate mind training
EFA	Exploratory factor analysis
GLM	General linear model
GSS	Generalized Stigma Scale
HIV	Human immunodeficiency virus
KMO	Kaiser-Meyer-Olkin
LKM	Lovingkindness meditation
PPMR	Passive progressive muscle relaxation
RMSEA	Root mean square error of approximation
SARS	Severe acute respiratory syndrome
SDO	Social dominance orientation
SRMR	Standardized root mean square residual
TLI	Tucker-Lewis Index

Chapter 1. General Introduction

> *One of the facts of which we are most certain is that people who reject one out-group will tend to reject other out-groups. If a person is anti-Jewish, he is likely to be anti-Catholic, anti-Negro, anti any out-group (Allport, 1954, p.68).*

1.1. Conceptualizations of Generalized Stigma

Stigma and Its Relation to Prejudice

The word stigma was originally used in ancient Greece to mean a mark that was tattooed or burned into the skin to signify that the bearer was a slave, a traitor, or a criminal—a person to be shunned or avoided (Goffman, 1963). As Goffman (1963) notes, marks of stigma can be based on mental dispositions ("blemishes of character"), physical conditions ("abominations of the body"), and membership in a particular social group ("tribal stigma"). Based on Goffman's definition, we can distinguish stigmatized conditions into three general categories: mental, physical, and social. Stigmatized mental conditions reflect or are assumed to reflect deviant mental dispositions. Severe mental disorders such as schizophrenia and developmental disorders such as autism are examples of this category. Stigmatized physical conditions refer to bodily attributes or conditions that deviate from those that the public considers "normal". Physical disabilities such as mobility impairments and infectious diseases such as HIV are examples of this category. Stigmatized social conditions are based on membership in a despised social group. Ethnic and sexual minorities fit into this category of stigmatized conditions.

Correspondingly, the term public stigma commonly refers to stereotypical beliefs, prejudicial attitudes, and discriminatory behaviors endorsed and exhibited by members of the public toward persons with a socially discredited attribute (Corrigan & Watson, 2002). Public stigma carries both direct and indirect adverse effects on target individuals' lives, health, and well-being. A substantial body of studies has documented that being the victim of public stigma imposes many common challenges, including limited access to health and wealth resources, discrimination in employment and education, and social rejection and isolation (Hatzenbuehler et al., 2013). Stigmatized individuals not only directly experience stress, but the accumulation of stress exposure across social life domains also increases their risk of many health problems, such as depressive and anxiety symptoms (Meyer, 2003; Meyer et al., 2008). Moreover, if these individuals internalize public stigma, they may experience diminished self-concept and self-esteem; consequently, their affective, behavioral, and physical well-being could be harmed by stigma (Earnshaw et al., 2013; Watson et al., 2007).

Stigma and prejudice are broadly overlapping as both involve stereotyping, emotions, and discriminatory behaviors (Phelan et al., 2008). According to a social-cognitive model of public stigma (Corrigan & Watson, 2002), prejudice is one of the constructs that comprise stigma, which plays an important role in linking stereotypes to discrimination. Specifically, the model suggests that individuals who have prejudicial attitudes toward a stigmatized group are likely to endorse stereotypes about that group and generate negative emotions, leading to discriminatory acts against the members of that group (Corrigan, 2000; Corrigan & Watson, 2002). An example of prejudice in this context might involve agreeing that all persons with schizophrenia are dangerous, generating fears of schizophrenia and any person with schizophrenia and resulting in not hiring persons with schizophrenia. Thus, understanding the

patterns of prejudice across stigmatized conditions might inform a general mechanism in combating stigma.

Generalized Prejudice and Generalized Stigma

Indeed, social psychologists have found a general pattern of prejudice and proposed a theory of generalized prejudice, according to which individuals who express prejudices against members of one out-group, are likely to behave similarly toward members of other out-groups, suggesting a "tendency to respond with prejudice toward any out-group" (Allport, 1954; Ekehammar et al., 2004). Research has evidenced generalized prejudice by empirically showing that prejudices against disability, gender, and ethnicity are positively associated with one another, signifying that there is a common factor underlying various prejudices (Akrami et al., 2011; Bäckström & Björklund, 2007). Researchers have used social ideologies (e.g., social dominance orientation and right-wing authoritarianism) and personality traits (e.g., openness and agreeableness) to explain the factors that affect generalized prejudice (Bäckström & Björklund, 2007; Ekehammar et al., 2004; McFarland, 2010). More recently, studies have identified additional significant associations (e.g., lack of empathic concern) with generalized prejudice to explain the underlying mechanisms and inform intervention efforts for resolving pervasive social problems (Bergh et al., 2016; Levin et al., 2016).

Notably, a stigmatized group is any social category that is targeted by prejudice and discrimination based on poorly justified knowledge, and it is "an out-group relative to the dominant groups in a culture or society" (Crocker & Major, 1989) and often has low levels of power and low status. From the perspective of generalized prejudice, persons who carry

prejudice within themselves are likely to respond with prejudice toward many stigmatized groups. Furthermore, according to the social-cognitive model of public stigma, such individuals are also likely to endorse public stereotypes about many stigmatized groups and generate negative emotions toward them, which may lead to discriminatory acts against members of many stigmatized groups, and a generality of public stigma may therefore emerge. Based on previous conceptualizations of stigma (Corrigan & Watson, 2002; Goffman, 1963), the present research proposes that this generality can be considered as a set of cognitions, affects, and behaviors against individuals with a socially discredited attribute — an attribute that is distinguished as discredited based on poorly justified knowledge and that can involve any blemish of character, abnormalities of the body, or membership in a particular discredited social group (referred to hereafter as *generalized stigma*).

Although research on stigma continues to grow, there are still few conceptualizations and measurement tools for the shared structure of stigmatized conditions. Understanding this structure is vital, as it may provide a new direction for the design and development antistigma interventions. Despite this need, to our knowledge, only one measure has specifically been constructed to capture generalized prejudice (Asbrock et al., 2010). This 21-item scale assesses the warmth versus coldness of the respondent's feelings toward three clusters of social out-groups: dangerous (e.g., violent criminals), derogated (e.g., psychiatric patients), and dissident groups (e.g., gay rights activists). However, it only measures feelings of warmth and coldness without capturing other emotional reactions, such as disgust, anger, and fear. Moreover, the scale does not include items related to stereotypical cognitions and discriminatory behaviors, which can more fully capture the concept of generalized stigma. Guided by the concept of generalized prejudice, the present thesis has three main objectives

in addressing this important gap in the literature: first, to conceptualize and develop a measure of a new psychological construct termed *generalized stigma*; second, to examine the predictors and the underlying mechanisms that might counteract this structure; and third, to evaluate practical intervention strategies for its reduction.

Following an introduction of generalized stigma, this chapter presents four literature review sections, which 1) define the cognitive, affective, and behavioral components of generalized stigma based on a consolidation of theories and conceptualizations used in the field, 2) review current stigma reduction strategies and challenges, 3) explore two possible predictors and the underlying mediating mechanisms for intervening in generalized stigma, and 4) review the usefulness of two meditation practices in stigma reduction. Finally, this chapter provides an overview of the three studies that constitute the present thesis.

1.2. Components of Generalized Stigma

Generalized stigma refers to a generality of public stigma across a wide range of stigmatized conditions, given that an individual who holds prejudicial attitudes toward members of one stigmatized group is likely to do so toward members of other stigmatized groups. At the same time, across various target-specific domains, stigma commonly manifests in cognitions, affects, and behaviors (e.g., Corrigan, 2000; Corrigan & Watson, 2002; Earnshaw & Chaudoir, 2009; Findler et al., 2007; Wright et al., 1999). Hence, in this section, we apply a three-pronged (i.e., cognitive–affective–behavioral) framework to conceptualize the components of generalized stigma and to comprehend and synthesize the various empirical studies and theoretical definitions of the relevant literature.

Cognition: Legitimacy of Stigmatization

Stigmatization occurs when the influence of power is exerted to label human differences. It involves applying stereotypes to persons with discredited labels and separating them into a category of "other", which ultimately leads the labeled persons to experience status loss and discrimination (Link & Phelan, 2001). Although every stigmatized condition carries unique stereotypes, they all share the assumption that there is a fundamental difference between persons with and without a discredited attribute (Corrigan et al., 2015). This belief serves to justify unequal treatment of the victims of public stigma, seemingly legitimizing the processes of stigmatization.

The perceived legitimacy of stigmatizing processes (i.e., labeling, stereotyping, separating, discriminating, and status loss) refers to the perception that the negative reactions and responses resulting from stigma are fair and legitimate (Corrigan & Watson, 2002). The perceived legitimacy of stigmatizing processes has been shown to be an important cognitive factor in internalizing negative stereotypes about mental illness (Rüsch et al., 2006, 2009). In addition, research has shown that legitimizing status differences between groups may direct the social devaluation of a group and its members (Schmader et al., 2001). Thus, if people regard stigmatization and stigmatizing processes as unfair and illegitimate, they may be likely to disregard stigma. Conversely, if people consider stigmatization and stigmatizing processes fair and legitimate, they may be more likely to endorse, or even exhibit, stigmatizing attitudes and behaviors that are directed toward persons with a socially discredited attribute.

Given that all stigmas share this legitimate perception, we can define the cognitive component of generalized stigma as the subjective appraisal of the processes of stigmatization as fair and legitimate, and we can measure this component by considering the extent to which individuals legitimate stigmatization and stigmatizing processes: labeling, stereotyping, separating, discriminating, and status loss.

Affect: Prejudicial Emotions

The basic emotions of anger, disgust, joy, sadness, fear, and surprise are universal across cultures and serve important psychological and social functions (Ekman & Friesen, 1971). Expressions of these emotions play an important role in the formulations of stigma (Phelan et al., 2008; Kurzban & Leary, 2001). Prejudicial emotions refer to evoked or expressed emotions – anger, disgust, joylessness, sadness, fear, and surprise – emerging in reaction to a person simply because that person has a socially discredited attribute. Ample research has shown that stigma may potentially elicit these negative emotions. Fear of contagion, for example, has been found to be a major emotional reaction to HIV and SARS (Herek et al., 2002; Person et al. 2004). A reduction in fear has been shown to mitigate stereotyping and social distancing toward individuals with schizophrenia (Maunder et al., 2019). Disgust has been documented to be elicited by obesity stigma (Vartanian et al., 2016), and experimentally inducing disgust has been shown to increase biases toward homosexual individuals (Dasgupta et al., 2009). Anger has been found to be an emotional reaction to individuals with homosexuality, HIV, or mental illness (Angermeyer et al., 2010; Hudepohl et al., 2010; Herek et al., 2002), and experimentally inducing anger has been shown to increase biases toward ethnic minorities (Dasgupta et al., 2009). Joylessness (i.e., decreased happiness) has been found to be linked to homonegativity and public attitudes toward homosexual individuals

(Bishop, 2015). Sadness has been found more often in caregivers of people with mental illness who internalize public stigma and feel sad about living with a family member with mental illness (Mak & Cheung, 2008). More recently, surprise has been linked to microaggression toward stigmatized individuals. An example of a case of ethnic stigma is an instructor telling a Black student that she is smart with a look of surprise during class (Williams, 2020), presumably communicating a demeaning message that most Black students are not competent.

Given that stigma tends to elicit the negative emotions of anger, disgust, joylessness, sadness, fear, and surprise, we can define the affective component of generalized stigma as prejudicial emotional responses toward persons with a socially discredited attribute, and we can consider these basic emotional expressions its constituents.

Behavior: Discriminatory Behaviors in Life Domains

The major expression of stigma in behavioral form is discrimination directed against persons with a discredited attribute (Link & Phelan, 2001). Stigmatization leads to restricted access to health-protective resources and limits many other opportunities in social life domains (Hatzenbuehler et al., 2013). Indeed, public stigma is linked to social inequalities and social rejection on a day-to-day basis (Reisner et al., 2015; Reiss, 2013). Research has suggested that persons with a socially discredited attribute are exposed to discrimination and victimization in a variety of life domains. These include unequal treatment in the job application process, social exclusion in the workplace and community, bullying and peer victimization at school, and both subtle and overt degradation during the procurement of

goods and services (Pager & Shepherd, 2008; Rowley et al., 2012; Sprague et al., 2011; Tilcsik, 2011).

Given that persons with a socially discredited attribute are at risk of facing inequalities and rejection within the life domains of work, study, leisure, community, neighborhood, and legal services, we define discriminatory behaviors in life domains directed toward persons with a socially discredited attribute as the behavioral component of generalized stigma, and we understand this component as covering all these major life domains.

1.3. Current Stigma Reduction Methods and Challenges

Stigma is a major cause of discrimination and contributes to health inequalities across societies worldwide (Hatzenbuehler et al., 2013). Stigmatized individuals are discredited, rejected, or isolated by a function of attributes associated with their group membership; consequently, their health and well-being suffer (Earnshaw et al., 2013; Meyer et al., 2008; Watson et al., 2007). Since Weiner's (1988) attributional analysis of the roots of stigma in 1988, stigma reduction research has led to intervention methods based on this premise. Currently, a large body of stigma reduction research is focused exclusively on attribution theories (Corrigan, 2000; Corrigan et al., 2003; Ling et al., 2010). From an attribution perspective, public stigma can be seen as a social cognitive process in which people attribute the controllability of a perceived deviance (e.g., is this person responsible for the disability?) and the stability of a perceived deviance (e.g., is this person likely to recover over time?) to minority individuals, leading to stigmatized responses (Corrigan, 2000; Weiner et al., 1988). Studies have shown that these causal attributions might provoke negative emotional reactions (e.g., anger, fear), in turn leading to unfavorable behavioral responses (e.g., distancing, avoidance, punitive intention) toward people with schizophrenia and children with autism (Corrigan et al., 2003; Ling et al., 2010). Such attribution theories explain public stigma by examining the roles of a set of social-cognitive elements (involving psychological processes and structures) in the links between stigmatizing cues and behavioral reactions (Corrigan et al., 2003). Attribution theories have greatly increased our understanding of public stigma and suggest a paradigm (stigmatization as information processing) to guide investigations of stigma reduction in the community (Corrigan et al., 2003; Ling et al., 2010).

Based on the aforementioned theories and studies, most existing stigma reduction research has suggested three types of methods to reduce stigma at the community level: protest (i.e., to suppress stereotypes and reduce harmful representations from the media), education (i.e., to replace misconceptions or common beliefs with accurate knowledge), and contact (i.e., to challenge public attitudes through direct interactions) (Mak et al., 2017; Corrigan et al., 2001). However, the existing intervention methods are not without their challenges. Empirical evidence has shown that stereotypes that function as mental shortcuts to help people understand others are highly resistant to change (Devine, 1989). In fact, preexisting stereotypes may cause a bias in people when they process information from antistigma programs. Past stigma reduction research has shown that people may perceive congruent information (which is consistent with pre-existing stereotypes) as more persuasive than incongruent information (which contradicts preexisting stereotypes), resulting in ineffective attitude changes (Boysen & Vogel, 2008). Additionally, research has suggested that postsuppression rebound effects may occur if stereotypic beliefs are directly targeted (Macrae et al., 1994; Wenzlaff & Wegner, 2000). For example, when people are asked to suppress prejudice in a protest campaign, the related stereotypic thoughts may paradoxically reappear with greater conviction than before (Corrigan et al., 2001). Moreover, some studies have shown that increasing mental health literacy (i.e., knowledge of a mental illness) may paradoxically increase social distance toward individuals with mental illness (especially people with schizophrenia) (e.g., Lauber et al., 2005). This is because knowing that a mental illness has a genetic predisposition and has no complete cure may heighten a sense of danger and social avoidance (Jorm & Griffiths, 2008; Rüsch et al., 2010). In some cases, educating people about the biological roots of a mental illness through antistigma education programs may also heighten their ascription of poor prognoses to individuals with that disorder (e.g.,

Dietrich et al., 2006; Phelan et al., 2006). Hence, the attempt to replace negative attitudes with understanding and acceptance becomes counterproductive. While progress has been made, the efficiency and effectiveness of existing intervention methods remain inconclusive and inconsistent, suggesting that more effective stigma reduction strategies need to be developed (Griffiths et al., 2014; Stangl et al., 2013).

Notably, emphasizing the attribution and controllability of a human difference may also heighten the differences between people with and without a stigmatized condition and increase levels of social distance. By contrast, interventions that are designed to reduce generalized stigma may not need to mention anything about the target individuals, which may avoid such possible side-effects. Furthermore, the concept of generalized stigma and existing intervention strategies are not contradictory but rather complementary. While generalized stigma may explain the shared variance across different public stigmas (common components), the attribution theory and other education-based intervention models may explain the variance that is unique to a particular type of public stigma (specific components). The development of interventions targeting generalized stigma may provide a new avenue to complement and improve the existing intervention approaches such that both common and specific components of stigma can be reduced.

1.4. Predictors and Mechanisms of Reducing Generalized Stigma

Negative attitudes toward a variety of minority groups have been shown to be related to people's concern with the welfare of all people (Beierlein et al., 2016) and people's support for group-based dominance and inequality (Bizer et al., 2012; Kvaale & Haslam, 2016). These two perspectives have recently been shown to be shaped by prosociality in the forms of lovingkindness and compassion (Brito-Pons et al., 2018; Sinclair & Saklofske, 2019). Thus, if people have high levels of lovingkindness and compassion, they may be likely to develop a sense of concern for all humanity and less likely to legitimatize social hierarchy and inequality, which in turn may reduce their tendency to stigmatize. This section reviews the two theoretical perspectives — concern for all humanity and social dominance orientation — together with lovingkindness and compassion to identify the predictors and the underlying mechanisms of reducing generalized stigma.

Concern for All Humanity and Stigmatizing Attitudes

Concern for all humanity refers to feelings of responsibility for all members of the human family and the orientation to care for and help them when needed (Hamer et al., 2021; McFarland et al., 2012). Empirically, concern for all humanity has been shown to be positively associated with various prosocial values (e.g., valuing diversity, responsibility to act) and helpful behavior (e.g., global donation) toward the disadvantaged without boundaries (Reese et al., 2015; Reysen & Hackett, 2016). Because concern for the welfare of all people involves extending inclusiveness to a wider community of people (Schwartz, 2007, 2010), individuals who have active care and concern for all people are likely to reduce their negative

attitudes toward a variety of minority groups (Beierlein et al., 2016). Relatedly, concern for all humanity reflects one's solidarity with the human family and may create conditions to counteract stigma (Reese et al., 2015). Specifically, if people are concerned about all members of the human race, they are likely to be aware of the needs and rights of others regardless of race, religion, or other distinctions, and they may be more motivated to protect vulnerable people from the harm caused by public stigma. Furthermore, given that perceived difference is a major characteristic of public stigma (Corrigan et al., 2015), a sense of concern for a wide, diversified community may help to dissolve boundaries between individuals with or without a stigmatized attribute.

Social Dominance Orientation and Stigmatizing Attitudes

Social dominance orientation (SDO) refers to the degree of preference for unequal relations between groups in society (hierarchy) and to the desire for superior groups to dominate others (dominance) (Pratto et al., 1994). Because domination is one of the fundamental drivers of stigma (Phelan et al., 2008), individuals with a desire to sustain the hierarchical structure of society (i.e., inequality between social groups) may be likely to exhibit negative attitudes toward stigmatized groups (Bizer et al., 2012; Kvaale & Haslam, 2016; Phelan & Basow, 2007). According to social dominance theory, every society is, to varying degrees, structured into group-based social hierarchies with the existence of many forms of oppression (e.g., sexism, racism, ethnocentrism) (Sidanius & Pratto, 1999). Accordingly, the desire to maintain social hierarchies motivates the denigration of and distancing from outgroup members and social minorities (Pratto et al., 2006). This desire stems from the view that the world is a "competitive jungle" in which dominance is necessary and justified (Duckitt, 2006). Because

stigmatized groups may be considered to be competition for resources and social standing, the desire to maintain social hierarchies may enhance negative attitudes toward members of stigmatized groups (Bizer et al., 2012). In addition, a strong desire for hierarchy and dominance is linked to the preference for hierarchy-enhancing ideologies and policies (Pratto et al., 1994). As such, a reduced desire for hierarchy and dominance may attenuate negative attitudes toward stigmatized groups, decreasing the level of stigma associated with these groups.

Lovingkindness and Compassion

Lovingkindness and compassion are prosocial constructs that may promote concern for all humanity and reduce the desire for hierarchy and dominance (Brito-Pons et al., 2018; Sinclair & Saklofske, 2019). Although both are about connecting with others, lovingkindness and compassion each relate to different emotional experiences and abilities (Gilbert et al., 2019), and each can be practiced with different meditations (Hofmann et al., 2011). Lovingkindness involves a feeling of friendliness and warmth toward oneself and others (Salzberg, 1995). Within Buddhism, lovingkindness represents the wish for happiness that exists in all living beings (Bodhi, 1994) and reflects the ability to accept oneself and others with unconditional kindness (Salzberg, 1995; Salzberg, 2011). Lovingkindness may be promoted through a meditation practice, namely, lovingkindness meditation (LKM), wherein one learns to direct unselfish kindness toward different imagined targets (Salzberg, 1995). Compassion is also about other-focused concern, but it involves a specific feeling that is motivated by the suffering (e.g., pain, sorrow, and distress) of another person and the subsequent desire to ease it (Goetz et al., 2010). From a Buddhist perspective, compassion reflects the ability to open

up to others' suffering with empathy, equanimity and patience along with the recognition that we all experience suffering (Feldman & Kuyken, 2011). Compassion may be developed through a meditation practice, namely, compassion meditation (CM), wherein one learns to generate feelings of care and compassion in the presence of suffering.

With regard to their commonalities, lovingkindness and compassion both reflect a concern for others and a sense that the lives of all people are interconnected (Buddhaghosa, 1975). They involve focusing attention on and being aware of others, and research shows that the corresponding skills can be learned through systematic training (Kang et al., 2014; Weng et al., 2013). They have been regarded as potential variables for psychological interventions, especially for problems that involve interpersonal processes (Hofmann et al., 2011). LKM and CM can be regarded as psychological intervention tools for targeting psychological problems or techniques to cultivate positive connections, care, and love toward others (Hofmann et al., 2011; Hutcherson et al., 2008). Furthermore, being kind or compassionate reflects a recognition of commonality and equality between people (The Dalai Lama & Cutler, 1998), showing the utility of lovingkindness and compassion in promoting a sense of concern for all humanity and reducing the desire for hierarchy and dominance.

Linking Lovingkindness and Compassion to Concern for All Humanity

Lovingkindness and compassion have been shown to relate to caring and concern for others and include a motivation to benefit others (Boellinghaus et al. 2014; Gilbert et al., 2019; Gentile et al.,2020; Weng et al., 2013). From a Buddhist perspective, lovingkindness and compassion actively embrace the shared human experience and thereby increase bonding with

and concern for humans in general (Feldman & Kuyken, 2011; Salzberg, 1995). Specifically, lovingkindness involves an unselfish desire for others to find happiness, while compassion entails a genuine desire for others to overcome suffering (Salzberg, 2011). Evidence shows that lovingkindness and compassion can cultivate concern for others (Gentile et al.,2020; Weng et al.2013). For example, a longitudinal study conducted among community adults showed that compared with cognitive reappraisal training, individuals who practiced compassion training demonstrated greater altruistic behavior toward unfairness that was associated with changes in neural responses to suffering (Weng et al., 2013). Another experimental study conducted among undergraduates showed that compared with individuals in a control condition, those who received brief lovingkindness training exhibited greater feelings of caring and connectedness (Gentile et al.,2020). Moreover, cross-sectional studies have shown that individuals who have high levels of compassionate love are more willing to help someone who is outside their group, such as immigrants (Sinclair et al., 2016). Hence, lovingkindness and compassion help to create a common bond between people and may expand concern for others, even if they are outside one's group.

Accordingly, we propose that lovingkindness and compassion are associated with increased concern for all humanity, and people with high levels of lovingkindness and compassion are more likely to express concern for all members of the human family. Based on this hypothesized linking of lovingkindness and compassion to concern for all humanity, together with prior work showing that concern for all humanity is linked to negative attitudes toward a variety of minority groups (Beierlein et al., 2016), we suggest that lovingkindness and compassion reduce stigmatized attitudes via increased concern for all humanity.

Linking Lovingkindness and Compassion to Social Dominance Orientation

The capacity to simulate and experience the affective states of another person (i.e., empathic ability) may diminish the preference for social hierarchies (Duckitt & Sibley, 2010; Sidanius et al., 2013). Without the capacity to feel with others from the target's perspective, the threat of others and group boundaries becomes salient, which drives support for and maintenance of social hierarchies. Conversely, lovingkindness and compassion involve the ability to connect to another person's affective states. Whereas lovingkindness reflects the unselfish and unconditional desire for others' joy and happiness (Salzberg, 2011), compassion entails the capacity to access, tolerate, and direct care actions to others' pain (Gilbert, 2014). In this regard, individuals with high levels of lovingkindness and compassion may be less likely to have a desire for hierarchy and dominance. Indeed, research has recently shown that individuals who have high levels of compassion are less socially dominant and have less support for hierarchy-legitimizing viewpoints and policies (e.g., military dominance) (Sinclair & Saklofske, 2019).

Correspondingly, we suggest that lovingkindness and compassion are associated with decreased social dominance orientation, and people with high levels of lovingkindness and compassion are less likely to legitimize group-based hierarchies and inequalities. Based on this hypothesized linking of lovingkindness and compassion to social dominance orientation, together with prior work showing that a strong high SDO is linked to various stigmatized attitudes (Bizer et al., 2012; Kvaale & Haslam, 2016; Phelan & Basow, 2007), we assume that lovingkindness and compassion may reduce stigmatized attitudes via reduced social dominance orientation.

1.5. Lovingkindness Meditation and Compassion Meditation

LKM and CM are practices for learning techniques to cultivate lovingkindness and compassion. In the past two decades, LKM and CM have gained attention in contemporary psychotherapy (Hofmann et al., 2011; Shonin et al., 2015). These methods have demonstrated effectiveness in promoting mental health (Lv et al., 2020). Traditionally, they are integral parts of comprehensive Buddhist teachings (e.g., Metta and Tonglen) to develop a mind inclined toward the most effective benefit for all living beings (Chodron, 2001; Salzberg, 1995). Recently, these methods have demonstrated the potential not only to enhance mental health but also to improve attitudes toward stigmatized individuals.

Lovingkindness Meditation

LKM focuses awareness on conveying warmth and friendliness to oneself and others (Salzberg, 1995). Several well-researched treatment approaches have incorporated the practices of LKM, including mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT). At the interpersonal level, research shows that LKM training reduces negative unconscious attitudes toward stigmatized individuals (Kang et al., 2014; Stell & Farsides, 2016). For example, in an experimental study comparing LKM and visualization (imagery), LKM showed a greater impact on reducing negative unconscious attitudes toward ethnic minorities (Stell & Farsides, 2016). Another longitudinal study found that compared with discussing LKM concepts and ideas, directly practicing LKM demonstrated a greater reduction in negative unconscious attitudes toward the homeless (Kang et al., 2014).

Research shows that LKM enhances positive emotions and feelings of closeness to others (Hutcherson et al., 2008; Fredrickson et al., 2008). Research has shown that developing lovingkindness can improve implicit attitudes toward more than one socially distant group (e.g., strangers and the homeless, African Americans and the homeless) (Kang et al., 2014; Parks et al., 2014). Furthermore, intervention studies using either a brief induction or a longitudinal trial have demonstrated the effectiveness of LKM in reducing negative unconscious attitudes toward different stigmatized groups, including persons who use substances, persons of a different racial background, and persons who are homeless (Kang & Falk, 2020; Parks et al., 2014; Stell & Farsides, 2016).

Compassion Meditation

CM and LKM both involve techniques of bringing awareness to oneself and others, but CM specifically focuses on alleviating suffering (Hofmann et al., 2011). New therapeutic approaches based on the concepts of CM are constantly evolving and include cognitively based compassion training (CBCT; Pace et al., 2009), compassion cultivation training (CCT; Jazaieri et al., 2014), and compassionate mind training (CMT; Gilbert & Procter 2006). Research shows that CM training has a positive impact on attitudes toward stigmatized individuals and altruism (Oveis et al., 2010; Weng et al., 2013). For example, in an experimental study comparing CM training and neutral priming among college students, CM training showed a larger effect in reducing negative attitudes toward immigrants (Oveis et al., 2010). Furthermore, a recent experimental study demonstrated that CM training can increase

optimism toward socially unaccepted individuals, such as convicted murderers (Koopmann-Holm et al., 2019).

1.6. Overview of the Studies

To date, nearly a hundred stigmatized attributes have been empirically classified (Pachankis et al., 2018), including a broad range of mental and physical conditions (e.g., mental illnesses, HIV, physical disabilities) and numerous social identities (e.g., minority sexual orientations, minority ethnic backgrounds). The stigmatized population comprises not only adults but also children and adolescents, many of whom experience deleterious effects in their interpersonal network, such as friendship loss and peer victimization (Moses, 2010). The existence of a wide variety of mental, physical, and social stigmas has several implications for research on the general tendency to stigmatize. First, if generalized stigma can be reduced, it may create a significant social impact because public stigma affects the lives, health and well-being of a considerable segment of the population (Meyer, 2003; Rüsch et al., 2005; Williams & Mohammed, 2009). Second, target-specific stigma interventions may lack sufficient breadth to combat stigma when not attending to the common core of stigma, given that stigmas exist in many different forms and are ever emerging in a community setting. Third, without precise conceptualizations of stigmatizing attitudes across a range of discredited attributes, it is difficult for policymakers and educators to target public stigma in community settings. For these reasons, it is important to conceptualize public stigma as a generalized construct and develop a standardized instrument to measure it. Furthermore, to our knowledge, no studies have directly examined the concept of generalized stigma. This gap in the literature leads to a poor understanding of the generality of public stigma. It is of theoretical and practical

importance to identify a shared common core across different stigmas and investigate an evidence-based intervention to effectively challenge this core. To address these important needs, the prime purpose of the present thesis is to establish theoretical conceptualizations of generalized stigma consistent with the theory of generalized prejudice and to investigate two intervention methods to counteract it.

In Study 1, the Generalized Stigma Scale (GSS) was developed and validated as a measure of generality of public stigma toward individuals with different stigmatized conditions. This study examined the factor structure and construct, criterion, and incremental validity of the scale along with the overall and subscale internal consistencies. It was anticipated that the psychometric properties of the GSS would meet the acceptance criteria. This study also examined the interrelationships among six specific stigmas (schizophrenia, autism, HIV, physical disability, homosexuality, ethnic minority status), which cover a broad range of stigmatized conditions. It was expected that specific stigmas would be significantly positively associated with one another and with generalized stigma.

Given that lovingkindness and compassion may promote concern for all humanity and reduce the desire for hierarchy and dominance (Brito-Pons et al., 2018; Sinclair & Saklofske, 2019), cultivating such qualities may be a reasonable approach to counteract generalized stigma. Study 2 aimed to test four conceptual models of lovingkindness and compassion approaches to stigma reduction to examine the pathways through which lovingkindness and compassion weaken stigmatizing attitudes. It was hypothesized that individuals with higher levels of lovingkindness and compassion would be more resistant to generalized stigma via two

underlying mechanisms: increased concern for all humanity and decreased social dominance orientation.

In Studies 3a and 3b, the effects of LKM and CM on generalized stigma were experimentally tested to examine their potential utility in stigma reduction. In Study 3a, the immediate effects of a 10-min LKM and a 10-min CM were compared to those of a 10-min neutral imagery exercise (control condition). It was expected that there would be a greater reduction in generalized stigma in groups that practiced LKM or CM in comparison with those that practiced neutral imagery. In Study 3b, the effects of 4-week training in LKM and 4-week training in CM were compared to 4-week training in passive progressive muscle relaxation (PPMR) (control condition). A more significant reduction in generalized stigma was anticipated in groups that received lovingkindness or compassion training than in those that received relaxation training.

Chapter 2. Study 1

Development and Validation of the Generalized Stigma Scale

2.1. Introduction

Although measurements of public stigma have been developed by various researchers, existing instruments mostly measure specific stigmatizing thoughts, feelings, and behaviors. Although these instruments are available to assess specific stigmatized conditions, they fail to determine the generality across stigmatized conditions. This gap in the literature not only limits the understanding of the complexities underlying the generality of public stigma but also impedes the development of antistigma interventions targeting a wide range of stigmatized conditions. Study 1 attempts to address this gap in the literature through the conceptualizations of generalized stigma and the development of an instrument that could be used in future studies on public stigma reduction.

As reviewed earlier in the general introduction, stigma is a broad concept that encompasses prejudice. Social dominance orientation is a dispositional factor of generalized prejudice (McFarland, 2010) and underpins stigmatizing attitudes (Bizer et al., 2012; Kvaale & Haslam, 2016). Thus, if generalized stigma is a common structure of various stigmas, it should share dispositional roots with generalized prejudice such as social dominance orientation. Furthermore, if generalized stigma represents the common dimensions and elements of different stigmas, we should expect it to predict the presence of specific stigmas and antistigma actions above and beyond general prejudice measures. In this way, it might be possible to validate the new instrument by examining its association with social dominance orientation and how it explains a range of specific stigmas and critical action against stigma

after adjusting for social dominance orientation. Critical action refers to the willingness to take individual or collective actions to change social issues that are considered unfair and unjust (Watts et al., 2011). Critical action against stigma is a broad view of antistigma actions that includes participation in antistigma activities such as peaceful protests, signing petitions, sharing on social media, and making donations, reflecting a general outcome of resisting and rejecting stigma.

The present study reports the development of the Generalized Stigma Scale (GSS) in two steps. First, a new construct of generalized stigma and its cognitive, affective and behavioral components were defined and modeled. Second, the psychometric properties of the GSS were examined to determine (a) whether the three-factor structure is supported; (b) whether the GSS has good internal consistency; (c) whether the GSS exhibits convergent validity by assessing its correlation with a theoretically related concept, social dominance orientation; (d) whether the GSS shows criterion validity by predicting six specific stigmas (schizophrenia, autism, HIV, physical disability, homosexuality, and ethnic minority status) and critical action against stigma; and (e) whether the GSS, as the common structure of public stigma, demonstrates incremental validity by predicting the presence of six different types of stigmas and critical action against stigma above and beyond social dominance orientation.

2.2. Method

Development of Scale Items

The GSS is an 18-item self-administered scale for assessing the general tendency to stigmatize others. This scale was designed to measure a general form of stigma and is thus not limited to one particular stigma. At the first stage of item generation, the cognitive, affective, and behavioral aspects of generalized stigma were reviewed. Eighteen themes linked to public stigma were identified from the stigma literature and three items for each theme were drafted.

With regard to the cognitive dimension of generalized stigma, the themes considered include subjective appraisal of the fairness of stereotyping, labeling, status loss, separating, discriminating, and stigmatization. These themes were identified based on the research on perceived legitimacy of stigma (Rüsch et al., 2006, 2009) and conceptualizations of stigmatization (Link & Phelan, 2001). Items for each theme were drafted based on the items used to assess the perceived legitimacy of stigma (Rüsch et al., 2006, 2009) and based on a review of each sub-process of stigmatization (Link & Phelan, 2001).

With regard to the affective dimension of generalized stigma, the themes considered include prejudicial emotional responses of fear, sadness, joylessness, anger, disgust, and surprise. These themes were identified based on basic emotional reactions toward stigmatized individuals found in the literature. Items for each theme were drafted based on three stigma measures, namely, the Attribution Questionnaire (Corrigan et al., 2014), the Personal Stigma for Community Members Scale (Visser et al., 2008), and the Homophobia Scale (Wright et al., 1999), and as well as negative emotional reactions to various stigmatized conditions including mental illness, schizophrenia, HIV, SARS, obesity, homosexuality, and racial minority status (Angermeyer, 2010; Bishop, 2015; Herek et al., 2002; Hudepohl et al., 2010;

Mak & Cheung, 2008; Olatunji, 2008; Person et al. 2004; Sue et al., 2007; Vartanian et al., 2016).

With regard to the behavioral dimension of generalized stigma, the themes considered include discriminatory behavioral intentions in the life domains of leisure, community, legal services, study, neighborhood, and work. These themes were identified based on discriminatory behaviors toward stigmatized individuals that exist in major life domains. Items for each theme were drafted based on items used in previous stigma research (Corrigan et al., 2003; Mak et al., 2014), two stigma measures, namely, the Personal Stigma for Community Members Scale (Visser et al., 2008) and the Homophobia Scale (Wright et al., 1999), and discriminatory behaviors identified in various life domains such as work (Ragins & Cornwell, 2001), study (Poteat & Espelage, 2007), leisure (Rezaie et al., 2017), community (Sheridan & Scior, 2013), neighborhood (Lau et al., 2007), and legal services (Werner & Issi, 2017).

At the second stage of item generation, two focus group interviews were conducted with two groups of undergraduate students. Each group consisted of four to six members, and each interview session lasted approximately two hours. The design used was based on a focus group study conducted in Hong Kong (Tang et al., 2000). During the group interviews, participants openly discussed public views and their own views on various stigmatized groups on the 18 themes, which provided an in-depth exploration of public reactions to various stigmatized conditions. The participants were also asked to analyze the extent to which the proposed items were relevant to the corresponding themes and easy to understand. The information obtained from the focus group interviews was consolidated and analyzed. Items with similar meanings or considered irrelevant to the corresponding themes were removed,

resulting in 18 retained items across the 18 themes. The selected items were also modified by the researcher according to constructive comments made in the interviews.

At the third stage of item generation, the retained 18 scale items and the introductory clause were revised and reviewed by a panel of three experienced professionals in the field of stigma research (two research staff and one professor) to further establish the face and content validity of the scale. The revised scale items were further tested in a pilot study prior to the main study to ensure that the relevance, comprehensibility, and clarity of each item of the revised version were acceptable.

Procedures and Participants

Participants were recruited from a public university in Hong Kong, China, through mass emailing, posters, flyers, and announcements on the university website. The inclusion criteria were being aged at least 18 years and having adequate understanding of written and spoken Chinese. Eligible participants were asked to sign consent forms and complete questionnaires. Participants received HK$50 (approximately US$6.40) or course credits after completing the study. This study was approved by the research ethics committee of The Education University of Hong Kong and was conducted between October 2018 and November 2019.

Two independent samples were collected for this study. Sample 1 collected 252 responses for an exploratory factor analysis (EFA). Sample 2 collected 236 responses for a confirmatory factor analysis (CFA) and an examination of convergent, criterion, and incremental validity. In the EFA, the average age of the participants was 22.00 years (*SD* = 2.86 years). The

majority of them were female (88.1%), undergraduate students (75.8%), and preservice teachers (54.8%), and their median monthly household income was between HK$20,001 and HK$30,000 (approximately US$2,564 to US$3,846). In the CFA, the average age of the participants was 20.85 years (*SD* = 2.26 years). The majority of them were female (80.5%), undergraduate students (82.2%), and preservice teachers (71.6%), and their median monthly household income was between HK$20,001 and HK$30,000 (approximately US$2,564 to US$3,846).

Measures

Generalized Stigma

Generalized stigma was measured using the 18-item GSS. Before rating the items, participants were asked to read the following definition of minorities: minorities refer to individuals or groups of individuals who are collectively stigmatized (i.e., negatively labelled, stereotyped, separated, discriminated and belittled) by a corresponding dominant group in a society because of their mental health condition (e.g., mental illness, developmental disorder), physical health condition (e.g., HIV, physical disability), ethnic background or sexual minority status (e.g., skin color, sexual orientation). Participants were then asked to rate the items that measured the three components of generalized stigma – cognition: legitimacy of stigmatization, affect: prejudicial emotions, and behavior: discriminatory behaviors in life domains. Sample items were "I believe the negative labels of minorities are legitimate" (*legitimacy of stigmatization*), "The acts of minorities irritate me" (*prejudicial emotions*) and "I would be willing to work with minorities at the same institution" (a reverse item) (*discriminatory behaviors in life domains*). Ratings were made on a six-point Likert scale

from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of generalized stigma. The validity and reliability of the scale were examined in the present study.

Social Dominance Orientation

Social dominance orientation was measured using the 8-item Social Dominance Orientation-7 Scale (Ho et al., 2015). Sample items were “Some groups of people are simply inferior to other groups” and “Group equality should not be our primary goal.” Ratings were made on a seven-point Likert scale ranging from 1 (*strongly opposite*) to 7 (*strongly favor*), with higher scores indicating a strong preference for hierarchy and accepting inequality. The validity and reliability of the scale were supported by previous studies of social hierarchies and inequality (Sinclair & Saklofske, 2019). The Cronbach’s alpha in the present study was 0.77.

Critical Action Against Stigma

Critical action against stigma was measured using 12 items adopted from the study of Chan et al. (2017). The items were slightly modified by adding the words “antistigma” or "fight against stigma" to suit the purpose of this study. Sample items were “Volunteers at an antistigma protest or rally,” “Share antistigma photos, posts, and/or videos on social media," and “Donate money to antistigma groups.” Ratings were made on a six-point Likert scale ranging from 1 (*extremely unlikely*) to 6 (*extremely likely*), with higher scores indicating stronger intentions to take antistigma actions. The validity and reliability of the items were supported by previous studies of collective action (Chan & Mak, 2020). The Cronbach’s alpha in the present study was 0.95.

Stigma toward Schizophrenia

Stigma toward schizophrenia was measured using the 9-item Attribution Questionnaire-9 (Corrigan et al., 2014). Participants were asked to react to a vignette that described a hypothetical person who was diagnosed with schizophrenia. Sample items were "I would feel scared of him" and "I would try to stay away from him." Ratings were made on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of schizophrenia stigma. The validity and reliability of the questionnaire were supported by previous studies of mental illness stigma (Corrigan et al., 2015). The Cronbach's alpha in the present study was 0.79.

Stigma toward ASD

Stigma toward ASD was measured using the 11-item stigma subscale of the Autism Stigma and Knowledge Questionnaire (Harrison et al., 2017). Sample items were "All children with autism have problems with aggression" and "Autism is a result of a curse or evil eye put upon/inflicted on the family." Ratings were made on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of autism stigma. The validity and reliability of the scale were supported by previous studies of autism stigma (Stronach et al., 2019). The Cronbach's alpha in the present study was 0.69.

Stigma toward Physical Disability

Stigma toward physical disability was measured using the 22-item Multidimensional Attitudes Scale Toward Persons with Disabilities (Findler et al., 2007; Vilchinsky et al., 2010). Participants were asked to react to a vignette that described a social interaction

between a person without a disability and a person in a wheelchair. Participants rated each item to reflect how they anticipated the person without a disability would feel, think, or behave toward the person in a wheelchair. Sample items were “Tension,” “We may get along really well” (a reverse item) and “Get up and leave.” Ratings were made regarding the degree of likelihood on a six-point Likert scale from 1 (*not at all*) to 6 (*very much*), with higher scores indicating higher levels of physical disability stigma. The reliability of the total MAS score was evidenced by its good internal consistency ($0.76 \leq \alpha \leq 0.78$), and its validity was supported by its significant correlations with theoretically related constructs such as social distance and existing stigma measures (Stevens et al., 2013; Lu et al., 2020). In the present study, the total score also demonstrated good internal consistency ($\alpha = 0.88$). The Cronbach’s alpha in the present study was 0.88.

Stigma toward HIV

Stigma toward HIV was measured using the 12-item Personal Stigma for Community Members Scale (Visser et al., 2008). Sample items were “If you have HIV, you must have done something wrong to deserve it” and “I feel afraid to be around people with HIV.” Ratings were made on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of HIV stigma. The validity and reliability of the scale were supported by previous studies of HIV stigma (Payne-Fosteret al., 2018). The Cronbach’s alpha in the present study was 0.93.

Stigma toward Homosexuality

Stigma toward homosexuality was measured using the 10-item Attitudes Toward Lesbians and Gay Men Scale (Siebert et al., 2014). Sample items were “Lesbians just can't fit into our

society" and "Homosexual behavior between two men is just plain wrong." Ratings were made on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of homosexual stigma. The validity and reliability of the scale were supported by previous studies of sexual stigma (Vincent et al., 2016). The Cronbach's alpha in the present study was 0.87.

Stigma toward Ethnic Minorities

Stigma toward ethnic minorities was measured using the 9-item Modern Racial Prejudice Scale (Akrami et al., 2000). Eight items were slightly modified by replacing the word "immigrants" with "ethnic minorities," and two were modified by replacing the word "Sweden" with "Hong Kong." Sample items were "Discrimination against ethnic minorities is no longer a problem in Hong Kong" and "Ethnic minorities are getting too demanding in the push for equal rights." Ratings were made on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating higher levels of the stigma of ethnic minorities. The validity and reliability of the scale were supported by previous studies of ethnic minorities (Mannarini et al., 2017). The Cronbach's alpha in the present study was 0.65.

Data Analyses

Analyses of the psychometric properties of the GSS were conducted in two phases. Phase 1 involved an exploratory factor analysis (EFA) of the GSS items. Phase 2 involved a confirmatory factor analysis (CFA) of the three-factor structure of the GSS and a series of correlation and regression analyses of the GSS's internal consistency and its construct,

criterion, and incremental validities. The EFA, correlation and regression analyses were performed using SPSS 25.0, and the CFA analyses were performed using Mplus Version 8.4.

An EFA on the GSS items using principal component analysis (PCA) for extraction with varimax was conducted to analyze the factor structure of the GSS. The suitability of the data for EFA was assessed using the Kaiser-Meyer-Olkin (KMO) sampling adequacy and Bartlett's test of sphericity. The number of nontrivial factors was identified by eigenvalues greater than one (Kaiser, 1960) and viewing scree plots (Cattel, 1966). The items to be retained were determined by a primary loading of 0.5 or greater, cross-loadings of 0.4 or lower (Matsunaga, 2010), and conceptual relevance.

CFA was conducted to evaluate whether the second-order three-factor structure of the GSS fit the data. In a hierarchal model, 18 items of the GSS were first loaded on three first-order latent factors. Each latent factor represented one of the three components of generalized stigma, and each had 6 items. The three first-order factors were later loaded on a single latent second-order factor, generalized stigma. The model fit was assessed by root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR) using the following criteria to indicate a good model fit: an RMSEA value of 0.06 or lower, both CFI and TLI values of 0.90 or greater, and an SRMR value of 0.08 or lower (Hu & Bentler, 1999).

Analyses were further conducted to test other psychometric properties of the GSS. The associations between the variables of the analytic models and demographic variables such as age, gender, education level, employment status, and household income, were examined with

Pearson correlation (for continuous variables), Spearman correlation (for ordinal variables), and chi-square tests (for nominal variables) to identify significant covariates to control in the regression analyses.

To test for internal consistency, Cronbach's α coefficients of the composite GSS score and each of its subscale scores were calculated. To test for construct validity, its correlations with six stigmatized conditions and social dominance orientation were examined. To test for criterion validity, its correlation with critical action against stigma was examined. To test for incremental validity, hierarchical linear regression analyses were performed to examine whether generalized stigma significantly predicted six specific stigma conditions after adjusting for social dominance orientation. In each hierarchical analysis, one of the stigmas was first regressed on social dominance orientation (Step 1) and then regressed on generalized stigma (Step 2).

Sample size was determined based on an a priori power analysis. For the above factor analyses, according to the recommendations of Bryant & Yarnold (1995), the sample size should be at least 100 and the participant-to-variable ratio should be at least five or more, resulting in a minimum required sample size of 100. For the above regression analyses, according to G*Power results, at least 68 participants were required to detect a moderate effect size of up to 2 predictors (i.e., social dominance orientation, generalized stigma) at 80% power and $\alpha < 0.05$.

2.3. Results

Exploratory Factor Analysis

The EFA results are presented in Table 1.1. KMO was excellent at 0.91 and Bartlett's test of sphericity was significant ($p < 0.001$), indicating that the GSS item data were suitable for factor analyses (Worthington & Whittaker, 2006). An EFA of the GSS items identified three factors with an eigenvalue greater than 1, and the scree plot showed that the inflection point was at the fourth factor. These findings suggested a three-factor solution. As shown in Table 1.1, all the GSS items loaded on the target factors: the six items loaded on Factor 1 assess discriminatory behavioral intentions in the life domains of leisure, community, legal, study, neighborhood, and work; the six items loaded on Factor 2 assess the prejudicial emotional responses of fear, sadness, joylessness, anger, disgust and surprise; and the six items loaded on Factor 3 assess the subjective appraisal of the fairness of the processes of stereotyping, labeling, status loss, separating, discriminating, and stigmatization. Moreover, all items met the criteria for retention, with primary loadings ranging from 0.66 to 0.87 and cross-loadings no more than 0.36. Based on conceptually relevant and statistical evaluations, the eighteen items were all included in the GSS. The three factors were labeled cognition: legitimacy of stigmatization, affect: prejudicial emotions, and behavior: discriminatory behaviors in life domains.

Confirmatory Factor Analysis

The results of the CFA are presented in Fig. 1.1 The fit indices showed that the hierarchical second-order three-factor structure of the GSS fit the data well (RMSEA=0.05, CFI=0.96, TLI=0.96, SRMR=0.05). Additionally, the standardized factor loadings of all items on first-

order and second-order factors were statistically significant for all items (*ps* < 0.001). The standardized factor loadings on the cognition factor ranged between 0.56 and 0.82; those on the affect factor ranged between 0.62 and 0.78; and those on the behavior factor ranged between 0.71 and 0.89. The standardized factor loadings of these three first-order factors on the second-order "generalized stigma" factor were 0.81 (cognition), 0.83 (affect), and 0.58 (behavior) (*ps* < 0.001).

Internal Consistency

The internal consistency of the composite score of the GSS was excellent (Cronbach's alpha=0.92). The internal consistencies of the three subscales were also good to excellent: the Cronbach's alphas of the cognition, affect, and behavior subscales were 0.86, 0.87, and 0.92, respectively.

Convergent and Criterion Validity

The correlation matrix of the study variables is presented in Table 1.2. The GSS composite score was significantly correlated with social dominance orientation in the expected directions (*ps* < 0.001). The GSS composite score was also significantly positively correlated with six stigmatized conditions, schizophrenia, autism, HIV, physical disability, homosexuality, and ethnic minorities, and negatively correlated with critical action against stigma (*ps* < 0.001).

Incremental Validity

The results of the hierarchical regression analyses are summarized in Table 1.3. Demographics variables were not correlated with the variables in the analytic models; thus, they were not controlled in the regression analyses. After controlling for social dominance orientation, the total GSS score remained the strongest predictor and contributed 21.0%, 15.5%, 25.4%, 6.0%, 5.9%, 11.3%, and 9.9% of additional explained variance to six stigmatized conditions, schizophrenia, autism, HIV, physical disability, homosexuality, ethnic minority status, and critical action against stigma, respectively ($ps < 0.001$).

2.4. Discussion

In the present study, the GSS was developed and validated as an instrument to assess generalized stigma, motivated by a lack of attention directed at this construct. Unlike existing instruments that solely measure public stigma against a specific condition, the GSS provides public health researchers and advocates with an opportunity to quantify public stigma across conditions. This measurement instrument will also be helpful in assessing the effectiveness of antistigma approaches in community settings, where many stigmatized conditions coexist.

Consistent with the notion that stigma involves a tripartite cognitive-affective-behavioral structure, the EFA findings identify a three-factor structure of the GSS items, highlighting three components of generalized stigma: cognition: legitimacy of stigmatization; affect: prejudicial emotions; and behavior: discriminatory behaviors in life domains. The CFA findings among a different sample of participants indicate a good data-model fit (Hu & Bentler, 1999) for a second-order three-factor model of the GSS, which further confirmed that

the scale captured three correlated yet distinct components of generalized stigma. In addition, the three subscales and composite score showed high internal consistency reliability. Given the consistency of the scale items, future research may consider using the more parsimonious composite score in measuring generalized stigma.

The GSS was positively associated with social dominance orientation, demonstrating convergent validity, in accordance with previous studies that have identified social dominance orientation as a predictor of several stigmatizing attitudes (Bäckström & Björklund, 2007; McFarland, 2010). This finding also converges with existing evidence that socially dominant individuals are more likely to stigmatize individuals with lower power to maintain hierarchical relations between groups (Phelan et al., 2008). Further studies should examine whether the desire to dominate others serves as a motivating factor for generalized stigma.

The positive associations of the GSS with public stigma toward all six conditions – schizophrenia, autism, HIV, physical disability, homosexuality, ethnic minority status – provided solid evidence of its criterion validity in linking to a host of stigmatizing attitudes. This finding agrees with previous research suggesting that prejudice across targets can be explained by an underlying generalized factor (Akrami et al., 2011). The findings also support the potential of the GSS to unite and advance the measurement of attitudes toward a broad range of stigmatized groups more effectively than previous approaches (which mainly encompassed multiple, nonunified measures). Future studies on attitudes toward a broad range of stigmatized groups may adopt the GSS due to its advantages: it comprehensively assesses the cognitive, affective, and behavioral aspects of stigma, covers various stigmatized conditions, and facilitates comparisons across studies and cohorts in the longer term.

Lower levels of the GSS were linked to higher levels of critical action against stigma, indicating its criterion validity in predicting an action tendency to change perceived social inequalities for stigmatized groups. This finding corroborates previous work to suggest that stigma reduction aids in promoting social change for equality and social justice (Dixon et al., 2010). People who have lower levels of generalized stigma (i.e., less legitimacy beliefs in relation to stigmatization, less prejudicial emotions about stigmatized conditions, and less discriminatory behaviors against stigmatized individuals) may be better equipped to recognize the needs (health and human rights) of stigmatized individuals. Expanding on both our findings and previous research, future antistigma interventions should examine the effect of eradicating the public's generalized stigma on increasing their willingness to take action personally and collectively against stigma.

The GSS accounted for incremental variances in critical action against stigma and all six defined stigmatized conditions above and beyond social dominance orientation. This finding suggests that underlying generalized stigma contributes important unique variance in predicting specific stigmas and critical action against stigma in addition to the related antecedents in the recognized literature. This finding is consistent with previous studies showing that domain-specific measures explain additional variance above and beyond general dispositional measures (Luoma et al., 2011). This suggests that antistigma interventions geared toward general stigmatization have the potential to target a broad range of stigmas. Given this potential, it is highly desirable to design interventions aimed at reducing general stigmatization. Further study is needed to empirically examine the possible factors that

influence generalized stigma and test whether these factors can reduce a variety of specific stigmas through reduced generalized stigma.

This study has several limitations. First, the GSS has not yet been examined in community samples outside of college students. Although we consider the three dimensions constituting the GSS to be applicable to all members of the general population, the scale needs to be tested across community samples and cultures to determine the generalizability of the findings. Second, we measured public stigma toward only two mental, two physical and two social conditions. Other stigmatized conditions (e.g., depression, obesity, substance use) that were not measured in this study should be included in future validation studies to obtain a more comprehensive view of the construct validity of the GSS. Third, all six assessments related to public stigma were based on participant self-reporting. Other measurements, such as implicit association testing for implicit stigmatizing attitudes (Monteith & Pettit, 2011), should be employed in future research to examine the validity of the GSS. Fourth, this research was cross-sectional in design, meaning that the predictive validity in predicting future outcomes could not be conclusively stated. Future studies should adopt diverse experimental approaches to investigate the effects on and of generalized stigma.

Despite these limitations, the present study provides vital evidence for the composition of generalized stigma, shows that the GSS is a psychometrically sound measure of generalized stigma, and demonstrates the ability of the GSS to predict a variety of stigmas and critical action against stigma. By adopting this generalized measure in future studies, researchers will benefit from a comprehensive analysis of public stigma across conditions. Practically,

information obtained from its components, antecedents, and outcomes may help public health researchers and advocates design effective antistigma interventions and strategies.

Chapter 3. Study 2

Mediation Models of the Impact of Lovingkindness and Compassion on Stigma Reduction

3.1. Introduction

In the previous chapters, we conceptualized generalized stigma as a psychological construct (General Introduction), developed and validated a measure of generalized stigma (Study 1), and articulated the mediating pathways through which lovingkindness and compassion may reduce stigmatizing attitudes (General Introduction). In Study 2, we turn to a next step to propose four conceptual mediation models to examine how to counteract general and specific stigma.

In the first two models, we examined whether lovingkindness and compassion would reduce generalized stigma through greater concern for all humanity and lower social dominance orientation. We hypothesized that lovingkindness and compassion would be associated with increased concern for all humanity and decreased social dominance orientation, which in turn would be associated with lower levels of generalized stigma.

To test a pathway of general-to-specific stigma, we selected schizophrenia stigma as a specific outcome of generalized stigma in the second two models. Schizophrenia is one of the most stigmatized mental conditions (Valery & Prouteau, 2020). Due to the stigma attached to the symptoms (e.g., delusions, hallucinations, disorganized speech) of this mental condition, individuals with schizophrenia are often incorrectly and inaccurately stereotyped by the general population as dangerous, violent, and untrustworthy (Angermeyer & Dietrich, 2006;

Rüsch et al., 2012). Consequently, schizophrenia stigma creates major barriers to help-seeking and recovery for these individuals (Corrigan et al., 2014; Fung et al., 2008). Additionally, this stigma provokes a considerable burden for families and caregivers as well as the public health care system and society (Chong et al., 2016). Hence, there is theoretical and practical significance to investigating the pathways through which lovingkindness and compassion may reduce this specific stigma via generalized stigma.

With the aforementioned considerations, in the second two models, we examined whether lovingkindness and compassion would reduce generalized stigma through increased concern for all humanity and decreased social dominance and, in turn, reduce schizophrenia stigma. We hypothesized that lovingkindness and compassion would be associated with increased concern for all humanity coupled with reduced generalized stigma and decreased social dominance orientation coupled with reduced generalized stigma, which in turn would be associated with lower levels of schizophrenia stigma.

3.2. Method

Procedures and Participants

Participants were recruited from a public university in Hong Kong, China, through mass emailing, posters, flyers, and announcements on the university website. The inclusion criteria were being aged at least 18 years and having adequate understanding of written and spoken Chinese. Eligible participants were asked to sign consent forms and complete questionnaires. Participants received HK$50 (approximately US$6.40) or course credits after completing the

study. This study was approved by the research ethics committee of The Education University of Hong Kong and was conducted between October 2018 and November 2019. A total of 398 eligible adults participated in this study. The average age of the participants was 21.57 years (*SD* = 2.75 years). The majority of them were female (82.2%), undergraduate students (77.6%), and preservice teachers (65.1%), and their median monthly household income was HK$20,001 to HK$30,000 (or approximately US$2,564 to US$3,846).

Measures

Lovingkindness and Compassion

The Lovingkindness-Compassion Scale (Cho et al., 2018) was used to measure lovingkindness and compassion. The scale contained 5 items to assess lovingkindness and 5 items to assess compassion. Participants rated each item on a five-point Likert scale ranging from 1 (*not at all true of me*) to 5 (*very true of me*). Sample items were "I feel a warm heart toward whomever I meet" (lovingkindness subscale) and "I wish for all people to be released from their suffering" (compassion subscale). The ratings were averaged for each subscale, with higher scores indicating higher levels of lovingkindness and compassion, respectively. Support for the validity and reliability of the scale has been demonstrated (Cho et al., 2018). The Cronbach's alphas in the present study were 0.68 (lovingkindness subscale) and 0.74 (compassion subscale).

Concern for All Humanity

The 4-item concern subscale of the Identification with All Humanity (McFarland et al., 2012) was used to measure concern for people all over the world. Participants rated each item on a five-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). Sample items were "How much would you say you care (feel upset, want to help) when bad things happen to people anywhere in the world?" and "How much do you want to be a responsible citizen of the world?" The ratings were averaged, with higher scores indicating proactive care and concern for all humanity. In initial studies of the IWAH, all scale items loaded on a single factor (McFarland et al., 2012). However, recent studies have increasingly proposed the use of a two-factor model, with four items loaded on the bond factor and the other four items loaded on the concern factor (Hamer et al., 2021; Reese et al., 2015; Reysen & Hackett, 2016). The validity of this factorial structure has been evidenced in previous studies conducted across several countries (Hamer et al., 2021). The validity of the concern subscale has been demonstrated by its significant correlations with theoretically related constructs, such as prosocial values and a willingness to act against global inequality (Reese et al., 2015; Reysen & Hackett, 2016). The scale's reliability has also been evinced in previous research (Hamer et al., 2021). The Cronbach's alpha in the present study was 0.74.

Social Dominance Orientation

The Social Dominance Orientation-7 Scale (Ho et al., 2015) was used to measure the desire for hierarchy and dominance. Participants rated each item on a seven-point Likert scale ranging from 1 (*strongly opposite*) to 7 (*strongly favor*). Sample items were "Some groups of people are simply inferior to other groups" and "Group equality should not be our primary goal." The ratings were averaged, with higher scores indicating a strong preference for

hierarchy and rejecting equality. Support for the validity and reliability of the scale has been demonstrated (Sinclair & Saklofske, 2019). The Cronbach's alpha in the present study was 0.76.

Generalized Stigma

The Generalized Stigma Scale was used to measure the generalized tendency to stigmatize someone who has an attribute that is regarded by society as a deficiency. Participants rated each item on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Sample items were "I believe the negative labels of minorities are legitimate" and "The acts of minorities irritate me." The ratings were averaged, with higher scores indicating greater generalized stigma. Support for the validity and reliability of the scale was demonstrated in the initial scale development study (Study 1). The Cronbach's alpha in the present study was 0.92.

Schizophrenia Stigma

The Attribution Questionnaire-9 (Corrigan et al., 2014) was used to measure stigmatizing attitudes toward schizophrenia. Participants were asked to react to a vignette that described a hypothetical person who was diagnosed with schizophrenia. Sample items were "I would feel scared of him" and "I would try to stay away from him." Ratings were made on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The ratings were averaged, with higher scores indicating greater schizophrenia stigma. Support for the validity and reliability

of the scale has been demonstrated (Corrigan et al., 2015). The Cronbach's alpha in the present study was 0.81.

Data Analyses

First, descriptive statistics and preliminary analyses were performed to characterize the sample. The associations between the variables of the analytic models and demographic variables such as age, gender, education level, employment status, and household income, were examined with Pearson correlation (for continuous variables), Spearman correlation (for ordinal variables), and chi-square tests (for nominal variables) to identify significant covariates to control in the subsequent mediation analyses. Then, the interrelationships among the variables were examined using Pearson's correlation tests. Finally, path analyses were performed to evaluate four hypothesized mediation models, with two focused on generalized stigma and the other two focused on schizophrenia stigma. In the first two models, lovingkindness and compassion were entered as independent variables, concern for all humanity and social dominance orientation were entered as mediators, and generalized stigma was considered a dependent variable. In the second two models, lovingkindness and compassion were entered as independent variables, concern for all humanity, social dominance orientation, and generalized stigma were entered as mediators, and schizophrenia stigma was treated as a dependent variable. In the first two and the second two models tested, only the independent variable was different (lovingkindness or compassion); all the mediators and outcome variables remained the same. For all four models, indirect effect analyses were conducted to examine the hypothesized mediation effects. Following the recommendations of Preacher and Hayes (2008), all indirect effects were examined by a nonparametric

bootstrapping procedure, with their 95% confidence intervals computed using 1,000 bootstrap replicates of the data. A 95% confidence interval excluding zero was used to indicate a significant indirect effect. All analyses were performed using SPSS version 25.0 and the PROCESS macro for SPSS version 3.4 (Hayes, 2017). Sample size was determined based on an a priori power analysis. For the above indirect effects analyses, according to the recommendations of Fritz & MacKinnon (2007), a minimum sample size of 400 was required to achieve 80% power to detect at least small to moderate effects using percentile bootstrap estimation.

3.3. Results

Table 2.1 presents the results of descriptive statistics and correlation analyses. Correlation analyses showed that lovingkindness, compassion, and concern for all humanity were positively correlated with one another (ps < 0.001). All three variables were negatively correlated with social dominance orientation, generalized stigma, and schizophrenia stigma (ps ≤ 0.003). Social dominance orientation, generalized stigma, and schizophrenia stigma were positively correlated with one another (ps < 0.001). These correlations ranged from 0.15 to 0.53 in absolute values. Among the demographic variables, gender was significantly associated with concern for all humanity (p = 0.03). Based on this finding, gender was included as a covariate in the analytic models.

Model 1 [Lovingkindness Model of Generalized Stigma Reduction]

Figure 2.1 shows the path model of lovingkindness on generalized stigma reduction. In the path model, standardized path coefficients in absolute values ranging between 0.12 (p = 0.011) and 0.44 ($p < 0.001$) were statistically significant for all indirect paths. The explained variances were 11.9%, 2.2%, and 25.6% for concern for all humanity, social dominance orientation, and generalized stigma, respectively.

Table 2.2 presents the results of path analyses of lovingkindness on generalized stigma reduction. Lovingkindness had significant direct effects on concern for all humanity ($p <$ 0.001) and social dominance orientation ($p = 0.003$). Both concern for all humanity and social dominance orientation had significant direct effects on generalized stigma ($ps \leq 0.011$).

Table 2.3 summarizes the results of bootstrap analyses of the lovingkindness model of generalized stigma reduction. The total indirect effect of lovingkindness on generalized stigma was significant (95% CI = -0.164 to -0.053). Specifically, lovingkindness had significant indirect effects on generalized stigma via concern for all humanity (95% CI = -0.075 to -0.012) and via social dominance orientation (95% CI = -0.113 to -0.020). The indirect effects of the two paths accounted for 60.3% of the total effect of lovingkindness on generalized stigma.

Model 2 [Compassion Model of Generalized Stigma Reduction]

Figure 2.2 shows the path model of compassion on generalized stigma reduction. In the path model, standardized path coefficients in absolute values ranging between 0.12 ($p = 0.012$) and 0.45 ($p < 0.001$) were statistically significant for all indirect paths. The explained variances

were 20.0%, 10.7%, and 25.3% for concern for all humanity, social dominance orientation, and generalized stigma, respectively.

Table 2.4 presents the results of path analyses of compassion on generalized stigma reduction. Compassion had significant direct effects on concern for all humanity ($p < 0.001$) and social dominance orientation ($p < 0.001$). Both concern for all humanity and social dominance orientation had significant direct effects on generalized stigma ($ps \leq 0.012$).

Table 2.5 summarizes the results of bootstrap analyses of the compassion model of generalized stigma reduction. The total indirect effect of compassion on schizophrenia stigma was significant (95% CI = -0.268 to -0.137). Specifically, compassion had significant indirect effects on generalized stigma via concern for all humanity (95% CI = -0.104 to -0.016) and via social dominance orientation (95% CI = -0.193 to -0.096). The indirect effects of the two paths accounted for 77.2% of the total effect of compassion on generalized stigma.

Model 3 [Lovingkindness Model of Schizophrenia Stigma Reduction]

Figure 2.3 shows the path model of lovingkindness on schizophrenia stigma reduction. In the path model, standardized path coefficients in absolute values ranging between 0.12 ($p = 0.011$) and 0.44 ($p < 0.001$) were statistically significant for all the links in the two hypothesized indirect paths (i.e., Lovingkindness → Concern for all humanity → Generalized stigma → Schizophrenia stigma and Lovingkindness → Social dominance orientation → Generalized stigma→ Schizophrenia stigma). The explained variances were 11.9%, 2.2%,

25.6%, and 32.4% for concern for all humanity, social dominance orientation, generalized stigma, and schizophrenia stigma, respectively.

Table 2.6 presents the results of path analyses of lovingkindness on schizophrenia stigma reduction. Lovingkindness had significant direct effects on concern for all humanity ($p < 0.001$) and social dominance orientation ($p = 0.003$). Both concern for all humanity and social dominance orientation had significant direct effects on generalized stigma ($ps \leq 0.011$). Generalized stigma had significant direct effects on schizophrenia stigma ($p < 0.001$).

Table 2.7 summarizes the results of bootstrap analyses of the lovingkindness model of schizophrenia stigma reduction. The total indirect effect of lovingkindness on schizophrenia stigma was significant (95% CI = -0.200 to -0.072). Specifically, lovingkindness had significant indirect effects on schizophrenia stigma via concern for all humanity and generalized stigma (95% CI = -0.034 to -0.005) and via social dominance orientation and generalized stigma (95% CI = -0.051 to -0.007). The indirect effects of the two paths accounted for 29.5% of the total effect of lovingkindness on schizophrenia stigma.

Model 4 [Compassion Model of Schizophrenia Stigma Reduction]

Figure 2.4 shows the path model of compassion on schizophrenia stigma reduction. In the path model, standardized path coefficients in absolute values ranging between 0.12 ($p = 0.012$) and 0.45 ($p < 0.001$) were statistically significant for all the links in the two hypothesized indirect paths (i.e., Compassion → Concern for all humanity → Generalized stigma → Schizophrenia stigma and Compassion → Social dominance orientation →

Generalized stigma → Schizophrenia stigma). The explained variances were 20.0%, 10.7%, 25.3%, and 33.2% for concern for all humanity, social dominance orientation, generalized stigma, and schizophrenia stigma, respectively.

Table 2.8 presents the results of path analyses of compassion on schizophrenia stigma reduction. Compassion had significant direct effects on concern for all humanity ($p < 0.001$) and social dominance orientation ($p < 0.001$). Both concern for all humanity and social dominance orientation had significant direct effects on generalized stigma ($ps \leq 0.012$). Generalized stigma had significant direct effects on schizophrenia stigma ($p < 0.001$).

Table 2.9 summarizes the results of bootstrap analyses of the compassion model of schizophrenia stigma reduction. The total indirect effect of compassion on schizophrenia stigma was significant (95% CI = -0.258 to -0.115). Specifically, compassion had significant indirect effects on schizophrenia stigma via concern for all humanity and generalized stigma (95% CI = -0.045 to -0.006) and via social dominance orientation and generalized stigma (95% CI = -0.092 to -0.033). The indirect effects of the two paths accounted for 28.1% of the total effect of compassion on schizophrenia stigma.

Additional analyses were performed to further examine whether lovingkindness and compassion had independent effects on generalized stigma and schizophrenia stigma. After including compassion as a covariate, the total effects of lovingkindness on generalized stigma (p=0.06) and schizophrenia stigma (p=0.27) became nonsignificant. After including lovingkindness as a covariate, the total effect of compassion on generalized stigma (p<0.001) and schizophrenia stigma (p<0.001) remained significant. Furthermore, after controlling for

lovingkindness, the bootstrapping results of Model 2 revealed that compassion still had significant indirect effects on generalized stigma through concern for all humanity (95% CI = -0.081 to -0.005) and social dominance orientation (95% CI = -0.185 to -0.087); and the bootstrapping results of Model 4 revealed that compassion still had significant indirect effects on schizophrenia stigma via the path of concern for all humanity coupled with generalized stigma (95% CI = -0.036 to -0.002) and the path of social dominance orientation coupled with generalized stigma (95% CI = -0.086 to -0.031).

3.4. Discussion

Consistent with our hypotheses on generalized stigma (models 1 and 2), both lovingkindness and compassion were linked to lower levels of generalized stigma via two pathways: a stronger sense of concern for all humanity and a weaker desire for hierarchy and dominance. Furthermore, consistent with our hypotheses on schizophrenia stigma (models 3 and 4), both lovingkindness and compassion were linked to lower levels of schizophrenia stigma via two pathways: a sense of concern for all humanity coupled with reduced generalized stigma and a weaker desire for hierarchy and dominance coupled with reduced generalized stigma. These findings indicate that lovingkindness and compassion may lead to an expansion of the breadth of concern for others and a decreasing desire to maintain social hierarchies. The ability to direct care and warmth toward others by considering the needs and desires of other people may help to extend one's circle of people for concern and bridge the gap between the general public and members of stigmatized groups. Moreover, being less influenced by social dominance may attenuate negative attitudes toward members of stigmatized groups (those

who are vulnerable and have less power). Importantly, a reduction in the general tendency to stigmatize may have a dampening effect on each individual stigma.

Consistent with previous research showing that lovingkindness and compassion have positive impacts on self-other processes and intergroup relations (Hutcherson et al., 2008; Weng et al., 2013), the present study found that higher levels of lovingkindness and compassion were associated with lower levels of general and specific stigmas. By considering lovingkindness and compassion as predictors of public stigma (Kang & Falk, 2020; Howell & Woolgar, 2013), this study shows that both lovingkindness and compassion may play a role in influencing the general tendency to stigmatize and specific stigmatizing attitudes toward schizophrenia. Earlier studies showed that LKM may reduce automatic bias toward members of stigmatized groups (Kang et al., 2014) and compassionate individuals might exhibit lessened self-other distinction from members of stigmatized groups (Oveis et al., 2010). Similarly, our findings indicate the utility of lovingkindness and compassion as psychological intervention strategies to combat all individual stigmas. Furthermore, given that the onset of schizophrenia typically occurs between late adolescence and early adulthood (Gogtay et al., 2011), by revealing the links of lovingkindness and compassion to schizophrenia stigma in a sample with participants who were mostly young adults, our findings may also provide pivotal insights into the use of lovingkindness and compassion in reducing schizophrenia stigma in this population.

Expanding on previous research on the effects of meditation techniques on prosociality, the present study demonstrates that both lovingkindness and compassion predict universal care and social dominance. In support of the Buddhist teachings of the Four Immeasurables, which

posit that lovingkindness and compassion should be with and for all humans (Buddhaghosa, 1975; Kraus & Sears, 2009), our study found positive associations of lovingkindness and compassion with concern for all humanity. Moreover, in keeping with previous studies showing that socially dominant individuals lack the capacity to empathize with others (Duckitt & Sibley, 2010; Sidanius et al., 2013), our study found negative associations of lovingkindness and compassion with the desire for hierarchy and dominance. In sum, our findings indicate that lovingkindness and compassion could have a critical effect on prosociality, which may contribute to community social change to address the stigma and marginalization of members of minority groups.

According to studies of meditation techniques, lovingkindness and compassion might help to expand individuals' awareness of concern from only closely acquainted ones to all of humankind (Hofmann et al., 2011). Moreover, previous research has suggested that being prosocial toward people all over the world may expand moral inclusiveness to include various outgroups (Crimston et al., 2016; Schwartz, 2007). Building on these lines of research, our findings indicate the mediating role of concern for all humanity in the associations of lovingkindness and compassion with generalized stigma. Specifically, our findings show that the capacity to feel the emotional states of others (either happiness or sadness) might counteract the propensity to stigmatize through an unbounded desire to help. These findings indicate the importance of promoting global human identification (McFarland et al., 2019), which is likely to help displace stigmatizing attitudes toward others.

Consistent with generalized prejudice models that suggest that social dominance orientation is a predictor of prejudiced and ethnocentric attitudes (Costello & Hodson, 2011; Dhont et al.,

2014), our research shows a positive association between the desire for hierarchy and dominance and generalized stigma. Moreover, in line with earlier work documenting social dominance orientation as a mediator between empathy (a capacity closely related to lovingkindness and compassion) and negative attitudes toward others (Bäckström & Björklund, 2007), our findings indicate that a lack of kindness and compassion might lead to discrimination against minority groups through a desire to sustain unequal social relations. Given that lovingkindness and compassion may reduce different forms of biases and negative attitudes toward others (Hunsinger et al., 2014; Kang & Falk, 2020; Kang et al., 2014; Sinclair et al., 2016), nurturing other-focused concern diminishes not only the hierarchical and dominance desire but also the stigmatization of various conditions.

Although LKM and CM have consistently been shown to have a positive impact on interpersonal processes (Hofmann et al., 2011; Shonin et al., 2015), only a few studies have specifically examined their mechanisms. It is worth noting that after controlling for social dominance orientation, concern for all humanity significantly predicted the general tendency to stigmatize. This finding demonstrates that in addition to a competitive mentality, individuals' tendency to stigmatize could be influenced by a caring mentality. The findings suggest that LKM and CM may reduce stigmatizing attitudes via two separate mechanisms (i.e., enhanced concern for all humanity or decreased social dominance orientation). The findings shed light on the mechanisms of LKM and CM that lead to stigma reduction and encourage future attempts to use LKM- or CM-based interventions to reduce stigmatizing attitudes. Through these interventions, specific targeted groups such as school children, preservice teachers, or healthcare professionals may lessen their stigmatizing attitudes toward

socially discredited groups by expanding their concern to different others and challenging the legitimacy of social hierarchy and inequality.

Limitations

Several limitations should be noted. First, the cross-sectional design of this study limited our ability to examine the causal relations between variables. Future studies should employ different experimental designs, including randomized controlled trials, to clarify the directions of the associations documented here. Second, all measures in this study are based on participant self-reporting and are therefore potentially subject to common method bias. Future studies should consider using both explicit and implicit measures to confirm our findings (Monteith & Pettit, 2011). Third, only schizophrenia stigma was tested in the present model for the link between general and specific stigmas. Other specific stigmas that were not tested in this study should be included in future replication studies to obtain a more comprehensive understanding of this link. Fourth, the present model of stigma reduction has not yet been examined in community samples other than college students. Although we consider our model applicable and pertinent to the general population, this model needs to be tested across community samples and cultures to determine the generalizability of the findings.

Conclusions

Despite the limitations, our study has important contributions and implications for public health researchers and advocates seeking to combat stigma by enforcing positive acts.

Theoretically, our findings illustrate how lovingkindness and compassion may affect both the general tendency to stigmatize and the specific stigma toward schizophrenia through a greater concern for all humanity and a weakened desire for group-based dominance. Practically, our findings underscore the importance of incorporating lovingkindness and compassion into antistigma programs to increase concern for others and attenuate social dominance in an effort to address both general and specific stigmas.

Chapter 4. Study 3

A Preliminary Controlled Study of a Lovingkindness Meditation Intervention and Compassion Meditation Intervention for Reducing Stigmatizing Attitudes

4.1. Introduction

Studies 3a and 3b extended the findings of the first two studies by using experiments to examine the impact of lovingkindness and compassion on public stigma. By employing active control groups, two forms of meditation practices were evaluated: LKM and CM.

Study 3a compared the immediate effects of the two meditation practices with a closely matched neutral imagery exercise. This comparison condition was selected because, like LKM and CM, a neutral imagery exercise would be expected to engage one's mental experience and encourage concentration; therefore, these effects could be controlled. It was hypothesized that immediately after 10 minutes of formal practice, when compared with the baseline levels, participants who practiced LKM would report (i) greater increases in the emotional state of lovingkindness and (ii) greater decreases in stigmatizing attitudes, while those who practiced CM would report (iii) greater increases in the emotional state of compassion and (iv) greater decreases in stigmatizing attitudes than those in the neutral imagery control group.

Study 3b compared the cumulative effects of the two meditation practices with a relaxation exercise, passive progressive muscle relaxation (PPMR). This comparison condition was selected because PPMR provides a comparable alternative active psychological intervention procedure to LKM and CM. This method controlled for nonspecific effects of the delivery

format (e.g., equivalent amount of training, same meditation teacher) and common factors (e.g., concentration, imagery, and relaxation). It was hypothesized that after 4 weeks of training, when compared with the baseline levels, participants in the LKM group would report (i) greater increases in lovingkindness and (ii) greater decreases in stigmatizing attitudes, while those in the CM group would report (iii) greater increases in compassion and (iv) greater decreases in stigmatizing attitudes than those in the PPMR group. It was also hypothesized that after 4 weeks of training, when compared with the baseline levels, participants in the two intervention groups would report (v) greater increases in concern for all humanity and (vi) greater decreases in social dominance orientation than those in the PPMR group and that (vii) increased concern for all humanity and decreased social dominance orientation would mediate the effect of lovingkindness and compassion on stigmatizing attitudes.

4.2. Study 3a Method

Procedures and Participants

Participants were recruited from a public university in Hong Kong, China, through mass emailing, posters, flyers, and announcements on the university website. The inclusion criteria were being aged at least 18 years and having adequate understanding of written and spoken Chinese. Participants were randomly allocated to a 10-min neutral imagery exercise, a 10-min LKM exercise, or a 10-min compassion exercise. Participants received HK$50 (approximately US$6.40) or course credits after completing the study. This study was approved by the research ethics committee of The Education University of Hong Kong and was conducted between March 2019 and November 2019. A total of 209 eligible adults

participated in this study. The average age of the participants was 21.63 years (*SD* = 2.88 years). The majority of them were female (79.9%), undergraduate students (76.7%), and preservice teachers (60.8%), and their median monthly household income was between HK$20,001 and HK$30,000 (approximately US$2,564 to US$3,846).

Participants completed a consent form, demographic questions and a pretest of stigmatizing attitudes within the 7 days preceding the experiment. On the day of the experiment, participants completed a pretest to determine their emotional states of lovingkindness and compassion immediately before the experiment and then practiced the corresponding mental exercises for 10 minutes with guided audio recordings. They also completed a posttest of their emotional states and stigmatizing attitudes immediately following the experiment. The experiments were administered in a quiet classroom setting with no more than two participants at a time to minimize distractions during the exercise. The guided audio recordings were each 10 minutes in duration. They started by instructing the participants to choose a comfortable sitting posture and gently close their eyes. All meditation scripts were reviewed, narrated, and recorded by a certified MBSR and MBCT teacher with extensive experience in teaching mindfulness and meditation to adults in mainstream secular settings.

Lovingkindness Meditation Exercise

The LKM exercise was based on adaptations by Salzberg (1995, 2011) of procedures originally described in Buddhist meditation practices. The aim of the LKM exercise was to cultivate a feeling of fondness for all sentient beings, starting with oneself and then expanding to a sequence of imagined targets (Salzberg, 1995). First, participants were guided to bring attention to the self and to mentally repeat the phrase, “May I be safe, happy, healthy and take

good care of myself." Next, they followed the same procedure to send well wishes to a loved one (a friend or family member) and to someone challenging (a person they somewhat disliked). Finally, participants were guided to bring attention to people all around the world, to recognize that others share the desire to be blessed like themselves, and to imagine sending well wishes to all sentient beings.

Compassion Meditation Exercise

The CM exercise was based on adaptations by Weng et al. (2013) and Zeng et al. (2017) of procedures originally described in Buddhist meditation practices. The aim of the CM exercise, which focused on viscerally sharing in others' pain and distress, was to develop a feeling of compassion for all sentient beings (Shonin et al., 2015). First, participants were guided to recall a difficult time they had gone through, to direct their focus to the body parts that experienced the strongest reaction and to mentally repeat the phrase, "I know, you are suffering now. I will take care of you and always be with you." Next, they were guided to envision a loved one and a challenging person, to imagine that others were simultaneously experiencing anger, sadness, or worry, and to envision sending caring to them with a similar phrase. Finally, participants were guided to bring attention to people all around the world, to recognize that others share the desire to alleviate suffering and trouble like themselves, and to imagine sending care to all sentient beings.

Neutral Imagery Exercise

This visualization exercise was based on a script used in a laboratory study (Seppala et al., 2014). The aim of this exercise was to visualize a number of neutral places in daily life situations. First, participants were guided to picture a bookstore, envisioning the lighting,

shape, color, and smell of everything inside. Participants were then guided to visualize six other places (a car park, a train, an inventory, a laundry, an elevator, and an office) in as much detail as possible.

Measures

Emotional State of Lovingkindness

For the emotional state of lovingkindness, one item (friendliness toward others) was selected from the Self-Other Four Immeasurables (SOFI; Kraus & Sears, 2009) scale, and another item (loving toward others) was selected from prior LKM studies (Hutcherson et al., 2015; Seppala et al., 2014). Participants were given the following instructions immediately before and after the 10-min exercise: "Please indicate the extent to which you are experiencing each of the following emotions at this moment." Participants rated each item on a five-point Likert scale ranging from 1 (*very little*) to 5 (*very much*). The Cronbach's alpha of the emotional state of lovingkindness was 0.81 at baseline and 0.87 at post-assessment.

Emotional State of Compassion

For the emotional state of compassion, one item (compassion toward others) was selected from the Self-Other Four Immeasurables (SOFI; Kraus & Sears, 2009) scale, and another item (caring toward others) was selected from a recent CM study (Zeng et al., 2017). Participants were given the following instructions immediately before and after the 10-min exercise: "Please indicate the extent to which you are experiencing each of the following emotions at this moment." Participants rated each item on a five-point Likert scale ranging

from 1 (*very little*) to 5 (*very much*). The Cronbach's alpha of the emotional state of compassion was 0.90 at baseline and 0.87 at post-assessment.

Generalized Stigma

Generalized stigma was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.92 at baseline and 0.89 at post-assessment.

Schizophrenia Stigma

Schizophrenia stigma was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.78 at baseline and 0.77 at post-assessment.

Data Analyses

First, descriptive statistics and preliminary analyses were performed to characterize the samples of each group and examine whether there were differences across groups before the experiment. The associations between the variables of the analytic models and demographic variables such as age, gender, education level, employment status, and household income, were examined with Pearson correlation (for continuous variables), Spearman correlation (for ordinal variables), and chi-square tests (for nominal variables) to identify significant covariates to control in the subsequent analyses. Second, 3 (LKM, CM, or neutral imagery) x 2 (Pre vs. Post) mixed model ANOVAs were performed to determine whether any change in the dependent variables (i.e., emotional states of lovingkindness and compassion, generalized stigma, and schizophrenia stigma) was the result of the interaction between group and time. Partial eta-squared (η_p^2) was used as a measure of effect size; effect sizes of between 0.01 and

0.05 were considered low, those of between 0.06 and 0.13 were considered moderate, and those of above 0.14 were considered high (Cohen, 1992). Next, repeated-measures ANOVAs were performed to examine the simple effects of time within groups. In addition, one-way between groups ANOVAs were performed to compare the pre-post difference scores (change scores) of pairs of groups. All analyses were performed using SPSS version 25.0, and the repeated measures were analyzed using the general linear model (GLM) within SPSS. Sample size was determined based on an a priori power analysis using G*Power. For the above analyses, a minimum sample size of 50 per group was required to detect low-to-moderate effects at 80% power and $\alpha < 0.05$.

4.3. Study 3a Results

Table 3.1 presents the data describing the sample characteristics across groups at baseline. No significant group differences were found in demographics or baseline measures. Demographics variables were not correlated with the variables of the analytic models; thus, they were not included as covariates in the ANOVA analyses.

Table 3.2 presents the results of ANOVAs comparing data across CM, LKM and neutral imagery. Significant time x condition interactions were found for the emotional state of lovingkindness with a moderate effect size ($F_{2,206}$=13.70, p<0.001, η^2=0.12), the emotional state of compassion with a high effect size ($F_{2,206}$=19.74, p<0.001, η^2=0.16), and generalized stigma ($F_{2,206}$=5.22, p=0.006, η^2=0.05) with a low effect size. No significant time × group interaction was found for schizophrenia stigma.

Table 3.3 presents the results of ANOVAs comparing pretest to posttest scores in each condition and changes between pairs of groups. Simple effects within groups indicate that CM significantly enhanced emotional states of lovingkindness (p<0.001) and compassion (p<0.001) with high effect sizes and decreased generalized stigma (p<0.001) with a high effect size. Simple effects within groups indicate that LKM significantly increased emotional states of lovingkindness (p<0.049) and compassion (p<0.001) with low to high effect sizes and decreased generalized stigma (p<0.001) with a high effect size. Compared to neutral imagery, LKM and CM significantly enhanced emotional states of lovingkindness (ps<0.002) and compassion (ps<0.001) with moderate to high effect sizes and decreased generalized stigma (ps<0.007) with low to moderate effect sizes. Simple effects within groups indicate that LKM and CM significantly decreased schizophrenia stigma (ps<0.006) with moderate effect sizes. Relative to neutral imagery, CM marginally significantly decreased schizophrenia stigma (p=0.070), and LKM (p=0.704) did not significantly decrease schizophrenia stigma. Furthermore, compared to LKM, CM did not significantly decrease generalized stigma (p=0.463) or schizophrenia stigma (p=0.194).

4.4. Study 3b Method

Procedures and Participants

Participants were recruited from a public university in Hong Kong, China, through mass emailing, posters, flyers, and announcements on the university website. The inclusion criteria were being aged at least 18 years old and having adequate understanding of written and spoken Chinese. Participants were randomly allocated to a 4-week LKM training, a 4-week

CM training, or a 4-week relaxation training. Participants received HK$150 (approximately US$19.20) after completing the study. This study was approved by the research ethics committee of The Education University of Hong Kong and was conducted between March 2019 and November 2019. A total of 174 eligible participants began the study, and 148 (85.1%) completed the study. The average age of the final sample was 22.35 years (*SD* = 2.92 years). The majority of them were female (87.8%), undergraduate students (73.6%), and preservice teachers (54.7%), and their median monthly household income was between HK$20,001 and HK$30,000 (approximately US$2,564 to US$3,846).

Participants completed a consent form, demographic questions and a pre-program questionnaire of social attitudes within the 7 days leading up to the training programs. On the first day of the programs, participants were invited to a briefing session about the content and logistics of the training programs. Participants were asked to conduct the designated training for 10 minutes daily, 5 days a week. After the 4-week program, participants were contacted and asked to complete a post-program questionnaire of social attitudes. The three guided audio recordings were each 10 minutes in duration. All of the meditation scripts were reviewed, narrated, and recorded by the same certified mindfulness teacher employed in Study 3a.

Lovingkindness Meditation Exercise

The guided LKM exercise employed the same audio recording used in Study 3a.

Compassion Meditation Exercise

The guided CM exercise employed the same audio recording used in Study 3a.

Passive Progressive Muscle Relaxation Exercise

The PPMR exercise was based on Jacobson's (1938) procedures. The aim of this exercise was to progressively relax different muscle groups of the body. First, participants were guided to breathe slowly and notice the sensations inherent in breathing. Participants were then instructed to pay attention to the tension in each of their hands and slowly relax these muscles fully without tensing them. Next, they were guided to repeat the same procedure with other muscle groups (upper, middle, and lower parts). Finally, participants were asked to notice the sensations of relaxation in all parts of their bodies (arms, face, neck, shoulders, back, chest, abdomen, and feet).

Measures

Lovingkindness and Compassion

Lovingkindness and compassion were assessed with the same measures used in Study 2. The Cronbach's alpha of lovingkindness was 0.67 at baseline and 0.76 at post-program assessment. The Cronbach's alpha of compassion was 0.78 at baseline and 0.73 at post-program assessment.

Concern for All Humanity

Concern for all humanity was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.81 at baseline and 0.86 at post-program assessment.

Social Dominance Orientation

Social dominance orientation was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.76 at baseline and 0.78 at post-program assessment.

Generalized Stigma

Generalized stigma was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.91 at baseline and 0.94 at post-program assessment.

Schizophrenia Stigma

Schizophrenia stigma was assessed with the same measure used in Study 2. The Cronbach's alpha was 0.79 at baseline and 0.81 at post-program assessment.

Data Analyses

First, descriptive statistics and preliminary analyses were performed to characterize the samples of each group and examine whether there were differences across groups before 4 weeks of training. The associations between the variables of the analytic models and demographic variables such as age, gender, education level, employment status, and household income, were examined with Pearson correlation (for continuous variables), Spearman correlation (for ordinal variables), and chi-square tests (for nominal variables) to identify significant covariates to control in the subsequent analyses. Second, 3 (LKM, CM, PPMR) x 2 (Pre vs. Post) mixed model ANOVAs were performed to determine whether any change in the dependent variables (i.e., lovingkindness, compassion, concern for all humanity, social dominance orientation, and generalized stigma) was the result of the interaction between group and time. Partial eta-squared (η_p^2) was used as a measure of effect

size; effect sizes of between 0.01 and 0.05 were considered low, those of between 0.06 and 0.13 were considered moderate, and those of above 0.14 were considered high (Cohen, 1992). Next, repeated-measures ANOVAs were performed to examine the simple effects of time within groups. In addition, one-way between groups ANOVAs were performed to compare the pre-post difference scores (change scores) between pairs of groups. All analyses were performed using SPSS version 25.0, and the repeated measures were analyzed using the general linear model (GLM) within SPSS. Sample size was determined based on an a priori power analysis using G*Power. For the above analyses, a minimum sample size of 50 per group was required to detect low-to-moderate effects at 80% power and $\alpha < 0.05$.

4.5. Study 3b Results

Table 3.4 presents the data describing the sample characteristics across groups at baseline. No significant group differences were found in demographics or baseline measures. Demographics variables were not correlated with the variables of the analytic models; thus, they were not included as covariates in the analytic models.

Table 3.5 presents the results of an ANOVA comparing data across CM, LKM and PPMR. Marginal significant group x time interactions were found for lovingkindness ($F_{2,145}$=2.56, p=0.081, η^2=0.03) and compassion ($F_{2,145}$=2.45, p=0.089, η^2=0.03) with low effect sizes, and significant group x time interaction was found for generalized stigma ($F_{2,145}$=5.99, p=0.003, η^2=0.08) with moderate effect size. There was no significant time × group interaction for concern for all humanity, social dominance orientation, or schizophrenia stigma. Because no

interaction effects were found on the hypothesized mediators, we did not proceed with mediational analyses.

Table 3.6 presents the results of ANOVAs comparing pretest to posttest scores in each condition and changes between pairs of groups. Simple effects within groups indicate that LKM significantly increased lovingkindness (p<0.001) with a high effect size and decreased generalized stigma (p=0.029) with a moderate effect size. Compared to PPMR, LKM significantly increased lovingkindness (p=0.016) and decreased generalized stigma (p=0.004) with low to moderate effect sizes. Simple effects within groups indicate that CM significantly increased compassion (p=0.036) and decreased generalized stigma (p=0.026) with moderate effect sizes. Compared to PPMR, CM significantly increased compassion (p=0.037) and decreased generalized stigma (p=0.004) with low to moderate effect sizes. Simple effects within groups do not indicate that CM or LKM significantly increased concern for all humanity, decreased SDO, or decreased schizophrenia stigma. Furthermore, compared to LKM, CM did not significantly decrease generalized stigma (p=0.902) or schizophrenia stigma (p=0.899).

4.6. Discussion

The present two studies evaluated the usefulness of two stigma reduction approaches, LKM and CM. We first evaluated the effects of a brief exercise for each of the two meditations in Study 3a, and then we evaluated the effects of 4 weeks of training for each of these two meditation exercises in Study 3b. In Study 3a, our findings revealed that a single brief practice of LKM or CM, compared with a neutral imagery exercise, was associated with

decreases in generalized stigma immediately following 10 minutes of formal practice. In Study 3b, our results further revealed that a 4-week training of LKM or CM, compared with relaxation training, was associated with decreases in generalized stigma following the training. The observed immediate and cumulative effects suggest that the specific mental activities induced by LKM and CM — the acts of connecting with others' emotions and feeling concern for others' needs (Hofmann et al., 2011) — may be an important way to help people mitigate public stigma.

The results from Study 3a revealed that a single brief LKM exercise increased the emotional state of lovingkindness and a single brief CM exercise increased the emotional state of compassion, both of which are associated with reduced generalized stigma. The findings are consistent with previous research showing that a single brief mental exercise is sufficient to cause short-term changes in prejudice and bias toward stigmatized individuals (Parks et al., 2014). Study 3a demonstrates that the emotional states of lovingkindness and compassion can be generated through the mental activities of LKM and CM (LKM involves making wishes for different targets by considering what would bring happiness to them, while CM involves making wishes for different targets by considering what would alleviate their suffering), and these exercises can reduce the general tendency to stigmatize others. Our findings shows that the two exercises can be delivered in a format with a modest time commitment, supporting the feasibility and potential effectiveness of using LKM or CM for reducing public stigma.

The results from Study 3b showed that a 4-week LKM or CM training increased the prosocial attitudes associated with reduced generalized stigma. Our results demonstrate that being loving and kind to others can be cultivated through mental training, and *continuous practice*

of LKM can alter the general tendency to stigmatize others. This finding is in line with previous research showing that continuous practice of LKM reduces negative unconscious attitudes against stigmatized individuals (Kang & Falk, 2020). Moreover, consistent with past research that established that continuous practice of CM alters responses to unfairness (Weng et al., 2013), our results demonstrate that compassion toward others' suffering can be fostered through mental training, and *continuous practice of CM* can reduce the general tendency to stigmatize others. Additionally, our results revealed that over a longer period of practice, when compared to PPMR, LKM displayed a stronger impact on lovingkindness than compassion and CM showed a greater impact on compassion than lovingkindness. This finding suggests that LKM and CM may influence different prosocial attitudes in distinct ways. Given that LKM and CM may increase lovingkindness and compassion to different extents, future research should examine whether combining LKM and CM into a stigma reduction program can increase the impact of intervention.

In Studies 3a and 3b, with respect to schizophrenia stigma, no significant group x time interaction was found between the control group and the two intervention groups (LKM and CM), which is inconsistent with our hypothesis. Individuals diagnosed with schizophrenia constitute one of the most stigmatized groups with mental health conditions (Rao et al., 2009) as compared to those with other stigmatized mental health conditions, such as depression, they are perceived to be more dangerous, unpredictable, and incompetent (Angermeyer & Matschinger, 2003). It is not without reason that schizophrenia stigma is more difficult to reduce than generalized stigma, as individuals who stigmatize schizophrenia may have endorsed a more rigid knowledge structure of schizophrenia than of a general group of individuals with a range of stigmatized conditions. The current findings may have two

practical implications. First, more extensive training on LKM and CM may be required so that the effects on generalized stigma can be transferred to schizophrenia stigma. Second, a comprehensive intervention program, combining the new approach of targeting the common components of stigma and existing approaches targeting the specific components of stigma may be still needed to combat these severe stigmas. Furthermore, the findings indicate that the impact of LKM and CM on generalized stigma may be greater than their impact on schizophrenia stigma. In our studies, the group targeted by generalized stigma was *minorities*, an abstract group that denoted the overall stigmatizing individuals. Negative attitudes toward categorically specific groups, such as persons with schizophrenia, may be more resistant to change than those toward a relatively abstract group such as minorities. Given that generalized stigma may be more amenable to change, future stigma intervention studies should investigate whether reducing generalized stigma could serve as a potential first step in reducing stigma toward highly stigmatized groups.

In Study 3b, with respect to concern for all humanity and social dominance orientation, no significant group x time interaction was found between the control group and the two intervention groups, which is inconsistent with our hypothesis and with some recent research (Brito-Pons et al., 2018; Sinclair & Saklofske, 2019). Follow-up tests of simple effect analyses revealed that all three groups experienced no significant changes in the two hypothesized mediators after 4 weeks of training. The results indicate that the impact of LKM or CM on generalized stigma might be greater than the impact on concern for all humanity and social dominance orientation. Further tests could vary the design and implementation of this new stigma reduction strategy to clarify the findings. On the positive side, this

unexpected result highlights the outcome variables more (or less) susceptible to LKM and CM, which may help advance the design and development of antistigma interventions.

Limitations

Several limitations should be noted. First, although the present investigation included imagery and relaxation exercises as control conditions, there was no control condition that disambiguated the effects of meditation practice from positive information sharing. Merely reading or discussing meditation materials may be as effective as directly experiencing lovingkindness and compassion through meditation practices (Kang et al., 2014). Future research should investigate whether a brief LKM or CM exercise has an effect over and above simply reading or discussing the content of LKM or CM. Second, the present investigation was not able to objectively differentiate possible underlying mechanisms between LKM and CM that would aid our understanding of the observed effects. Given the importance of consistent delineations of LKM and CM (Shonin et al., 2014), the differential effects of LKM and CM on stigmatizing attitudes should be objectively tested in future replication studies to gain a greater understanding of the underlying processes. Third, our findings were based on self-report instruments and are therefore potentially subject to mono-operation and mono-method biases. Future studies should consider using a wider range of prosocial outcome measures, such as implicit measures (e.g., implicit association tests) and behavioral measures (e.g., economic decision-making tasks), to confirm our findings (Monteith & Pettit, 2011; Weng et al., 2013). Fourth, it was unclear which distinguishing features of LKM and CM exercises decreased generalized stigma as both of the exercises enhanced the emotional states of lovingkindness and compassion. The employed state measures may not be able to

differentiate the active components of LKM and CM on their immediate effects on stigma, so future studies should examine measures that can differentiate the features of the two exercises to identify the active components of LKM and CM in stigma reduction. Finally, the present investigation lacked any follow-up measures to assess whether the observed changes could be maintained over a longer period.

Conclusions

Notwithstanding these limitations, the present investigation provides important theoretical contributions and practical implications. Theoretically, our results add to our knowledge of the pathways through which LKM and CM can develop an individual's capacity to experience and share the feelings of others, thereby reducing the general tendency to stigmatize others. Practically, our findings provide empirical evidence for the feasibility of using LKM or CM in stigma reduction interventions. In addition to traditional knowledge and contact approaches, LKM- or CM-based approaches may serve as an effective means to combat negative attitudes and discrimination against stigmatized individuals.

Chapter 5. General Discussion

The present thesis conceptualized the common core of different stigmatizing attitudes and investigated possible intervention approaches. The studies described herein proposed a construct termed *generalized stigma*, identified its components and consequences, and examined potential pathways and approaches to reduce and counteract it. In addition to conceptualizations, the present work contributes a measurement tool (the GSS), theoretical models of stigma reduction, and two intervention approaches (the use of lovingkindness and compassion practices) to the field of stigma. This concluding chapter reviews the findings reported in the thesis, discusses the theoretical and practical implications of the findings, and offers possible future directions to advance the field.

Review of Key Findings

The first objective of the present thesis was to conceptualize and develop the GSS. In Study 1, the scale's factorial, convergent, criterion, and incremental validity were confirmed, along with the overall and subscale internal consistencies. The sound psychometric properties suggests that the GSS is a solid measure of generalized stigma. Moreover, the results reveal the positive associations of the GSS with a range of specific stigma measures, including stigmatizing attitudes toward schizophrenia, autism, HIV, physical disabilities, homosexuality, and ethnic minorities. This finding indicate that individuals tend to be consistent in their stigmatizing attitudes toward different minority members. In sum, the new construct of generalized stigma contributes to the stigma literature by showing that a generality of stigma may exist across a range of mental, physical, and social stigmas, and that

this construct may constitute multiple components (i.e., cognitions, affects, and behaviors) rather than a single attitudinal component as previous research has referenced for generalized prejudice (Asbrock et al., 2010).

The second objective of the present thesis was to understand how lovingkindness and compassion may diminish generalized stigma. The results of Study 2 significantly highlight the pathways through which lovingkindness and compassion could potentially mitigate generalized stigma via enhanced concern for all humanity and attenuated social dominance orientation. These findings suggest that if people are able to direct feelings of warmth and care toward others by considering the well-being of other people, they are likely to have broader concern for all members of the human race and lessen their desire for group-based dominance and superiority, allowing them to reduce their general tendency to stigmatize others. These pathways suggest the potential use of lovingkindness and compassion as intervention approaches to counteract the tendency toward stigmatization. The presented models add to the stigma literature by showing how the common core of stigmas may be influenced by dispositional lovingkindness and compassion, which can be important for implementing stigma reduction programs as research has evidenced that these two dispositions can be systematically trained through psychological interventions such as LKM and CM (Hofmann et al., 2011).

The third objective of the present thesis was to experimentally examine the effects of LKM and CM on generalized stigma. In Study 3a, participants were randomly assigned to practice a brief exercise of LKM, CM, or neutral imagery in a laboratory setting. The results revealed that participants in the LKM condition, compared to their counterparts in the neutral imagery

condition, reported higher increases in the emotional state of lovingkindness and greater decreases in generalized stigma. Likewise, the results revealed that participants in the CM condition, compared to their counterparts in the neutral imagery condition, reported higher increases in the emotional state of compassion and greater decreases in generalized stigma. Study 3b extended these findings by showing that continuous practices of LKM and CM reduced generalized stigma in a home learning environment. The results revealed that participants in the LKM or CM training group, compared to their counterparts in the relaxation training group, reported greater decreases in generalized stigma. The findings of Studies 3a and 3b together suggest that directing positive wishes toward others by considering either what would bring happiness to others (LKM) or what would alleviate others' suffering (CM) reduces generalized stigma. The current experimental findings contribute to the stigma literature by showing that lovingkindness and compassion training may change people's overall stigmatizing tendency, which is consistent with the growing evidence showing that such training can enhance positive other-directed affect and reduce bias toward stigmatized individuals (Kang & Falk, 2020).

Theoretical and Practical Implications

Generalized stigma was associated with stigmatizing attitudes toward various conditions, and all of the stigmatized conditions were associated with each other, which highlighted the potential of intervening in generalized stigma as the common core of different stigmas. This evidence also underscored the benefits of including the measurement of generalized stigma (i.e., the GSS) and its theoretical correlates (e.g., its predictors and outcomes) in future stigma reduction research. It is noteworthy that, unlike existing public stigma measures, generalized

stigma explicitly captures a covert form of stigma: the legitimacy of stigmatization. The present work suggests that individuals who perceive stigmatization as legitimate have a general tendency to stigmatize others and that this general cognition can be measured via a psychological scale such as the GSS. Moreover, the inverse association of generalized stigma with critical action against stigma suggests that attempts to reduce generalized stigma not only minimize various stigmatizing attitudes but also lead people to engage in events and activities to combat stigma. Considering the dearth of research on stigma reduction that is anchored in the common core of stigmas, the field should progress to integrating generalized stigma with the GSS in intervention analysis to maximize the overall effectiveness of an antistigma program in a community setting.

The present work employed LKM and CM techniques to demonstrate that cultivating lovingkindness and compassion, particularly the practices of directing warmth and concern for others unselfishly (i.e., regardless of individuals' closeness to and approval of the target person), is likely to weaken and refute the general tendency to stigmatize others. This finding suggests the potential to teach other-focused concern, particularly lovingkindness and compassion, as a bridge to connect non-stigmatized and stigmatized individuals. Stigma is rooted in social relationships and constructed by human interactions (Goffman, 1963; Link & Phelan, 2001), which is why connection practices such as LKM or CM may help to counter it. The current findings provide preliminary support for the use of LKM or CM to intervene in public stigma. In fact, linking lovingkindness- and compassion-based training to stigma change parallels recent conceptual and empirical work in the domain of self-stigma among minority members (Chan et al., 2020; Wong et al., 2016). Although LKM- and CM-based approaches may have benefits specific to other-regarding emotions and generalized stigma,

existing intervention methods (protest, contact, and education) may have their own effects on stigma reduction. Thus, one future direction is to evaluate stigma reduction interventions that combine LKM or CM with other intervention methods. For example, LKM or CM can be used in education programs or contact interventions to lay a foundation of kindness and compassion, which may help to create a sense of acceptance and equality in relationships between the target group of intervention (e.g., school children, preservice teachers, or healthcare professionals) and stigmatized individuals of concern.

Prior research has shown that education professionals may hold negative biases and stereotypes much like the population at large (Starck et al., 2020), which can contribute to social inequality in education systems. By revealing the links of lovingkindness and compassion to a general reduction in stigmatization in samples with participants who were mostly preservice teachers, the present studies indicate the utility of LKM and CM as psychological intervention strategies in the domains of education inequalities and disparities. For instance, given that LKM and CM interventions may be effective in counteracting the tendency toward stigmatization, such interventions may be incorporated into preservice teacher education as an element of formal and informal curricula (Hirshberg et al., 2020). An LKM- or CM-based intervention for educational professionals aimed at reducing stigma in schools could be modeled on evidence-based programs intended to teach social-emotional competence for professional service providers (Mihić et al., 2020).

Furthermore, the findings of the present work may introduce a new research initiative for how lovingkindness and compassion reduce mental health problems. Although the positive consequences of lovingkindness and compassion on mental health have been documented

(Hofmann et al., 2011; Shonin et al., 2015), little research has examined the underlying mechanisms in conjunction with stigma reduction. Given that research shows that stigma is a major obstacle that prevents individuals with mental health problems from seeking help (Vogel et al., 2007), if LKM and CM can reduce the common structure of stigma, these approaches may also reduce mental health stigma and improve mental health help-seeking attitudes. Because research is just beginning to examine the effects of LKM and CM on stigma change (Kang & Falk, 2020), additional research is needed to test whether LKM and CM can help improve mental health help-seeking via reduced generalized and mental health stigma.

Moreover, the present research has shown that the concepts of stigma and prejudice should not be treated on separate tracks of development. It is noteworthy that the literature on prejudice reduction has offered different interventions for reducing prejudice (Paluck & Green, 2009; Paluck et al., 2021), such as contact based interventions involving equal status contact between members of majority and minority groups (Allport, 1954), social categorization interventions that involve rearranging or questioning ingroup-outgroup boundaries (Hall et al., 2009), and value consistency interventions that focus on affirming or reaffirming egalitarian values (Eisenstadt et al., 2003), and these antiprejudice approaches might be relevant to stigma reduction. As the field is new to examine the effects of compassion and lovingkindness on generalized stigma, additional research must examine whether and how these antiprejudice approaches can be integrated with lovingkindness- and compassion-based interventions to strengthen our understanding of, and abilities to fight, stigma and prejudice.

Overall, the present research adds to the stigma literature by showing that a generality may exist across stigmas, and that this generality presents some dispositional characteristics that may leave individuals prone to developing stigmas toward members of minority groups. Relatedly, the current research adds to our knowledge of stigma intervention by demonstrating that positive emotions of lovingkindness and compassion, may allow individuals to become less susceptible to this development.

Limitations

Participant Pool

Several limitations of the studies should be noted. First, the samples used consisted predominantly of young female participants, which might not be representative of the age and gender diversity of the general population. Furthermore, most participants were college students and were not working adults, which might limit the generalizability of the results, particularly for those professions with higher chances of resulting in compassion fatigue and burnout. In addition, the present studies were conducted with Chinese participants, which might not be representative of levels of ethnic and cultural diversity found in other societies and regions of the world. Against this background, it is clear that further research is necessary to develop a stronger understanding of current findings. Future studies should examine the GSS and the proposed LKM/CM-based intervention approaches with more diversified samples, with different professional groups (such as caring professionals), and across different ethnic and cultural backgrounds. By comparing the consistency of relationships

across samples of different ethnic and cultural backgrounds, a stronger basis might be found for the proposed conceptualizations and mechanisms of generalized stigma.

Mechanisms

Second, the studies involved only a modest assessment of the mechanisms of lovingkindness and compassion on stigma, which included the mediating roles of concern for all humanity and social dominance orientation (Study 2) and the emotional states of lovingkindness and compassion (Study 3). To better understand how LKM and CM impact the general tendency to stigmatize, it is important to understand the change mechanisms of these meditation practices (Kirby et al., 2017). LKM and CM traditionally involve directing lovingkindness and compassion toward different imagined targets: the self, a loved one, someone challenging, and people all around the world (Hofmann et al., 2011; Shonin et al., 2015). With different imagined targets, LKM and CM may influence generalized stigma through different mechanisms (e.g., increases in secure attachment and decreases in interpersonal distress) (Mikulincer et al., 2005; Paolini et al., 2004). A potential area for future study may involve investigating which components and procedures of LKM and CM are most effective at reducing stigma and through what pathways.

In addition, with respect to the mechanisms underlying LKM and CM on stigmatizing attitudes, a number of questions remain unclear. The correlational analyses of Study 2 showed that lovingkindness and compassion were associated with high concern for all humanity and low desire for hierarchy and dominance. However, the longitudinal results of Study 3b did not support the suggestion that increasing lovingkindness and compassion would lead to changes

in these two variables. It is possible that people with high levels of lovingkindness and compassion did not experience a greater change in the two variables following LKM and CM practices because their values and beliefs were already consistent with LKM and CM teachings. Future studies should test the effects of LKM and CM on individuals with low levels of lovingkindness and compassion (e.g., those with compassion fatigue). The two mediating mechanisms are not supported by the results of Study 3b, which may suggest that different constructs may have different requirements in terms of levels of LKM and CM training. A 10-min self-practice exercise administered for 4 weeks may not be sufficient to change an individual's orientations toward all humanity and views of social hierarchy. A previous experimental study (Brito-Pons et al., 2018) reports a significant impact of LKM and CM on identification with all humanity, but the authors employed a more intensive training program, involving nine 2-hr weekly classes and 30-min daily practice performed at home for nine weeks. A more intensive training protocol may be required to change an individual's level of concern for all humanity and social dominance orientation.

Behavioral Outcomes

Finally, although multiple studies (Studies 2, 3a, and 3b) found that lovingkindness and compassion led to a reduction in generalized stigma, the studies lacked behavioral outcome measures. In fact, minimal prior research has attempted to examine the interpersonal behavior outcomes of lovingkindness or compassion via behavioral tasks, including the Simon task (which measures the extent to which individuals co-represent the actions of others and their own) and the redistribution game (which measures the extent to which individuals express fairness and altruism toward suffering others) (Colzato et al., 2012; Weng et al., 2013). Future

research should extend the investigation of generalized stigma, the validation of the GSS, and the use of LKM and CM as stigma interventions with these behavioral tasks.

Chapter 6. Concluding Comments

Stigma remains a major source of discrimination and social exclusion around the world, and considerable action is needed on all fronts (World Health Organization, 2013). Critically, the tendency to stigmatize others can be generalized across different minority groups. Across the studies, the present work developed and validated an assessment tool, the GSS, and provided empirical evidence to indicate that generalized stigma may be a meaningful construct for understanding, monitoring, and combating stigma. Furthermore, as potential stigma reduction methods, practices of LKM and CM weakened the tendency to stigmatize. Overall, the present work highlights the need for further study on the general tendency to stigmatize and draws attention to the potential role of LKM and CM in counteracting stigma. These insights can guide the development of effective interventions to curb stigma and deepen connections between people across human differences.

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Table 1.1. EFA of the GSS items used in Study 1.

Item	Conceptual dimension	Factor loading		
		Factor 1	Factor 2	Factor 3
1. If I were a worker in the service industry (e.g., waiter/waitress, barber), I would be pleased to provide services to minorities. [R]	Behavior: Leisure	**0.87**	0.13	0.19
2. I would be willing to participate together with minorities in activities held by a community center. [R]	Behavior: Community	**0.86**	0.15	0.21
3. If I were a law professional, I would be pleased to provide legal services to minorities. [R]	Behavior: Legal	**0.85**	0.07	0.16
4. If I were a teacher/staff member of a school, I would give equal opportunities for enrollment to minorities. [R]	Behavior: Study	**0.84**	0.11	0.26
5. I would be willing to live in the same building with minorities. [R]	Behavior: Neighborhood	**0.74**	0.20	0.18
6. I would be willing to work with minorities at the same institution. [R]	Behavior: Work	**0.68**	0.29	0.08
7. Being around minorities makes me frightened.	Affect: Fear	0.09	**0.77**	0.25
8. When I am told to get along with minorities, I feel sad.	Affect: Sadness	0.28	**0.77**	0.11
9. I would not feel happy about getting along with minorities.	Affect: Joylessness	0.29	**0.76**	0.21
10. The acts of minorities irritate me.	Affect: Anger	0.08	**0.74**	0.27
11. Minorities make me feel revulsion.	Affect: Disgust	0.26	**0.70**	0.32
12. If I find out that someone around me is a minority, I feel stunned.	Affect: Surprise	0.02	**0.69**	0.07
13. It is justified that minorities are being negatively stereotyped.	Cognition: Stereotyping	0.16	0.12	**0.81**

Item	Conceptual dimension	Factor loading		
		Factor 1	Factor 2	Factor 3
14. I believe the negative labels for minorities are legitimate.	Cognition: Labeling	0.25	0.16	**0.77**
15. It is justified that the social status of minorities is lower than others.	Cognition: Status Loss	0.29	0.17	**0.72**
16. Members of the general public usually define themselves as "us" while they classify minorities as "them". This sense of separation is justified.	Cognition: Separating	0.01	0.20	**0.70**
17. It is fair that minorities are treated differently compared to others.	Cognition: Discriminating	0.14	0.24	**0.69**
18. It is justified that minorities are being stigmatized.	Cognition: Stigmatization	0.36	0.28	**0.66**
	Eigenvalue	7.73	2.39	1.76
Variance explained (%)		42.95	13.28	9.77

[R] Reverse coded items.

Note. Factor loadings with an absolute value greater than .40 are noted in bold.

Table 1.2

Correlations between the GSS and its subscales and other measures in Study 1.

	M	*SD*	2	3	4	5	6	7	8	9	10	11	12
1. Generalized stigma	2.21	0.62	0.83***	0.85***	0.74***	0.60***	0.47***	0.54***	0.31***	0.39***	0.47***	0.48***	-0.46***
2. Generalized stigma: Cognition	2.30	0.81		0.58***	0.40***	0.46***	0.40***	0.38***	0.23***	0.22***	0.40***	0.45***	-0.37***
3. Generalized stigma: Affect	2.34	0.79			0.47***	0.57***	0.36***	0.54***	0.29***	0.39***	0.40***	0.31***	-0.36***
4. Generalized stigma: Behavior	1.99	0.67				0.43***	0.38***	0.39***	0.23***	0.34***	0.35***	0.40***	-0.39***
5. Stigma toward schizophrenia	2.90	0.61					0.39***	0.51***	0.26***	0.30***	0.47***	0.42***	-0.35***
6. Stigma toward autism	2.33	0.66						0.45***	0.29***	0.28***	0.35***	0.25***	-0.25***
7. Stigma toward HIV	2.62	0.89							0.18**	0.33***	0.33***	0.21**	-0.40***
8. Stigma toward physical disability	3.12	0.60								0.16*	0.20**	0.19**	-0.11
9. Stigma toward homosexuality	2.18	0.83									0.35***	0.37***	-0.20**
10. Stigma toward ethnic minority	2.83	0.53										0.37***	-0.38***
11. Social dominance	2.92	0.77											-0.38***
12. Critical action against stigma	3.48	1.03											

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 1.3

Hierarchical linear regression analyses of specific stigmas and critical action against stigma as dependent variables in Study 1.

	Stigma toward schizophrenia		Stigma toward autism		Stigma toward HIV		Stigma toward physical disability		Stigma toward homosexuality		Stigma toward ethnic minority		Critical action against stigma	
	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2
Social dominance, β	0.42^{***}	0.17^{**}	0.25^{***}	0.04	0.21^{**}	-0.07	0.19^{**}	0.06	0.37^{***}	0.24^{***}	0.37^{***}	0.19^{**}	-0.37^{***}	-0.20^{**}
Generalized stigma, β		0.52^{***}		0.45^{***}		0.57^{***}		0.28^{***}		0.28^{***}		0.38^{***}		-0.36^{***}
ΔR^2	0.18^{***}	0.21^{***}	0.06^{***}	0.15^{***}	0.04^{**}	0.25^{***}	0.04^{**}	0.06^{***}	0.13^{***}	0.06^{***}	0.14^{***}	0.11^{***}	0.14^{***}	0.10^{***}

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2.1

Descriptive statistics of and correlations among variables in Study 2.

	M	*SD*	2	3	4	5	6
1. Lovingkindness	3.40	0.56	0.34***	0.34***	-0.15**	-0.18***	-0.15**
2. Compassion	3.47	0.59		0.45***	-0.33***	-0.25***	-0.29***
3. Concern for all humanity	3.26	0.73			-0.28***	-0.27***	-0.26***
4. Social dominance orientation	2.98	0.78				0.48***	0.41***
5. Generalized stigma	2.25	0.64					0.53***
6. Schizophrenia stigma	2.89	0.65					

** $p < 0.01$; *** $p < 0.001$

Table 2.2

Standardized parameter estimates for the lovingkindness model of generalized stigma reduction in Study 2. Gender was included as a covariate.

			Standardized β
Direct path			
Lovingkindness	→	Concern for all humanity	0.34***
Lovingkindness	→	Social dominance orientation	-0.15**
Lovingkindness	→	Generalized stigma	-0.07
Concern for all humanity	→	Generalized stigma	-0.12*
Social dominance orientation	→	Generalized stigma	0.44***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2.3

Bootstrap analyses of indirect effects in the lovingkindness model of generalized stigma reduction in Study 2. Gender was included as a covariate.

					Standardized indirect effect [95% CI]
Lovingkindness	→	Concern for all humanity	→	Generalized stigma	-0.04 [-0.076, -0.086]
Lovingkindness	→	Social dominance orientation	→	Generalized stigma	-0.06 [-0.114, -0.016]

Table 2.4

Standardized parameter estimates for the compassion model of generalized stigma reduction in Study 2. Gender was included as a covariate.

			Standardized β
Direct path			
Compassion	→	Concern for all humanity	0.44***
Compassion	→	Social dominance orientation	-0.33***
Compassion	→	Generalized stigma	-0.06
Concern for all humanity	→	Generalized stigma	-0.12*
Social dominance orientation	→	Generalized stigma	0.43***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2.5

Bootstrap analyses of indirect effects in the compassion model of generalized stigma reduction in Study 2. Gender was included as a covariate.

						Standardized indirect effect [95% CI]
Compassion	→	Concern for all humanity	→	Generalized stigma	→	-0.05 [-0.098, -0.014]
Compassion	→	Social dominance orientation	→	Generalized stigma	→	-0.14 [-0.191, -0.090]

* $p < 0.05$; ** $p < 0.01$

Table 2.6

Standardized parameter estimates for the lovingkindness model of schizophrenia stigma reduction in Study 2. Gender was included as a covariate.

			Standardized β
Direct path			
Lovingkindness	→	Concern for all humanity	0.34***
Lovingkindness	→	Social dominance orientation	-0.15**
Lovingkindness	→	Generalized stigma	-0.07
Concern for all humanity	→	Generalized stigma	-0.12*
Social dominance orientation	→	Generalized stigma	0.44***
Lovingkindness	→	Schizophrenia stigma	-0.02
Concern for all humanity	→	Schizophrenia stigma	-0.10*
Social dominance orientation	→	Schizophrenia stigma	0.18***
Generalized stigma	→	Schizophrenia stigma	0.42***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2.7

Bootstrap analyses of indirect effects in the lovingkindness model of schizophrenia stigma reduction in Study 2. Gender was included as a covariate.

							Standardized indirect effect [95% CI]
Lovingkindness	→	Concern for all humanity	→	Schizophrenia stigma			-0.03 [-0.065, -0.002]
Lovingkindness	→	Social dominance orientation	→	Schizophrenia stigma			-0.03 [-0.052, -0.005]
Lovingkindness	→	Generalized stigma	→	Schizophrenia stigma			-0.03 [-0.078, 0.015]
Lovingkindness	→	Concern for all humanity	→	Generalized stigma	→	Schizophrenia stigma	-0.02 [-0.033, -0.004]
Lovingkindness	→	Social dominance orientation	→	Generalized stigma	→	Schizophrenia stigma	-0.03 [-0.052, -0.006]

* $p < 0.05$

Table 2.8

Standardized parameter estimates for the compassion model of schizophrenia stigma reduction in Study 2. Gender was included as a covariate.

			Standardized β
Direct path			
Compassion	→	Concern for all humanity	0.44***
Compassion	→	Social dominance orientation	-0.33***
Compassion	→	Generalized stigma	-0.06
Concern for all humanity	→	Generalized stigma	-0.10*
Social dominance orientation	→	Generalized stigma	0.35***
Compassion	→	Schizophrenia stigma	-0.11*
Concern for all humanity	→	Schizophrenia stigma	-0.06
Social dominance orientation	→	Schizophrenia stigma	0.13*
Generalized stigma	→	Schizophrenia stigma	0.42***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2.9

Bootstrap analyses of indirect effects in the compassion model of schizophrenia stigma reduction in Study 2. Gender was included as a covariate.

							Standardized indirect effect [95% CI]
Compassion	→	Concern for all humanity	→	Schizophrenia stigma			-0.03 [-0.076, 0.017]
Compassion	→	Social dominance orientation	→	Schizophrenia stigma			-0.05 [-0.089, -0.018]
Compassion	→	Generalized stigma	→	Schizophrenia stigma			-0.02 [-0.073, 0.017]
Compassion	→	Concern for all humanity	→	Generalized stigma	→	Schizophrenia stigma	-0.02 [-0.044, -0.006]
Compassion	→	Social dominance orientation	→	Generalized stigma	→	Schizophrenia stigma	-0.06 [-0.089, -0.033]

* $p < 0.05$; ** $p < 0.01$

Table 3.1

Sample characteristics of Study 3a participants across groups at baseline.

Characteristic	LKM exercise (n = 70)	CM exercise (n = 71)	Neutral imagery exercise (n = 68)
Female	78.9%	80.0%	80.9%
Undergraduate students	83.1%	70.0%	75.0%
Monthly household income (median)	HK$20,001 and HK$30,000	HK$20,001 and HK$30,000	HK$20,001 and HK$30,000
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
Age	21.40 (2.52)	21.41 (2.49)	22.07 (3.50)
Emotional state of lovingkindness	3.39 (0.91)	3.09 (1.11)	3.01 (1.11)
Emotional state of compassion	3.12 (0.93)	2.80 (1.21)	2.84 (1.14)
Generalized stigma	2.22 (0.68)	2.26 (0.71)	2.22 (0.55)
Schizophrenia stigma	2.84 (0.66)	2.89 (0.63)	2.93 (0.60)

Table 3.2

Pre- and post-assessments and group x time interaction effects for a 10-min CM exercise, a 10-min LKM exercise, and a 10-min neutral imagery exercise in Study 3a.

	CM exercise				LKM exercise				Neutral imagery exercise				Group × time interaction		
	Pre		Post		Pre		Post		Pre		Post				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	η_p^2
Emotional state of lovingkindness	3.09	1.11	3.53	0.96	3.39	0.91	3.54	0.97	3.01	1.11	2.79	1.17	13.70	<0.001	0.12
Emotional state of compassion	2.80	1.21	3.46	1.02	3.12	0.93	3.46	1.01	2.84	1.14	2.63	1.16	19.74	<0.001	0.16
Generalized stigma	2.26	0.71	1.98	0.57	2.22	0.68	2.00	0.63	2.22	0.55	2.18	0.53	5.22	0.006	0.05
Schizophrenia stigma	2.89	0.63	2.62	0.63	2.84	0.66	2.68	0.53	2.93	0.60	2.80	0.58	1.74	0.178	0.02

Table 3.3

Within- and between-group difference for a 10-min CM exercise, a 10-min LKM exercise, and a 10-min neutral imagery exercise in Study 3a.

	Within-group difference			Between-group difference		
	Mean difference (p, η_p^2)			Change difference (p, η_p^2)		
	CM exercise	LKM exercise	Neutral Imagery	CM–Neutral	LKM–Neutral	CM–LKM
Emotional state of lovingkindness	0.44 (<0.001, 0.23)	0.15 (0.049, 0.05)	-0.23 (0.018, 0.08)	0.66 (<0.001, 0.15)	0.38 (0.002, 0.07)	0.28 (0.025, 0.04)
Emotional state of compassion	0.66 (<0.001, 0.34)	0.34 (<0.001, 0.18)	-0.21 (0.033, 0.07)	0.86 (<0.001, 0.20)	0.54 (<0.001, 0.12)	0.32 (0.024, 0.04)
Generalized stigma	-0.28 (<0.001, 0.20)	-0.22 (<0.001, 0.22)	-0.04 (0.312, 0.02)	-0.24 (0.003, 0.06)	-0.18 (0.007, 0.05)	-0.06 (0.463, <0.01)
Schizophrenia stigma	-0.27 (<0.001, 0.23)	-0.16 (0.006, 0.10)	-0.13 (0.003, 0.12)	-0.13 (0.070, 0.02)	-0.03 (0.704, 0.00)	-0.11 (0.194, 0.01)

Table 3.4

Sample characteristics of Study 3b participants across groups at baseline.

Characteristic	LKM exercise (n = 49)	CM exercise (n = 49)	PPMR training (n = 50)
Female (%)	87.8%	89.8%	86.0%
Undergraduate students (%)	77.6%	71.4%	72.0%
Monthly household income (median)	HK$20,001 and HK$30,000	HK$20,001 and HK$30,000	HK$20,001 and HK$30,000
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
Age	22.17 (2.45)	21.87(2.58)	22.96 (3.52)
Lovingkindness	3.29 (0.61)	3.41 (0.55)	3.54 (0.49)
Compassion	3.42 (0.62)	3.41 (0.60)	3.46 (0.65)
Concern for all humanity	3.32 (0.77)	3.37 (0.70)	3.32 (0.77)
Social dominance orientation	3.06 (0.78)	2.88 (0.86)	3.04 (0.68)
Generalized stigma	2.35 (0.72)	2.25 (0.61)	2.19 (0.51)
Schizophrenia stigma	2.92 (0.70)	2.83 (0.57)	2.87 (0.64)

Table 3.5

Pre- and post-assessments and group x time interaction effects for 4-week CM training, 4-week LKM training, and 4-week PPMR training in Study 3b.

	CM training				LKM training				PPMR training				Group × time interaction		
	Pre		Post		Pre		Post		Pre		Post				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	η_p^2
Lovingkindness	3.41	0.55	3.55	0.59	3.29	0.61	3.53	0.58	3.54	0.49	3.55	0.56	2.56	0.081	0.03
Compassion	3.41	0.60	3.60	0.62	3.42	0.62	3.49	0.58	3.46	0.65	3.41	0.57	2.45	0.089	0.03
Concern for all humanity	3.37	0.70	3.57	0.86	3.32	0.77	3.41	0.70	3.32	0.77	3.32	0.79	1.09	0.338	0.01
Social dominance orientation	2.88	0.86	2.92	0.86	3.06	0.78	2.93	0.89	3.04	0.68	3.17	0.65	1.80	0.169	0.02
Generalized stigma	2.25	0.61	2.09	0.69	2.35	0.72	2.20	0.73	2.19	0.51	2.32	0.64	5.99	0.003	0.08
Schizophrenia stigma	2.83	0.57	2.74	0.64	2.92	0.70	2.81	0.72	2.87	0.64	2.87	0.64	0.05	0.954	0.00

Table 3.6

Within- and between-group difference for 4-week CM training, 4-week LKM training, and 4-week PPMR training in Study 3b.

	Within-group difference			Between-group difference		
	Mean difference (p, η_p^2)			Change difference (p, η_p^2)		
	CM Training	LKM Training	PPMR Training	CM–PPMR	LKM–PPMR	CM–LKM
Lovingkindness	0.14 (0.100, 0.06)	0.24 (0.001, 0.21)	0.01 (0.839, <0.01)	0.13 (0.235, 0.02)	0.23 (0.016, 0.06)	-0.11 (0.332, 0.01)
Compassion	0.19 (0.036, 0.09)	0.06 (0.391, 0.02)	-0.05 (0.480, 0.01)	0.24 (0.037, 0.04)	0.11 (0.269, 0.01)	0.13 (0.254, 0.01)
Concern for all humanity	0.20 (0.074, 0.07)	0.09 (0.962, <0.01)	<0.01 (1.000, <0.01)	0.20 (0.201, 0.02)	0.09 (0.973, <0.01)	0.11 (0.206, 0.02)
Social dominance orientation	0.04 (0.649, <0.01)	-0.13 (0.259, 0.03)	0.13 (0.180, 0.04)	-0.09 (0.468, <0.01)	-0.26 (0.082, 0.03)	0.17 (0.237, 0.01)
Generalized stigma	-0.16 (0.026, 0.10)	-0.15 (0.029, 0.10)	0.14 (0.060, 0.07)	-0.30 (0.004, 0.08)	-0.28 (0.004, 0.08)	-0.01 (0.902, <0.01)
Schizophrenia stigma	-0.09 (0.303, 0.02)	-0.11 (0.161, 0.04)	-0.07 (0.259, 0.03)	-0.02 (0.866, <0.01)	-0.03 (0.738, <0.01)	0.01 (0.899, <0.01)

Figure 1.1 Confirmatory factor analysis of the Generalized Stigma Scale in Study 1.

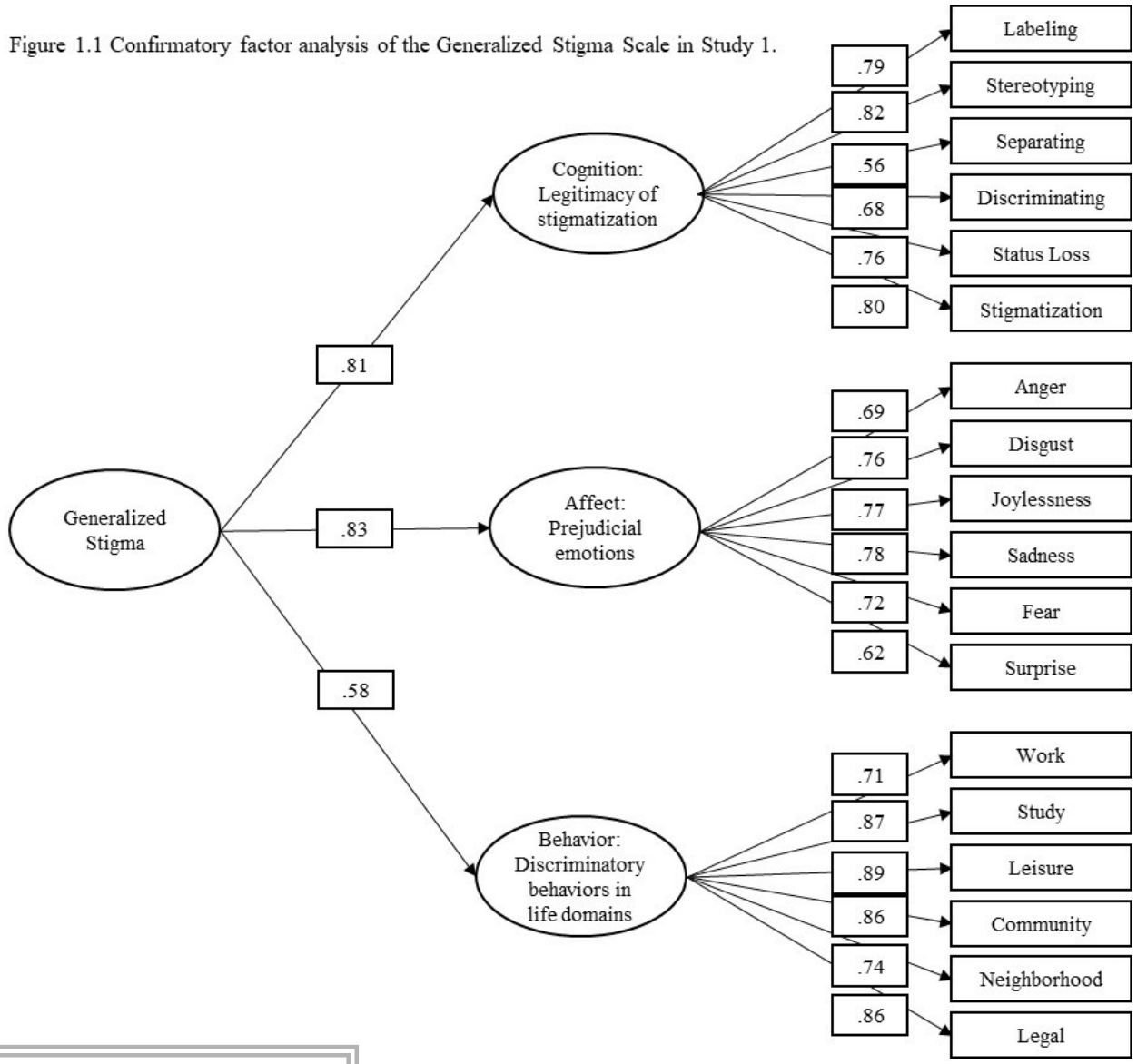

Figure 2.1

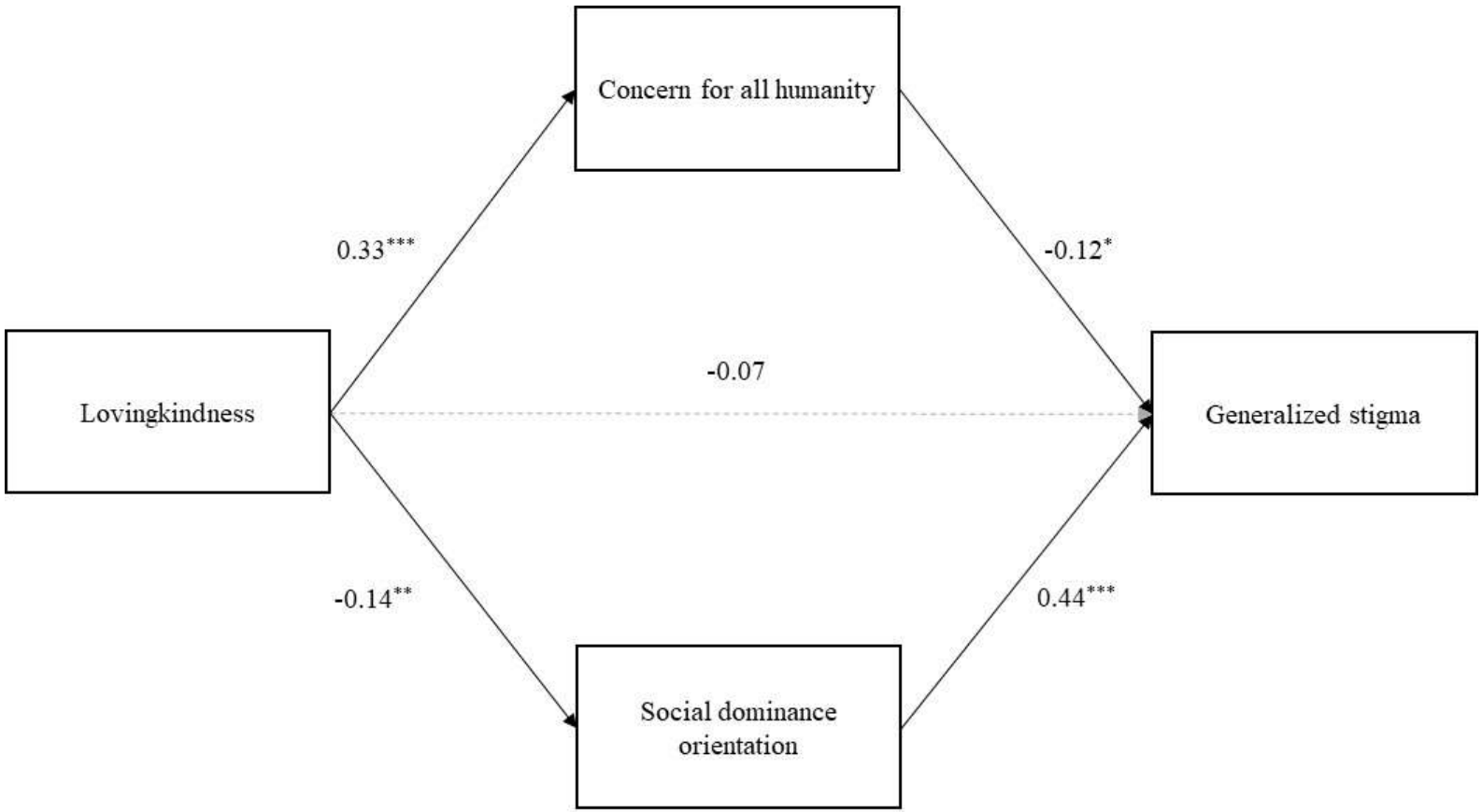

Fig. 2.1 Lovingkindness model of generalized stigma reduction in Study 2. Standardized path coefficients are presented. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Gender was included as a covariate.

Figure 2.2

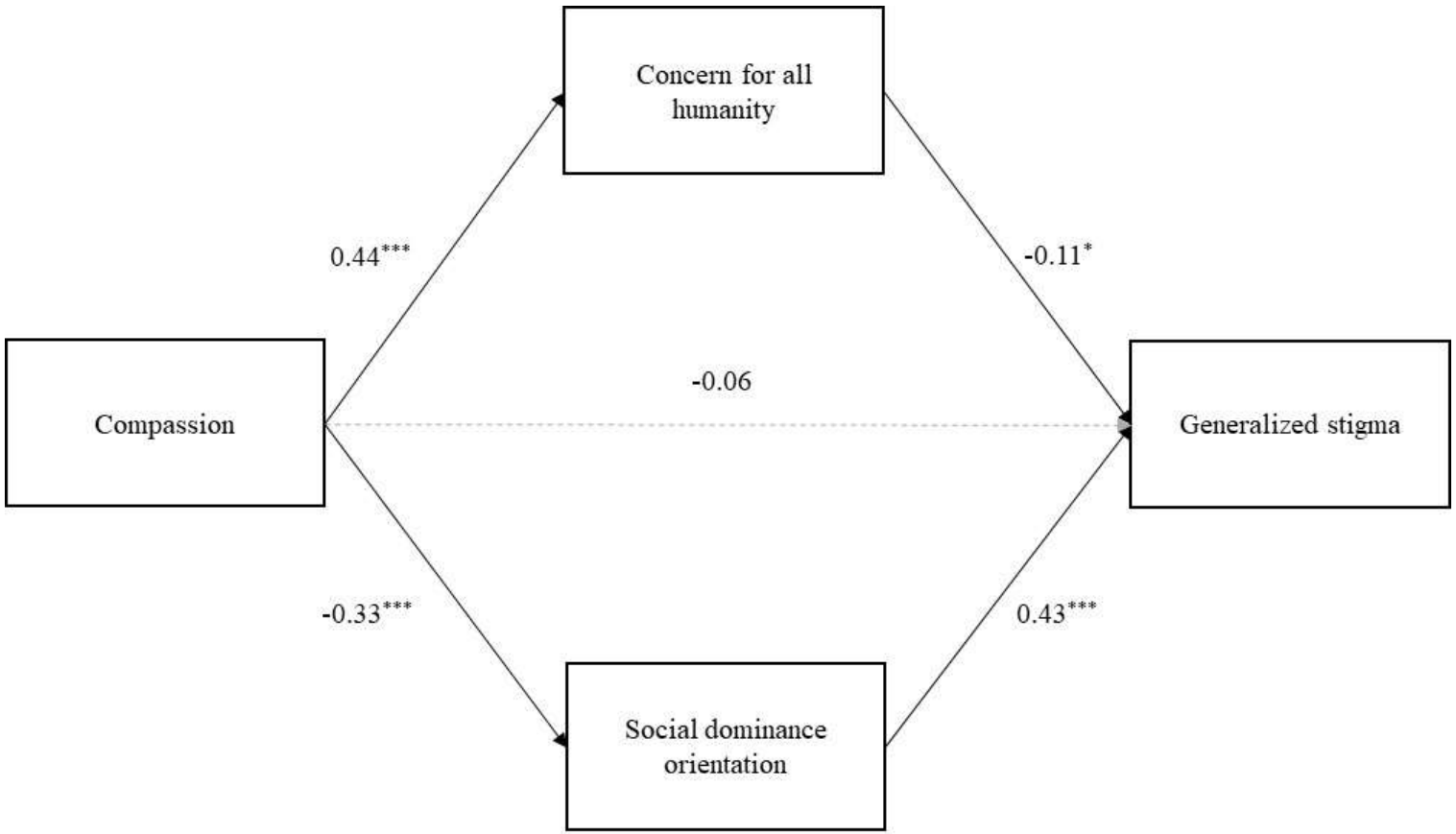

Fig. 2.2 Compassion model of generalized stigma reduction in Study 2. Standardized path coefficients are presented. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Gender was included as a covariate.

Figure 2.3

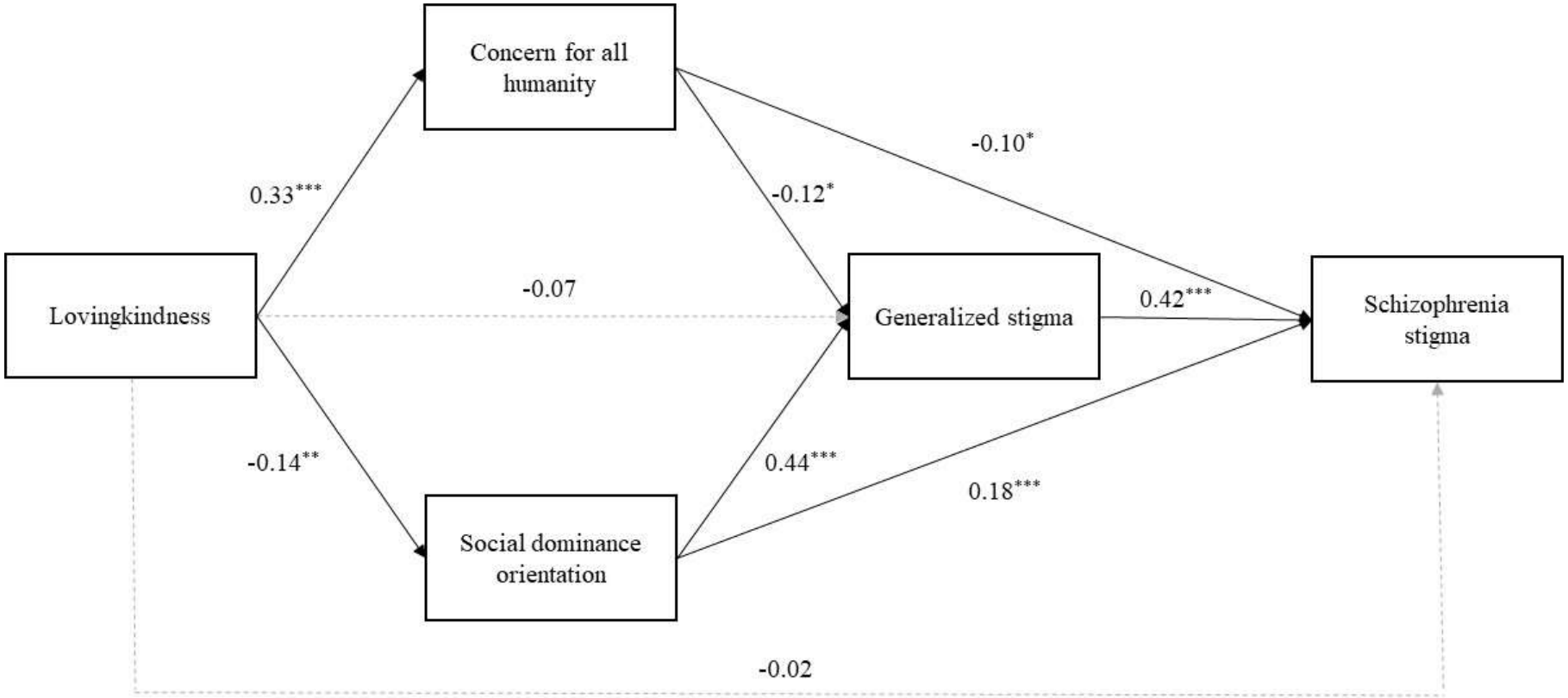

Fig. 2.3 Lovingkindness model of schizophrenia stigma reduction in Study 2. Standardized path coefficients are presented. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Gender was included as a covariate.

Figure 2.4

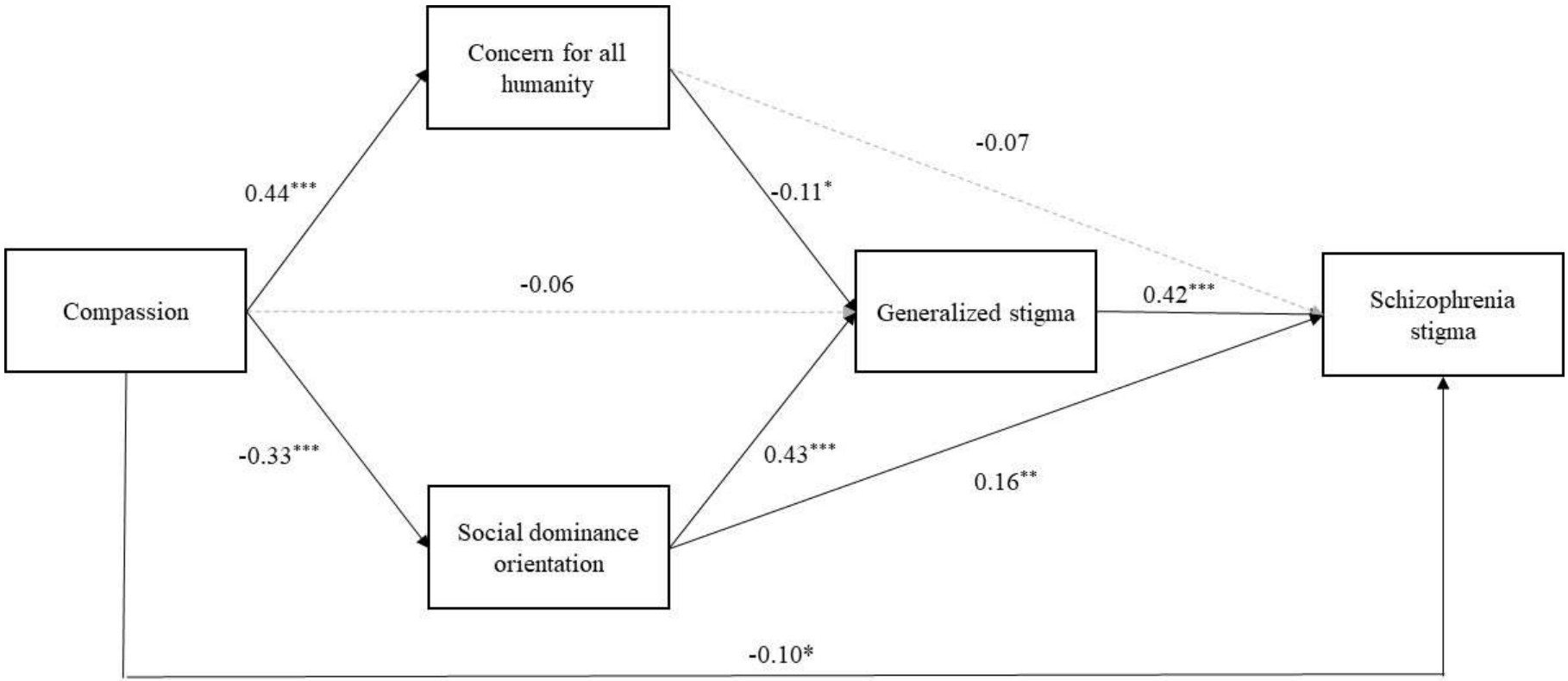

Fig. 2.4 Compassion model of schizophrenia stigma reduction in Study 2. Standardized path coefficients are presented. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Gender was included as a covariate.