Audience Response to Photovoice as a Mental Illness Antistigma Intervention

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Abstract

The present study examined the effectiveness and efficacy of a novel antistigma intervention in reducing mental illness stigma, as well as the role of audience empathy as a mediator of stigma reduction following antistigma intervention. Study 1 examined the effectiveness of an antistigma intervention developed through grassroots collaboration between the Canadian Mental Health Association and individuals that have experienced mental illness. This intervention was unique in that it featured a multimodal format that combined psychoeducation, live contact, and a Photovoice video, which has not been examined as an antistigma intervention in the literature to date. Fifty-two students viewed the intervention and completed measures of mental illness stigma at both pre- and post-intervention. Results showed that participants reported decreased mental illness stigma from pre- to post-intervention. Study 2 built off of these findings to examine the efficacy of the Photovoice video as a standalone online antistigma intervention. Online antistigma videos have not been widely researched in the literature, despite the low-cost and dissemination benefits associated with an online video format. Three hundred and three students were randomly assigned to either the Photovoice video (n = 156) or a control video (n = 147). Results indicated that the Photovoice video was efficacious in reducing mental illness stigma, including reduced fear, anger, perceived dangerousness, and desired social distance between pre- and post-intervention, relative to the control. In addition, 104 participants (Photovoice = 56; control = 48) returned to complete follow-up measures at 1-month post-intervention. Photovoice was efficacious in maintaining reduced desired social distance relative to the control, indicative of a continued willingness to interact with individuals that have a mental illness. Finally, viewer empathy was found to mediate the relationship between the Photovoice intervention and reduced mental illness stigma, suggesting that the Photovoice video

reduced mental illness stigma by eliciting empathy in the viewer. Implications for the development of antistigma interventions are discussed, as well as limitations of the study and directions for future research.

Table of Contents

List of Appendices

List of Tables

List of Figures

Mental Illness Stigma

Stigmatization of mental illness has received increased awareness in recent years. In Canada, the Mental Health Commission of Canada (MHCC) implemented the *Opening Minds* antistigma initiative (MHCC, 2012a; Stuart et al., 2014a) and identified stigma reduction as a top priority in Canada's first mental health strategy (MHCC, 2012b). Other major Canadian antistigma campaigns include Bell Canada's *Bell Let's Talk* initiative and the Mood Disorders Society of Canada's *Elephant in the Room* campaign. These developments have mirrored global efforts to reduce mental illness stigma, such as the *Stigmabusters* program in the United States, the *Time to Change* and *See Me* antistigma campaigns in the United Kingdom, the *Say No to Stigma* campaign in Australia, the *Like Minds, Like Mine* campaign in New Zealand, and the international *Open the Doors* program developed by the World Psychiatric Organization. Consistent with this growing awareness, research has suggested that the public may have a better understanding of the etiology and treatability of mental disorder (Pescosolido et al., 2010).

This dissertation examines the effectiveness and efficacy of a novel antistigma intervention in reducing mental illness stigma, as well as the role of audience empathy as a possible mediator of the relationship between antistigma interventions and post-intervention stigma reduction. In the first section, the concept of mental illness stigma is explored including an examination of leading theories of mental illness stigma. Next, study 1 provides a summary and comparison of common antistigma approaches, and examines the effectiveness of a mental illness antistigma intervention that features education, Photovoice, live contact. This section also describes additional variables that may be associated with stigma and with responses to antistigma interventions, such as prosocial responses and mental health familiarity. Study 2 reviews online video-based antistigma interventions and examines the efficacy of a novel online antistigma

video (Photovoice). Finally, empathy is examined as a potential mediator of the relationship between an antistigma intervention and reductions in mental illness stigma at post-intervention, which may help provide some insight into the mechanisms of action for antistigma interventions.

The Pervasiveness of Stigma

Despite increasing public knowledge about mental illness and the identification of effective antistigma interventions (Corrigan, Morris, Michaels, Rafacz, & Rüsch, 2012), negative responses toward people with a mental illness continue to exist (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000) and may have worsened (Schomerus et al., 2012). For example, a study comparing public attitudes toward mental illness over a 50-year period found an increase in the perception that people with a mental illness are dangerous, notably for the more severe mental disorder of schizophrenia (Phelan, Link, Stueve, & Pescosolido, 2000). Mental illness stigma is also evident in health service providers, including health care students, (Law, Rostill-Brookes, & Goodman, 2009), medical professionals (Atzema, Schull, & Tu, 2011; Lyons & Ziviani, 1995; Ross & Goldner, 2009), and mental health professionals (Lauber, Nordt, Braunschweig, & Rössler, 2006; Loch et al., 2013; Nordt, Rössler, & Lauber, 2006). As such, the burden of mental illness is twofold: individuals must cope not only with the symptoms of their disorder, but also with stigmatization by the general public and health care professionals (Corrigan, 2000; Corrigan & Wassel, 2008; Patten et al., 2016; Rüsch, Angermeyer, & Corrigan, 2005).

The Cost of Stigma

The need for antistigma interventions is evidenced by the human and economic cost of mental heath to Canada (MHCC, 2012b). Stigma contributes to the unmet need for mental health care, where the fear of being stigmatized contributes to treatment avoidance and poor adherence to treatment protocols resulting in unnecessarily prolonged suffering (Corrigan, 2004). In

Canada, an estimated 18% of Canadians have reported needing mental health treatment but not accessing it due to fear of what others would think (Statistics Canada, 2003). In addition to this human cost, stigma contributes to the economic burden of mental illness (Sharac, McCrone, Clement, & Thornicroft, 2010). Untreated mental illness contributes to rising health care costs through repeated hospital admissions (Weiden & Olfson, 1995), and to lost productivity, which is estimated to be $51 billion annually in Canada (Lim, Jacobs, Ohinmaa, Schopflocher, & Dewa, 2008). The human and financial cost of mental illness stigma necessitates greater understanding of how stigma occurs and is perpetuated, and of how to develop interventions that reduce the negative impact of stigma on people with a mental illness.

Social Cognitive Components of Stigma

Stigma has been widely researched by different professions and across various marginalized groups, which has resulted in inconsistent definitions of the term *stigma* in the literature (Link & Phelan, 2001). Social cognitive theory conceptualizes stigma as negative cognitive, emotional, and behavioural reactions that occur within an individual toward a marginalized group (Corrigan, 2000; Corrigan & Lee, 2013; Fiske, 1998; Link & Phelan, 2001), where these reactions are respectively equated with stereotyping, prejudice, and discrimination (Corrigan, 2000; Corrigan, 2002; Corrigan & Lee, 2013; Fiske, 1998; Link & Phelan, 2001; Link, Yang, Phelan, & Collins, 2004; Penn & Martin, 1998; Rüsch, Angermeyer, & Corrigan, 2005). Stigma may be differentiated between public-stigma, self-stigma, and structural-stigma, based on the perpetrator of the stigmatizing reaction. Public stigma refers to stigmatizing reactions by the general public toward people with a mental illness; self-stigma occurs when people with a mental illness internalize stigmatizing responses and experience negative perceptions toward themselves, such as reduced self-esteem and self-efficacy (Corrigan &

Watson, 2002); and structural stigma occurs when the policies of societal institutions intentionally or unintentionally have a negative impact on a particular marginalized group of individuals (Corrigan, Markowitz, & Watson, 2004).

Social cognitive models generally view stigma as occurring in response to a signal in the environment that indicates an individual is a member of a marginalized group, such as people with a mental illness (Corrigan, 2000; Corrigan, 2002; Link & Phelan, 2001). As such, the term *mental illness stigma* is commonly defined as negative cognitive, emotional, or behavioural reactions elicited by signals that an individual has a mental illness. Delineating each of these key components of stigma may assist in understanding why stigma occurs and how it may be reduced through antistigma interventions.

Signals

Individuals may be categorized into groups based on a variety of phenotypic characteristics. While some of these characteristics carry little social meaning (e.g., eye colour), some characteristics have been socially defined as meaningful (e.g., race, physical disability), where group membership is associated with salient connotations (Link et al., 2004; Rüsch et al., 2005). Several theorists have proposed that stigma is initiated by these socially meaningful characteristics that indicate an individual is a member of a stigmatized group, such as people with a mental illness (Allport, 1954; Goffman, 1963; Link & Phelan, 2001; Rüsch et al., 2005). Unlike race or physical disability, however, people with a mental illness may not possess a salient phenotypic characteristic that signals group membership (Corrigan, 2000). Thus, the presence of mental illness must be inferred through various signals, such as knowledge that a person has a mental disorder diagnosis (i.e., labelling), or physical indicators of mental illness,

such as the presence of symptoms, deficits in social skills, and disheveled or abnormal physical appearance (Corrigan, 2000; Penn & Martin, 1998).

Labels. Simply labelling an individual as having a mental illness can elicit stigma in the absence of any context regarding a specific disorder, symptoms, or behaviour (Link, Cullen, Frank, & Wozniak, 1987; Martin, Pescosolido, & Tuch, 2000; Page, 1977; Piner & Kahle, 1984). Furthermore, specific mental disorder diagnostic labels appear to be associated with varying levels of stigma (Szeto, Luong, & Dobson, 2012). For example, the labels substance abuse or substance dependence tends to elicit the greatest levels of stigma, followed by schizophrenia, and depression (Lincoln, Arens, Berger, & Rief, 2008; Martin et al., 2000; Penn et al., 1994). This trend is also found in mental health professionals and mental health agency workers, despite possessing increased knowledge and contact with people that have mental illness relative to the general public (Lauber et al., 2006; Loch et al., 2013; Nordt et al., 2006; Stuart & Arboleda-Flórez, 2001). Labels can also influence the perception of behaviour and interpretation of symptoms. For example, behaviour labelled as mental illness is more highly stigmatized when compared to identical behaviour labelled as physical illness (Socall & Holtgraves, 1992), highlighting the signal strength of labelling.

Symptoms. Symptoms can also signal that an individual has a mental illness in the absence of an explicit label. Researchers often use vignettes describing hypothetical patients' symptom presentations in order to measure varying levels of stigma associated with different symptoms and disorders. Consistent with the aforementioned findings for diagnostic labels, more severe or overt symptoms have been shown to elicit more stigmatizing reactions (Phelan & Basow, 2007), and the highest levels of stigma are associated with substance abuse, substance dependence, and schizophrenia (Angermeyer & Matschinger, 1997; Martin et al., 2000; Nordt et al., 2006; Penn et

al., 1994). However, even relatively common conditions such as depression are stigmatized (Stuart, Patten, Koller, Modgill, & Liinamaa, 2014; Lazowski, Koller, Stuart, & Milev, 2012), including by health care providers (Atzema et al., 2011).

Cognitive/Stereotyping

Stereotyping is often conceptualized as a cognitive reaction that is elicited by signals that indicate an individual has mental illness (Corrigan, 2000; Corrigan & Watson, 2007; Fiske, 1998; Link & Phelan, 2001; Ottati et al., 2005; Rüsch et al., 2005). Stereotypes are defined as "beliefs about the characteristics, attitudes, and behaviours" that are characteristic of members of a given group (Hilton & von Hippel, 1996, p. 240; Judd & Park, 1993). Research suggests that stereotyping is an automatic or nonconscious cognitive process utilized in order to achieve cognitive efficiency (Corrigan, 2000; Hilton & von Hippel, 1996; Link & Phelan, 2001; Rüsch et al., 2005). Individuals may be categorized into groups using signals, and meaningful generalizations (i.e., stereotypes) are then recalled from memory and associated with members of these groups (Allport, 1954; Goffman, 1963; Hilton & von Hippel, 1996).

Stereotyping is not inherently negative, and stereotypes may reflect real differences between groups (Judd & Park, 1993); however, stereotyping contributes to stigma when it consists of group generalizations that are oversimplified and inaccurate (Crocker, Major, & Steele, 1998; Fiske, 1998; Hilton & von Hippel, 1996; Link & Phelan, 2001) as in the case of mental illness stigma (Ottati et al., 2005). Mental illness is associated with various negative stereotypes, including beliefs that people with a mental illness are responsible or to blame for their symptoms (Corrigan, 2002; Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Hayward & Bright, 1997; Schomerus et al., 2012), are unpredictable and incompetent, and have a poor prognosis (Angermeyer & Dietrich, 2006; Angermeyer & Matschinger, 2004; Lincoln et

al., 2008). Perhaps the most pervasive stereotype of people with a mental illness is that they are dangerous or violent (Angermeyer & Matschinger, 2004; 2005; Corrigan, 2002; Crisp et al., 2000; Link et al., 1987; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Martin et al., 2000; Nordt et al., 2006; Pescosolido et al., 2010; Phelan & Basow, 2007; Phelan et al., 2000; Schomerus et al., 2012). For example, despite the prevalence of depression, an estimated 33-56% of the public has endorsed the belief that people with depression are dangerous (Martin et al., 2000; Peluso & Blay, 2009). Dangerousness is most often associated with schizophrenia and substance abuse or dependence (Angermeyer & Dietrich, 2005; Crisp et al., 2000; Link et al., 1999; Martin et al., 2000; Phelan & Basow, 2007). Angermeyer and Matschinger (2005) found that 20% of respondents believed that rates of violent crime committed by people with schizophrenia have increased, and one-third of respondents believed that people with schizophrenia were a serious danger to children (p. 1055). In actuality, people with a mental illness typically exhibit rates of violence that are similar to the general public, where increased violence is associated only with acute psychosis in mental illness, and with substance abuse or dependence in both the general public and people with a mental illness (Stuart, 2003). These findings demonstrate both the potential accuracy of stereotypes (e.g., increased dangerousness in acute psychosis and substance use), as well as the potential inaccuracy and overgeneralization of stereotypes (e.g., people with depression and all people with schizophrenia are dangerous).

Emotional/Prejudice

Prejudice is conceptualized as the negative emotional reaction that occurs in response to people with a mental illness (Corrigan, 2000; Corrigan & Lee, 2013; Crocker et al., 1998; Fiske, 1998; Link et al., 2004; Rüsch et al., 2005). Past research has largely overlooked emotional reactions in the process of stigma endorsement despite its inclusion in contemporary models of

stigma (Angermeyer, Holzinger, & Matschinger, 2010; Fiske, 1998; Link et al., 2004). Instead, a large body of research has focused on the relationship between signals, stereotyping, and discrimination (e.g., Link & Phelan, 2001). However, recent findings have demonstrated the pervasive negative emotional reactions that occur in response to people with a mental illness, including anger, fear, pity (Angermeyer et al., 2010; Angermeyer & Matschinger, 2003; Corrigan, 2000; Corrigan et al., 2003; Sacco & Dunn, 1990; Weiner, 1995; Weiner, Perry, & Magnusson, 1988), irritation, anxiety, and uneasiness (Angermeyer & Dietrich, 2006; Angermeyer et al., 2010; Link et al., 2004). Consistent with the other components of stigma, negative emotional reactions to people with a mental illness appear to have remained constant or worsened over the years, with increased fear and anger toward people with schizophrenia and substance use (Angermeyer et al., 2010). Even fewer studies have examined prosocial emotional responses to people with a mental illness. Initial findings have suggested that individuals may endorse prosocial reactions to people with a mental illness (Angermeyer et al., 2010). For example, Peluso and Blay (2009) found that individuals expressed prosocial emotions of friendliness and warmth toward people with depression, more often than negative emotional reactions, such as anger and fear. Further research into prosocial emotional responses is necessary to understand their role in mental illness stigma.

Behavioural/Discrimination

Discrimination is most often conceptualized as the behavioural component of stigma, consisting of negative, potentially harmful, behavioural reactions or intentions toward people with a mental illness (Crocker et al., 1998). Individuals have been shown to endorse a wide variety of discriminatory behaviour toward people with a mental illness, including segregation from society, coercive treatment, withholding help or opportunities, and, most often, avoiding

contact (Corrigan et al., 2003; Corrigan & Shapiro, 2010; Corrigan & Lee, 2013; Rüsch et al., 2005). These forms of discrimination are often grouped under the overarching concept of *social distance*. Discrimination is commonly assessed using the desired social distance scale, which asks respondents to predict their willingness to interact with people that have mental illness in different social situations (Link et al., 2004). A desire to avoid interacting socially with people that have mental illness results in increased desired social distance, which is thought to be indicative of increased discrimination. Research supports the concept of desired social distance as a proxy of discrimination, where respondents' desire for social distance increases with the intimacy of social interaction (Angermeyer & Matschinger, 1997). Numerous studies have demonstrated that the general public and mental health professionals marginalize people with a mental illness through the endorsement of stigmatizing responses in hypothetical situations and through real-world engagement in discriminatory acts that perpetuate social distance. Hypothetical discriminatory behaviours that are commonly endorsed toward people with a mental illness include refusal to rent a room, unwillingness to have as coworkers, neighbours, child caretakers, or as a child's spouse, and unwillingness to introduce to friends or to recommend for employment (e.g., Link et al., 1987; Martin et al., 2000). Individuals have also endorsed more severe hypothetical discrimination that restricts equal rights for people with a mental illness, including revoking driving licenses, revoking the right to vote, and recommending women with mental illnesses have abortions (Nordt et al., 2006). Naturalistic studies have demonstrated real-world acts of discrimination against people with a mental illness (Rüsch et al., 2005), including refusing to provide accommodations at a rate comparable to former prisoners (Page, 1977), diminished employment opportunities (Bordieri & Drehmer, 1986; Stuart, 2006), and pressing false charges for violent offenses (Sosowsky, 1980). This

desired social distance also inhibits interaction with people that have mental illness, which may perpetuate stigma (Wood & Wahl, 2006).

Consistent with stereotyping and prejudice, the highest rates of discrimination tend to be endorsed for schizophrenia and substance abuse or substance dependence, while lower, though significantly elevated, rates are endorsed toward depression (Angermeyer & Matschinger, 1997; Corrigan, 2002; Mann & Himelein, 2004; Martin et al., 2000; Nordt et al., 2006; Phelan, 2005; Phelan & Basow, 2007). Although the public and mental health professionals have been found to endorse a similar desire for social distance from people with a mental illness, members of the general public have been found to more strongly endorse the restriction of individual rights for people with a mental illness (Nordt et al., 2006).

Social Cognitive Models of Mental Illness Stigma

These negative cognitive, emotional, and behavioural reactions of stigma are amenable to change (Fiske, 1998), supporting the need for antistigma interventions in order to reduce stigma. Social cognitive models of stigma have been developed in order to conceptualize how the aforementioned components occur in mental illness stigma (Corrigan, 2000; Corrigan, 2002; Link et al., 2004; Link & Phelan, 2001), with different models arising from variation in the factors proposed to be relevant to stigma endorsement. The most commonly used social cognitive models of mental illness stigma are Link and Phelan's (2001) conceptualization, the attribution model (Corrigan, 2000), and the cognitive behaviour model (Corrigan & Lee, 2013).

Link and Phelan Model of Stigma

Link and Phelan (2001) conceptualized stigma as a process consisting of four sequential components (Angermeyer & Matschinger, 2004): labelling, stereotyping, separation, and status loss and discrimination. Under this conceptualization, the process of stigma is initiated by the

application of labels to characteristics that indicate an individual has a mental illness (Link & Phelan, 2001; Link et al., 2004), including a formal diagnosis or past hospitalization due to mental health problems (Link et al., 1987). This label is conceptualized to elicit the cognitive processes of stereotyping and separation, where labels are associated with negative characteristics in the form of stereotypes that separate people with a mental illness from the general public (i.e., them versus us; Link & Phelan, 2001; Link et al., 2004). This stereotyping and separation leads to the final component of stigma, where a power differential allows individuals that endorse stigma to engage in discriminatory behaviours that reduce the status of people with a mental illness (Link & Phelan, 2001; Link et al., 2004). This conceptualization was later amended in order to acknowledge the emotional reactions that occur in stigma, where emotional reactions were thought to follow cognitive separation and impact subsequent behavioural responding (Link et al., 2004).

Contributions and evidence. Research has supported the proposed relationship between labelling, stereotyping, and discrimination in stigma. Specifically, the stereotype of dangerousness has been found to mediate the relationship between labelling and discrimination (Phelan & Basow, 2007), notably for schizophrenia and substance use (Angermeyer & Matschinger, 2005; Martin et al., 2000). Another contribution of Link and Phelan's (2001) model is the concept of separation. Separation is theorized to represent a cognitive process in response to labels that categorize an individual as a member of a marginalized social group (i.e., outgroup; Link & Phelan, 2001; Link et al., 2004). Cognitively, individuals tend to attribute less variability to outgroups (i.e., outgroup homogeneity; Fiske, 1998) and thus overestimate the applicability of stereotypes to outgroup members, which provides support for the aforementioned overgeneralization of stereotypes to outgroups in stigma (Judd, Ryan, & Park, 1991).

Furthermore, the stereotypes applied to outgroup members tend to be more negative than those for ingroup members (Hilton & von Hippel, 1996). Behaviourally, individuals are more likely to help an ingroup member due to having an empathic response (Stürmer, Snyder, & Omoto, 2005).

Limitations. Despite evidence supporting the proposed relationships in Link and Phelan's (2001) model of stigma, their conceptualization has several shortcomings. First, the model is based on the premise that labelling is required in order to elicit stereotyping and discrimination (Link et al., 2004). While labelling is indeed associated with stigma (e.g., Link et al., 1987; Page, 1977), other factors may also elicit stigma, such as symptom descriptions (Angermeyer & Matschinger, 1997; Martin et al., 2000; Nordt et al., 2006; Phelan & Basow, 2007), social skill deficits, and physical appearance (Corrigan, 2000; Penn & Martin, 1998). As such, an expanded conceptualization of the potential signals that trigger stigma would allow for a more comprehensive theory.

Notably absent from the model is an emotional component to represent stigmatizing emotional reactions to mental illness (i.e., prejudice). Although this omission was noted and amended (Link et al., 2004), this oversight has affected the literature. Studies using Link and Phelan's original 2001 conceptualization have ignored emotional responding and focused solely on the relationship between labels, stereotypes, and discrimination (e.g., Angermeyer & Matschinger, 2003; 2005; Martin et al., 2000; Phelan & Basow, 2007), despite the demonstrated relevance of emotional responding on subsequent discriminatory behaviour (Angermeyer et al., 2010).

These shortcomings necessitate further elaboration on the processes that occur in stigma. More specifically, expanding the cues that may signal mental illness and acknowledging the role of emotional reactions in mental illness stigma may strengthen conceptualizations of stigma.

These shortcomings are addressed by the other leading social cognitive conceptualization of mental illness stigma: the attribution model.

Attribution Model of Stigma

The attribution model of mental illness stigma was popularized by Corrigan (2000) based on foundational work by Weiner (Weiner, 1995; Weiner et al., 1988). Under the attribution model, stigma is a process of causal reactions initiated by signals in the environment that indicate an individual has a mental illness. Signals may include mental illness labels, symptoms, social skill deficits, or physical appearance (Corrigan, 2000; Penn & Martin, 1998). Once signaled to the presence of mental illness, causal cognitive, emotional, and behavioural reactions occur, where cognitive and emotional reactions are proposed to mediate the relationship between signals and stigmatizing behaviours (Figure 1; Corrigan, 2000; Weiner, 1995). The fundamental premise of the attribution model is that individuals constantly search for the cause of events, such as the cause of an individual's mental illness (Corrigan, 2000; Weiner, 1995). Therefore, once signaled to the presence of mental illness, attributions of the cause and controllability of an individual's mental illness and subsequent judgement of the individual's perceived responsibility for having a mental illness occurs (Corrigan, 2000; Weiner, 1995; Weiner et al., 1988). These cognitive processes are theorized to be equivalent to stereotypes (Rüsch et al., 2005) and to cause successive emotional (prejudice) and behavioural (discrimination) reactions toward people with a mental illness (Corrigan, 2000; Weiner, 1995; Weiner et al., 1988). For example, this theory suggests that when mental illness is attributed to a controllable cause, individuals are seen as being responsible for having a mental disorder, and this leads to feelings of anger and discriminatory behaviour. Conversely, when mental illness is attributed to an uncontrollable cause, people with a mental illness are not thought to be responsible for their condition, resulting

in feelings of pity and prosocial behaviour. As such, the content of the mediating cognitive attributions is proposed to directly result in emotional and behavioural responding (Corrigan, 2000).

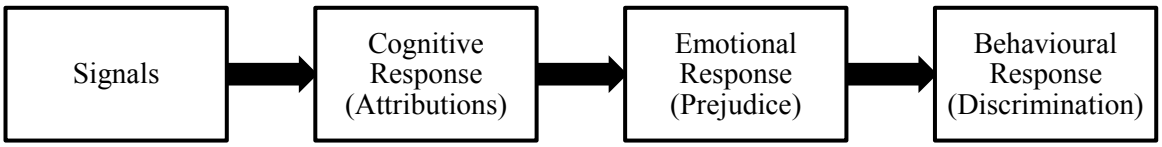


Figure 1. The attribution model of mental illness stigma.

Contributions and evidence. Consistent with Link and Phelan's model (2001), the attribution model posits a causal relationship between labels, stereotypes, and discrimination; however, the attribution model accounts for some of the gaps in their conceptualization by expanding the potential signals of mental illness and including emotional reactions as a mediator of the cognitive and behavioural reactions in mental illness stigma (Corrigan, 2000; Corrigan et al., 2002). Numerous studies provide support for the mediating role of emotional reactions in the stigma process, where causal attributions lead to mediating emotions of pity or anger, which result in respective behavioural responses of helping or avoidance (Corrigan et al., 2003; Corrigan & Shapiro, 2010; Menec & Perry, 1998). Research also supports the influence of emotional responding on discrimination, with some findings suggesting that emotional states account for a greater percentage of the variance in desired social distance relative to stereotyping (Angermeyer et al., 2010). The inclusion of an emotional aspect of stigma has advanced the literature by providing a more comprehensive and representative understanding of the processes that occur in mental illness stigma.

Limitations. The core assumption of the attribution model is that causal attributions are a necessary cognitive reaction that results in the emotional and behavioural reactions of stigma (Corrigan, 2000), yet research does not appear to support the role of attributions as an essential component of stigma. Stereotyping has been found to elicit emotional and behavioural reactions in stigma without any influence from causal attributions (Angermeyer & Matschinger, 2005; Corrigan et al., 2003; Corrigan et al., 2002; Hegarty & Golden, 2008). In addition, the attribution model cannot account for robust findings supporting danger appraisal (Corrigan & Shapiro, 2010), where stereotyping people with a mental illness as dangerous leads to fear and a desire for social distance, without any evident influence of causality attributions (e.g., Angermeyer & Matschinger, 2003; Corrigan et al., 2003; Corrigan et al., 2002; Corrigan & Shapiro, 2010). The assumptions of the attribution model are also challenged by research using a biological explanation for mental illness etiology. According to the attribution model, espousing a biological etiology of mental illness should eliminate any responsibility for having a mental disorder and result in pity and prosocial behaviour (Corrigan et al., 2003). Instead, biological explanations of mental illness have been found to have no impact or to increase stigma (Pescosolido et al., 2010). Indeed, research endorsing a biological etiology of mental illness is associated with increased perceptions of the seriousness and persistence of mental illness (Phelan, 2005), and decreased belief in the effectiveness of mental health treatment (Phelan, Yang, & Cruz-Rojas, 2006). These findings appear contrary to the predictions of the attribution model and question its robustness in conceptualizing mental illness stigma. Finally, research has often relied on regression-based path analyses to test the assumptions of the attribution model, and findings have supported the predicted relationships between signals, cognitive attributions, emotional reactions, and behavioural reactions in mental illness stigma (Corrigan et al., 2002).

Few studies, however, have examined how well the attribution model fits to data in explaining the processes underlying mental illness stigma (Menec & Perry, 1998). Initial findings suggest that the model fits poorly to data, questioning its utility in explaining the processes underlying mental illness stigma (Corrigan et al., 2002).

Despite these shortcomings, findings suggest that the attribution model may account for a portion of the stigma process, specifically the relationship between casual attributions, mediating emotional responses of anger and pity, and behavioural responses (Corrigan et al., 2003; Corrigan & Shapiro, 2010; Menec & Perry, 1998). Thus, the attribution model may be best conceptualized as explaining the relationship between certain stigmatizing cognitions, emotions, and behaviour (Corrigan et al., 2002) rather than accounting for all instances of mental illness stigma. A broadened conceptualization of the relationship between cognitions, emotion, and behaviour in the context of stigma may provide a more inclusive theory that is able to account for findings that support the Link and Phelan model, the attribution model, and the robust danger appraisal literature.

Cognitive-Behavioural Model of Stigma

Most recently, Corrigan and Lee (2013) proposed the cognitive-behavioural model of stigma, which may provide a more unified theory that has been lacking in the literature. Mirroring work by Fiske (1998, p. 357), this model posits that stigma represents negative cognitive (stereotypes), emotional (prejudice), and behavioural (discrimination) reactions toward people with a mental illness (Figure 2). The benefit of the cognitive-behavioural model is that it combines the common elements across past conceptualizations of stigma, while also aligning with the vast literature on cognitive behavioural theory in psychological conceptualization and intervention (e.g., Beck, 2011). In contrast to the attribution model (Corrigan, 2000) and Link

and Phelan's revised conceptualization (Link et al., 2004), the cognitive-behavioural model does not suggest that a causal path exists between cognitive, emotional, and behavioural reactions; instead, these reactions are thought to interact and impact one another in a cycle that is representative of mental illness stigma (Corrigan & Lee, 2013). Also unlike the attribution model, the cognitive-behavioural model does not limit the cognitive component to attributions, instead including any negative thoughts that occur in response to people with a mental illness. Furthermore, the cognitive-behavioural model goes beyond Link and Phelan's (2001) conceptualization by acknowledging the emotional reactions that occur in stigma.

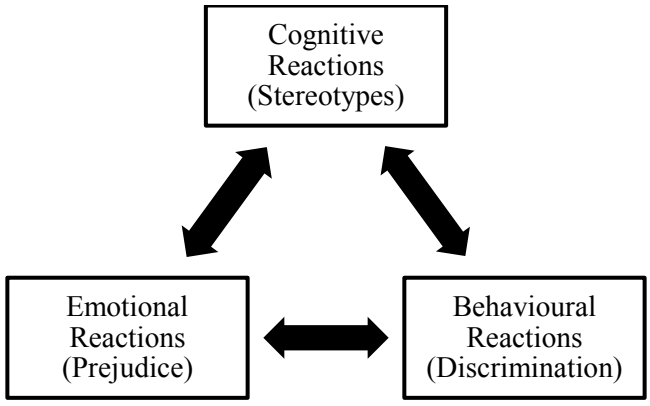


Figure 2. Cognitive-behavioural model of mental illness stigma.

Future Directions

These conceptualizations provide a framework to understand the responses that occur when individuals experience negative stigmatizing reactions to people that have mental illness. Increasing awareness of mental health issues has included recognition of the negative effects of mental illness stigma and need to reduce its presence in the public (MHCC, 2012b). Subsequent efforts to reduce mental illness stigma through the use of antistigma interventions continue to try and improve the public's responses to people that have mental illness. These theoretical models

of mental illness stigma assist in delineating the aspects of stigma to assess in order to identify if a given antistigma intervention format has more or less benefit on a particular aspect of stigma. Furthermore, through the development and refinement of models of stigma, it is possible to develop newer and more sensitive measures of the cognitive, emotional, and behavioural aspects mental illness stigma and to target these areas with antistigma intervention.

Study 1: Effectiveness of a Mental Illness Antistigma Intervention Featuring Education, Live Contact, and Photovoice

The three most widely used interventions to reduce mental illness stigma are protest, education, and contact (Corrigan & Penn, 1999; Corrigan et al., 2012). Protest interventions rebuke individuals who endorse stigma, or explicitly direct individuals not to stigmatize, while education interventions provide factual knowledge regarding mental illness in order to counter inaccurate assumptions and generalizations regarding mental illness (Corrigan & Penn, 1999; Corrigan et al., 2012; Kolodziej & Johnson, 1996). Contact interventions expose an audience to an individual that has experienced mental illness and can take the form of live contact (i.e., face-to face, in vivo) or video contact (e.g., a video depiction of live contact; Corrigan et al., 2012).

The Efficacy and Effectiveness of Antistigma Interventions

The utility of an antistigma intervention is determined by its ability to reduce the audience's stigmatization of mental illness, which requires research into the efficacy and effectiveness of education, protest, and contact intervention formats. Efficacy research most commonly utilizes a rigorous randomized controlled trial (RCT) design in order to enhance internal validity, where participants are randomized to receive either an antistigma intervention or a control condition. In contrast, effectiveness research maximizes external validity by examining antistigma interventions in real-world settings to allow for greater generalizability in the findings.

Education and contact intervention formats have evidence supporting their efficacy and effectiveness in reducing mental illness stigma; in contrast, the protest intervention format does not appear to have a significant benefit on stigma, and it may paradoxically increase stigma due to a rebound effect from directing the audience to suppress stigma (Corrigan et al., 2012;

Corrigan & Penn, 1999; Couture & Penn, 2003). Consequently, contact and education formats presently stand as empirically supported antistigma interventions.

Contact Versus Education

Research has contrasted the differential benefit of contact and education formats of antistigma interventions. In a meta-analysis conducted by Corrigan et al. (2012), initial findings suggested that both formats have a comparable antistigma benefit, with a small effect for education (d = .286) and contact (d = .282) using Cohen's d (1988). Looking solely at RCTs, however, contact interventions were significantly more efficacious than education in reducing stigma. Contact had a medium effect on overall stigma reduction (d = .363), a large effect for stereotyping reduction (d = .626), and a small effect for discrimination reduction (d = .268; Corrigan et al., 2012). Contact also appears to be more efficacious in maintaining stigma reduction at short-term follow-up: Corrigan et al. (2002) found that individuals that viewed a contact intervention continued to report reduced stigma at 1 week post-intervention, while those exposed to an education intervention had largely returned to their baseline levels of stigma. Furthermore, contact interventions appear to be useful in reducing stigma across age, gender, and educational attainment (Link & Cullen, 1986). Overall, these findings support the superior utility of contact antistigma interventions relative to other leading formats.

Live Contact and Video Contact

Contact interventions may be presented in a live contact format (i.e., in vivo or face-to-face) or in a video format. Studies comparing the benefit of each format as an antistigma intervention have reported mixed findings. Clement et al. (2012) compared video contact to live contact and found comparable outcomes, with greater reductions in some stigmatizing attitudes in the video group. In contrast, a meta-analysis by Corrigan et al. (2012) found that live contact

interventions were associated with significantly greater reductions in overall stigma (d = .516), stereotyping (d = .656), and discrimination (d = .397), relative to video contact interventions in these respective domains (d = .155; d = .296; d = .197; Corrigan et al., 2012). Findings in this study were limited by the inclusion of studies that varied in methodological rigor, specifically a lack of RCTs, and by a large amount of variation in intervention content. For example, live contact interventions may vary widely based on the number of presenters, the content presented, or the format of the live contact (e.g., lecture versus question and answer). Similarly, past research with video contact has examined several varying formats, including documentaries (Anderson & Austin, 2012; Penn, Chamberlin, & Mueser, 2003), videotaped theatrical performances (Faigin & Stein, 2008), and videotaped contact (Reinke, Corrigan, Leonhard, Lundin, & Kubiak, 2004). Across this variation, findings to date have supported the general benefit of contact-based antistigma interventions across formats (Yamaguchi et al., 2013).

Novel Antistigma Intervention Formats

The growing interest in antistigma interventions has brought a number of novel approaches to reducing audience mental illness stigma. These emerging formats build off the strengths and shortcomings of existing interventions to provide new approaches to delivering education and contact antistigma interventions. Two of these novel formats include multimodal interventions, which combine traditionally standalone interventions, and Photovoice interventions, which offer a unique window into the experience of living with a mental illness.

Multimodal Antistigma Interventions

Past research evaluating the utility of antistigma interventions has often focused on education, protest, or contact formats as separate, standalone interventions. The efficacy and effectiveness of individual education and contact formats supports the potential utility of a

multimodal antistigma intervention that combines these approaches. While contact interventions by nature are likely to feature some education or protest, relatively few studies have investigated the use of antistigma interventions that intentionally combine formats into a multimodal intervention. Michaels et al. (2014) found that a workshop intervention combining education and contact was efficacious in reducing stigma and increasing knowledge in mental health professionals. On a national scale, the National Alliance for the Mentally Ill developed *In Our Own Voice* (IOOV), a 90-minute multimodal antistigma intervention combining education, live contact, and video contact. IOOV is unique from many other antistigma interventions because it was developed in collaboration with individuals who have experienced mental illness (Wood & Wahl, 2006). When compared to an education intervention, the multimodal IOOV intervention was found to reduce audience stigma significantly more in undergraduate student samples (Corrigan et al., 2010; Wood & Wahl, 2006). Thus, research to date supports the potential benefits of a multimodal approach to antistigma intervention.

Photovoice

Photovoice is a process by which members of a marginalized group, such as people with a mental illness (Fleming, Mahoney, Carlson, & Engebretson, 2009), are given the opportunity to document and convey the experience of living as a member of this marginalized group using photographs (Wang & Burris, 1994; 1997), which can then be organized in a book or video format. Photovoice uses a grassroots approach, where members of the marginalized group are included throughout the development and dissemination of the Photovoice project (Wang & Burris, 1994). To create a Photovoice video, individuals are given cameras and asked to take photographs that document salient aspects of their experience of living as a member of a marginalized group. These photographs are then presented sequentially to the viewer using a

video format, with associated voiceovers to explain the relevance of each photograph to the photographer's experience as living of a member of the group.

The foundational purpose of Photovoice was to help marginalized groups document their strengths and needs, to facilitate awareness and understanding of salient issues relevant to the group, and to have an impact on social policy and policy makers (Wang & Burris, 1997). Consequently, in the context of mental health, Photovoice presentations often feature content that strives to convey the experience of living with a mental illness and the stigma associated with this experience (Fleming et al., 2009), which overlaps with some of the content covered in video contact interventions. If the Photovoice video was augmented with additional content that has been found to be beneficial in reducing audience stigma, it may serve as an effective antistigma intervention. For example, Reinke et al. (2004) found that audience stigma reduction was dependent on the degree to which video content disconfirmed stereotypes, where videos that did not disconfirm stereotypes (e.g., a video of acute psychosis) did not change stigma. In contrast, similar levels of stigma reduction were found between a video with content balancing the realities of living with a mental illness and the ability to live a normal life (moderate disconfirmation), and a video that briefly addressed past mental illness while focusing largely on recent success (high disconfirmation). These findings suggest that, in addition to portraying the experience of living with a mental illness, it may be beneficial for a Photovoice video to include content that at least moderately disconfirms stereotypes, such as the ability to live a normal life despite experiencing mental illness.

Studies investigating outcomes associated with Photovoice have primarily measured the impact of the Photovoice presentation on members of the marginalized group, as opposed to outcomes in the viewing audience (Catalani & Minkler, 2010; Hergenrather, Rhodes, Cowan,

Bardhoshi, & Pula, 2009). Russinova et al. (2014) reported that individuals participating in the creation of a Photovoice video reported reduced self-stigma and increased coping with public stigma. To date, however, a Photovoice presentation has not been examined as an antistigma intervention for the general public. One study found reduced audience stigma after viewing a documentary about individuals creating a Photovoice presentation, but the Photovoice video itself was not evaluated for its antistigma abilities (Knaak & Patten, 2013). While some research has suggested that video contact interventions are less efficacious than live contact in reducing stigma, the unique format of a Photovoice video could have a positive effect on mental illness stigma.

Potential Additional Factors in Mental Illness Stigma

Research on antistigma intervention formats has largely focused on their relative efficacy and effectiveness in reducing mental illness stigma between pre- and post-intervention. Fewer studies have examined the factors that may influence individuals' level of baseline (i.e., pre-intervention) stigma. In particular, familiarity with mental health and mental illness may be expected to play a role in participants' level of preexisting stigma.

Mental Health Familiarity

The term *mental health familiarity* is often used to represent both mental health knowledge and past experience with mental illness (Corrigan, 2002; Holmes, Corrigan, Williams, Canar, & Kubiak, 1999). Mental health knowledge represents factors indicative of an individual's general understanding of mental illness, including disorder-specific symptom presentations, mental illness etiology, and available treatments (Angermeyer, Holzinger, & Matschinger, 2009). Mental health experience represents an individual's personal experience with mental illness, such as having been personally diagnosed with a mental disorder, or knowing another individual that

has a mental disorder (e.g., a family member; Angermeyer & Matschinger, 1997). Theoretically, it is thought that increased familiarity with mental illness will foster better reactions toward people with a mental illness (Angermeyer et al., 2009); however, findings have been mixed in understanding the relationships between mental health familiarity and stigma.

Mental health knowledge. The role of mental health knowledge in mental illness stigma has often been overlooked by past stigma research (Jorm, 2000). Those studies that have examined mental health knowledge have reported mixed findings. Lincoln et al. (2008) found that individuals with unscientific beliefs about the etiology of mental disorder (e.g., mental illness is due to God's will) expressed increased stigma. However, several studies have indicated that despite increased public knowledge about mental illness in recent decades, negative stereotyping and discrimination have remained stable or increased during this time (Angermeyer et al., 2009; Phelan et al., 2000; Schomerus et al., 2012). Furthermore, studies demonstrating that mental health providers endorse significant levels of mental illness stigma (Loch et al., 2013; Nordt et al. 2006; Stuart & Arboleda-Flórez) suggest that increased mental health knowledge may not necessarily translate into endorsing lower levels of stigma.

Mental health experience. A growing body of research suggests that people with more past experience with mental illness have lower levels of stigma. Several studies have found that individuals who have personally experienced mental illness or who have had a family member with a mental illness endorse less negative cognitive (dangerousness), emotional (decreased fear and anger), and behavioural responses (increased desire to help; decreased social distance) toward people with a mental illness (Angermeyer et al., 2010; Angermeyer & Matschinger, 1997; Angermeyer & Matschinger, 2004; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Crisp et al., 2000; Faigin & Stein, 2008; Penn et al., 1994; Loch et al., 2013). However, findings have

not been absolute. In a review of the literature, Angermeyer and Dietrich (2006) reported a split between research supporting the role of past experience in reduced stigma, and research showing no association. Furthermore, Crisp et al. (2000) found comparable perceptions of dangerousness in individuals who knew someone with depression, schizophrenia, alcohol dependence, or drug dependence when compared to individuals who did not know anyone with these disorders. Past experience has also been found to reduce the impact of education interventions (Holmes et al., 1999).

Overall, there are mixed findings pertaining to the relationship between mental health familiarity and mental illness stigma. While some studies support the predicted relationship between increased mental health knowledge and reduced mental illness stigma, others do not. Stronger support exists for the positive role of mental health experience in mental illness stigma; however, given that mental health providers have been shown to report significant levels of stigma, the type of mental health experience could play an important role in stigmatization, and in mediating the role of mental health knowledge. Hypothetically, mental health providers may be more apt to see people with a mental illness during times of severe symptom exacerbation. This could counteract increased mental health knowledge and result in a distorted view of the range of symptom presentation severity across the spectrum of mental disorder and within a given patient's longitudinal course of symptom exacerbation and remission. It should be noted that this is based on the assumption that mental health knowledge is associated with reduced mental illness stigma, which may not be the case. Nevertheless, additional research in this area is required in order to clarify the roles of mental health knowledge and mental health experience in stigma. With regard to mental health knowledge, which has been particularly overlooked, it is

possible that mental health knowledge could change between pre- and post-intervention, which would provide a measure of the educational value of a given antistigma intervention.

The Current Study

The current study examined the effectiveness of a novel multimodal antistigma intervention that featured education, a Photovoice video, and live contact with an individual that has experienced mental illness. The intervention was developed through grassroots collaboration between the Thunder Bay branch of the Canadian Mental Health Association (CMHA) and local consumers of mental health services, which is an approach that is consistent with recent recommendations emphasizing the need for grassroots collaboration in antistigma interventions (Corrigan, 2012; Stuart, 2005). The current study had several novel characteristics. First, a multimodal intervention format has been less commonly researched, and Photovoice has never been examined as an antistigma intervention. The Photovoice video served as the centerpiece of the multimodal intervention, with the education and live contact components of the intervention tailored to the content of the Photovoice video. The primary purpose of the study was to examine audience stigma change associated with the multimodal intervention at both post-intervention and 1-month follow-up. Given the empirical support for solo education and contact antistigma interventions (Corrigan et al., 2012), and initial support for multimodal interventions (e.g., Michaels et al., 2014; Corrigan et al., 2010), participants were expected to report decreased mental illness stigma after viewing the multimodal intervention. Additional exploratory analyses examined participants' level of stigma at follow-up. Second, the current study examined several factors less commonly assessed in mental illness stigma research, including prosocial responding and mental health familiarity (i.e., mental health knowledge and mental health experience). Participants were expected to report increased mental health knowledge and prosocial

responding toward people with a mental illness at post-intervention. Further exploratory analyses examined the relationship between past mental health experience and pre-intervention levels of mental illness stigma. Finally, this study may contribute to the literature on antistigma interventions that are developed using a grassroots-approach, and it also represents an important link between academic institutions and local community-based organizations, in order to facilitate the empirical evaluation of a long-running antistigma intervention.

Method

Participants

Ethics approval for this study was granted from the Lakehead University (#119 13-14) and Confederation College (#0022) Research Ethics Boards. Undergraduate students were sought as potential participants through courses in the Faculty of Health and Behavioural Sciences (FHBS). Professors from various departments in the FHBS were invited to allocate one lecture to the multimodal antistigma intervention. Students were eligible to participate if they were enrolled in a course taught by a professor that volunteered class time for the study, and if they attended class on the day the multimodal intervention was presented. Past research using student samples from FHBS classes has found stigmatizing responses to mental illness, including samples of nursing students (e.g., Clement et al., 2012; Keane, 1991) medical students (e.g., Ay, Save, & Fidanoglu, 2006), and occupational therapy students (Lyons & Ziviani, 1995). Given that these professions are likely to interact at times with individuals who have a mental illness, reducing stigma is a priority for antistigma efforts.

Multimodal Antistigma Intervention

Students that attended class viewed the multimodal antistigma intervention, which consisted of a 1 hour and 15 minute presentation that included education, a Photovoice video

(*Photovoice: Exposing Our Path to Wellness*), and live contact with an individual that has experienced recurrent mental illness and participated in creating the Photovoice video. First, the education component briefly addressed concepts related to mental disorder labels, stigma, and recovery, and provided a brief outline of how the Photovoice video was created. Next, the audience viewed the Photovoice video and was asked to choose two photographs from the video that were personally salient. Following the Photovoice video, the individual with lived experience of mental illness then led a live contact component. This component included a discussion of the experience of mental illness and recovery, audience engagement in discussing salient photographs from the Photovoice video, and opportunities for audience questions. Each presentation was rated for adherence using a fidelity checklist in order to ensure a minimum level of consistency in the intervention content across classes (see Appendix A).

Photovoice. The Photovoice video was developed in collaboration between CMHA and several local individuals who had experienced mental illness. To create the video, consumers were given disposable cameras and asked to take photographs that represented their experience of having or recovering from a mental illness. CMHA and the consumers then collaboratively chose 27 photos and organized them based on several themes: the experience of living with a mental illness, "barriers to recovery," "things that helped us with our recovery," and "the experience of recovery." Voiceovers were then recorded for each photo explaining its meaning to the photographer's experience. Finally, a 19-minute Photovoice video was created, consisting of the successive presentation of each photo accompanied by its associated voiceover and the main theme or message of the photo presented in text (Figure 1.1). The Photovoice video addressed a range of mental health problems (psychosis, depression, substance use, bipolar disorder, general mental illness) and excluded material endorsing a biological etiology of mental illness, which has

been shown to paradoxically increase stigma (Pescosolido et al., 2010; Phelan, 2005; Phelan et al., 2006). The emphasis on recovery in the Photovoice video (i.e., recovery-oriented) and the use of associated live contact is consistent with the recommendation that population-level antistigma campaigns include messages of recovery in mental illness (Clement, Jarrett, Henderson, & Thornicroft, 2010).

Figure 1.1. An example photograph featured in the Photovoice video.

Measures

Table 1.1 delineates the measure administration schedule for Study 1. Participants completed measures that assessed general demographics, mental illness stigma, and additional factors that may be related to stigma, including mental health experience, mental health knowledge, prosocial responding, and social desirability. Measures of stigma were chosen in an attempt to capture negative cognitive, emotional, and behavioural reactions to people with a mental illness, consistent with the cognitive-behavioural model of stigma (Corrigan & Lee, 2013). Scoring information for each measure is included in its associated Appendix.

Demographics. Demographic information that was collected can be found in Appendix B and included participants' age, gender, ethnicity, university major, and years of university

completed. Past research has found that certain demographic characteristics may be associated with greater mental illness stigma, such as being male (Corrigan et al., 2003; Corrigan & Watson, 2007; Loch et al., 2013; Mann & Himelein, 2004; 2008), non-white (Anglin, Link, & Phelan, 2006; Corrigan & Watson, 2007), and of older age (Taylor & Dear, 1981).

Mental illness stigma and prosocial responding. Participants completed measures of mental illness stigma and prosocial responding at pre-intervention, post-intervention, and 1-month follow-up in order to examine any change in these measures associated with the multimodal intervention. Given the range of symptoms discussed in the multimodal intervention, all measures used in Study 1 assessed stigma toward general mental illness rather than a particular mental disorder.

The *Unpredictability-Incompetence* scale (UI; Angermeyer & Matschinger, 2004) is a 6-item self-report measure of the degree to which respondents perceive people with a mental illness as being unpredictable and incompetent in self-care and general demeanor. Each item is rated on a 5-point scale from 1 (totally disagree) to 5 (totally agree) and combined into a total scale score of the perceived unpredictability and incompetency of people with a mental illness; higher scores indicate a greater perception of unpredictability and incompetence. The UI scale has demonstrated adequate factor structure and internal consistency in past research (Angermeyer & Matschinger, 2004), and good internal consistency was found in the current study ($\alpha = .84$). The UI scale was altered in the current study to measure stigma toward *mental illness* instead of stigma toward schizophrenia. The UI scale can be found in Appendix C.

The *Dangerousness Scale* (DS; Link et al., 1987; Penn et al., 1994) is an 8-item self-report measure of the perceived dangerousness of people with a mental illness, including stigmatizing cognitive and behavioural reactions. Each item is rated on a 7-point scale from 1 (strongly agree)

to 7 (strongly disagree) and combined into a total scale score of the respondent's perception of the dangerousness of people with a mental illness; higher scores indicate greater perceived dangerousness. The DS appears to have adequate internal consistency and evidence for validity based on past research (Link et al., 1987; Penn et al., 1994); however, the DS demonstrated borderline adequate internal consistency in this study ($\alpha = .70$). The DS can be found in Appendix D.

The *Social Distance Scale* (SDS) is a 7-item self-report proxy measure of stigmatizing behavioural reactions (i.e., discrimination) toward people with a mental illness. Each item is rated on a 4-point scale from 0 (definitely willing) to 3 (definitely unwilling) based on respondents' willingness to interact with people that have a mental illness in a variety of social situations. A total scale score is computed by summing all 7 items resulting in a measure of the degree of distance respondents desire to have from people with a mental illness; higher scores indicate greater desired distance from people with a mental illness in several social situations. A version of the SDS was originally developed by Emory Bogardus in 1924 (as cited in Wark & Galliher, 2007) and has become one of the most commonly used measures of stigma. The SDS has demonstrated good internal consistency reliability and construct validity in past research (Link et al., 2004). Cronbach's alpha values found that the SDS showed adequate internal consistency in this study ($\alpha = .89$). The SDS can be found in Appendix E.

The *Attribution Questionnaire* (AQ; Corrigan et al., 2002; Corrigan et al., 2007) was also used to assess participants' stigmatizing and prosocial responses in areas that were not covered by the aforementioned measures. The entire AQ measure is 28 items, with each rated on a 9-point scale from 1 (e.g., not at all) to 9 (e.g., very much). Nine subscales are scored independently by summing the items that comprise each subscale. Participants completed

subscales that measured stigmatizing responses to mental illness, including the perceived responsibility for having a mental illness (AQ-Responsibility), anger toward people with a mental illness (AQ-Anger) and fear toward people with a mental illness (AQ-Fear), which were all comprised of 3 unique items. Higher scores on these subscales indicate stronger stigmatizing responses to mental illness. Prosocial responses were also measured by the AQ subscales, including 3-item subscales of respondents' pity (AQ-Pity) and helping behaviour (AQ-Helping Behaviour) toward people with a mental illness, as well as a 2-item subscale of respondents' empathy (AQ-Empathy) toward people with a mental illness. Higher scores on these subscales indicate stronger prosocial responses to mental illness. Three additional subscales (AQ-Dangerousness, AQ-Avoidance, AQ-Segregation) were excluded from analysis due to overlap in item content with other measures used in the study (i.e., the DS and SDS). Adequate internal consistency estimates were found in the current study for the AQ-Fear ($\alpha = .74$), AQ-Anger ($\alpha = .71$), and AQ-Empathy ($\alpha = .85$) subscales, while the AQ-Responsibility ($\alpha = .40$), AQ-Pity ($\alpha = .66$), and AQ-Helping Behaviour ($\alpha = .61$) subscales demonstrated less than adequate internal consistency estimates, suggesting the need for caution when interpreting results from these measures. Across these latter subscales, low alpha values could be due to the small number of items that comprise each subscale, where Cronbach's alpha is dependent upon the number of items in a test (Nunnally, 1978), and alpha becomes larger as the number of items in a subscale varies (Cortina, 1993; Sijtsma, 2009). However, given that alpha is a function of the interrelatedness of items within a given scale (Green, Lissitz, & Mulaik, 1977), low alpha values may result from a combination of few items and inconsistent inter-item correlations between the items comprising these subscales. Indeed, the 3-item AQ-Responsibility subscale demonstrated low inter-item correlations (.09, .29, .15) between all items; the 3-item AQ-Helping Behaviour

subscale demonstrated two potentially redundant items (.80), while the other item on this scale did not correlate strongly with either item (.27, .18); and finally the 3-item AQ-Pity demonstrated two close inter-item correlations (.43, .47) and one lower inter-item correlation (.27). These findings could also be due to characteristics of the sample used in this study, which may not have been generalizable to the way the AQ performs in the general population. Furthermore, the AQ is lacking in information about its validity. The AQ can be found in Appendix F.

Mental health experience. Mental health experience was assessed using the *Level of Contact Report* (LCR; Holmes et al., 1999). The LCR contains 12 items describing varying levels of past experience with, and exposure to, people with a mental illness. Each item is weighted based on the intimacy of the interaction, ranging from 1 (I have never observed a person that I was aware had a mental illness) to 12 (I have a mental illness). Respondents identify each interaction they have experienced, with increased past experience indicated by a larger score on the scale; a respondents' final score is the item endorsed with the highest item weighting. Past research has supported the reliability and validity of the LCR (Holmes et al., 1999). The LCR can be found in Appendix G.

Mental health knowledge. Mental health knowledge was assessed with the *Mental Health Knowledge Schedule* **(**MHKS; Evans-Lacko et al., 2010). The MHKS is a 12-item self-report measure with items evenly divided between subscales of respondents' general knowledge of mental illness and treatment (employment, recognition of disorder, support, treatment, recovery, and help seeking) and their understanding of whether conditions are indicative of mental disorder (depression, schizophrenia, bipolar disorder, and drug addiction) or normal functioning (stress and grief). Respondents use a 6-point scale (from strongly disagree to strongly agree) to indicate

their agreement with each item. Evidence has supported the test-retest reliability and validity of the MHKS, and the authors have recommended online administration to help reduce social desirability (Evans-Lacko et al., 2010). According to the creators of the MHKS, it is not meant to function as a unitary scale but rather as a series of unique items (Evans-Lacko et al., 2010). The MHKS can be found in Appendix H.

Social desirability. Social desirability is a potential limitation of self-report measures in stigma research (Anderson & Austin, 2012) as participants may be motivated to respond to items in a biased manner in order to present themselves in a positive light (Ventimiglia & MacDonald, 2012). Despite this potential influence in mental illness stigma research, social desirability has been rarely assessed by past studies. To assess for social desirability bias, participants completed the *Balanced Inventory of Desirable Responding* (BIDR; Paulhus, 1991). The BIDR is a 40-item self-report measure divided into two 20-item subscales of self-deceptive enhancement (SDE), which is the tendency to respond honestly but to provide positively biased answers, and impression management (IM), which are intentional attempts to endorse socially desirable responses. Respondents rate their agreement with each item using a 7-point scale from 1 (not true) to 7 (very true), with higher scores indicating greater attempts to endorse positively biased responses and impressive management. The overall BIDR and the SDE and IM subscales have demonstrated adequate internal consistency and test-retest reliability (Paulhus, 1991), although research has failed to support the single-factor structure of the IM subscale (Leite & Beretvas, 2005); as such, items were combined into a total scale score in the current study. In addition, while both a continuous and dichotomous scoring method can be used for the BIDR (Paulhus, 1994), the continuous scoring method was used in the present study as it has been shown to be psychometrically superior (Stöber, Dette, & Musch, 2002). It should be noted that, as with other

measures of social desirability (e.g., Marlowe-Crowne Social Desirability Scale; Crowne & Marlowe, 1960), research has failed to support a two-factor structure to the BIDR. Consequently, any findings stemming from the BIDR should be interpreted with caution, and it is not recommended to correct scores that significantly correlate with the BIDR in an attempt to remove the influence of social desirability (Leite & Beretvas, 2005). Due to these shortcomings, the BIDR served as a proxy of the possible influence of social desirability, and any findings of a significant association with measures of mental illness stigma or prosocial responding were indicative of a limitation and the need for caution in interpretation. The BIDR can be found in Appendix I.

Procedure

Ethical approval for this study was granted by the Lakehead University Research Ethics Board (#119 13-14). Prior to the intervention, participating classes were not explicitly informed that the presentation was intended to serve as an antistigma intervention in order to avoid biasing their responses on measures of stigma. Instead, students were informed that the presentation was about general mental health and were invited to take part in associated research on "students' views and opinions about mental health." Data were collected in 3 phases: within 1-week pre-intervention, within 1-week post-intervention, and within 1-week at 1-month follow-up (Table 1.1). Consistent with recommendations (Corrigan & Shapiro, 2010; Henderson, Evans-Lacko, Flach, & Thornicroft, 2012; Skitka & Sargis, 2006), all measures were administered online in order to reduce the effect of social desirability bias on responding. For each phase of data collection, the class professor sent an email to all students enrolled in the class which provided a brief overview of the study and a link to the study website. Upon accessing the website, participants were presented with an information form that detailed the study purpose, time

commitment, voluntary nature, and instructions, as well as a statement of informed consent (see Appendix M). Each participant generated a code for each phase of data collection in order to link responses over time without using identifying information. After completing a phase of data collection, participants received one ballot in a draw for one of four prepaid MasterCards for up to three ballots (pre-intervention, post-intervention, and follow-up). Lottery draws are associated with increased response rates over no-incentive controls in online research (Laguilles, Williams, & Saunders, 2011) and may offer several benefits over prepaid incentives (i.e. pre-intervention) or promised incentives (post-intervention), including increased willingness to participate, increased completion, and reduced dropout (Bosnjak & Tuten, 2003).

Results

A convenience sample was used consisting of students majoring in nursing and kinesiology in the FHBS. A portion of the nursing students were enrolled in coursework provided by Confederation College, although their nursing program was primarily affiliated with Lakehead University. A total of 69 individuals completed the pre-intervention measures. Of this group, 75% (n = 52) also completed post-intervention measures (i.e., completers), while 25% (n = 17) did not complete post-intervention measures (i.e., dropouts). In order to identify any potential bias between completers and dropouts, the groups were compared on demographic characteristics and pre-intervention baseline measures of stigma and prosocial responding (as per Altman & Bland, 2007). No significant differences were found for any demographic characteristic between the groups. Dropouts did report significantly lower empathy toward people with a mental illness (M = 6.81; SD = 1.83) relative to completers (M = 7.65; SD = 1.24) on the AQ-Empathy subscale, $t(66) = 2.11$, $p < .05$. Participants with lower levels of pre-intervention empathy toward people with a mental illness may have chosen not to attend class on

the day of the intervention and thus were ineligible for post-intervention participation. Alternatively these individuals may have attended class but chosen not to complete post-intervention measures.

Data Screening

Data screening was conducted for participants with pre- and post-intervention data (n = 52). A missing value analysis found that 2% of the overall data were missing. Mean substitution was used if a participant did not answer 1 item from a given measure of stigma or prosocial responding and the participant's average score on that scale was used for the missing item. If the participant did not answer more than 1 item on a given scale, pairwise deletion was used and the participant's total score was excluded from analyses of that particular scale. The following results are derived from analyses that used the above guidelines.

Descriptive statistics, boxplots, and z-scores were examined for normality and univariate outliers. The distribution for AQ-Fear demonstrated skewness and kurtosis, as well as a univariate outlier. A logarithmic (base 10) transformation of this scale improved the pre- and post-intervention distributions and variances and reduced the influence of outliers for AQ-Fear (Bland & Altman, 1996; Tabachnick & Fidell, 2007, p. 77), thus these transformed values were used in all analyses. The AQ-Empathy subscale demonstrated negative skewness at post-intervention due to more frequent endorsement of higher ratings of empathy toward people with a mental illness. The distribution was not improved following several attempts at transformation, including reflecting and inversing the distribution, and so untransformed data for this scale were used in all analyses.

Pre- to Post-Intervention Outcomes

A sample of 52 participants who completed pre- and post-intervention measures was used to examine stigma change associated with the multimodal intervention. The average age of participants was 24 years (*SD* = 6.40) and most participants were female (87%), white (81%), and majoring in nursing (89%). At the time of the study, most participants had completed 5 or more years of post-secondary education (39%) or 1 year or less (26%). Nursing students did not significantly differ from kinesiology students included in the sample on measures of demographics, mental illness stigma, or prosocial responding.

Mental illness stigma. To assess for change associated with the multimodal intervention, a series of paired-samples t-tests were used to compare participants' pre- and post-intervention scores on various mental illness stigma, including UI, AQ-Responsibility, AQ-Fear, AQ-Anger, DS, and SDS (Table 1.2). Paired t-tests were chosen due to the repeated measures design of the study, which violated the assumption of independent observations required for other analyses, and given that all measures evidenced a trend of decreased stigma between pre- and post-intervention. Participants reported statistically significant decreases in their scores on the UI, SDS, and AQ-Fear measures of mental illness stigma, respectively associated with a significantly decreased perceptions of people with a mental illness as being unpredictable and incompetent, decreased desire for social distance from people with a mental illness, and decreased fear of people with a mental illness. Effect size estimates for paired t-tests were calculated using a formula from Dunlap, Cortina, Vaslow, and Burke (1996), which provided a conservative effect size estimate by accounting for the correlation between participants' pre-post scores on each measure in this single-group design (Table 1.2). Cohen's *d* (1988) estimates indicated a small effect for the UI (*d* = .31), AQ-Fear (*d* = .32), and SDS scales (*d* = .43). The BIDR was not

correlated with any of the measures of mental illness stigma at pre- or post-intervention, suggesting that social desirability did not play a significant role in participants' reported levels of mental illness stigma.

Multiplicity considerations resulted from conducting six significance tests within this sample on the primary outcome of interest (i.e., mental illness stigma), causing an inflated familywise error rate (i.e., type I error). Based on the use of 6 significance tests, a correction was used to account for the potential increase in type 1 error (Table 1.3). The Bonferroni correction has been criticized for being overly conservative for type 1 error at the expense of power, notably in cases where the inflated familywise error rate results from testing various aspects of the same effect, and where a given finding of significance or failure to find significance has few consequences (Benjamini & Hochberg, 1995; McDonald, 2014). In the context of the current study, the inflated familywise error rate results from multiple tests on the same effect (i.e., mental illness stigma) but several domains of stigma were measured (i.e., cognitive, emotional, behavioural responses). Furthermore, the current study is an initial stage of research for a novel antistigma intervention that would have minimal negative consequences should a type 1 error occur. With these considerations, Benjamini and Hochberg's (1995) false discovery rate (FDR) was used instead as a correction. The FDR provides increased power to detect significant differences by balancing a control for the number of potential type 1 errors with a predetermined level of acceptable type 1 error (Benjamini & Hochberg, 1995, p. 290). As shown in Table 1.3, FDR critical values were calculated using the equation $(i / m)*Q$. First, all p-values from the original analysis were ranked in ascending order according to their level of significance (i = ranking). Each ranking was then divided by the total number of statistical tests that were conducted for the effect ($m = 6$) and multiplied by the predetermined level of acceptable type 1

error (Q), which was examined at both Q = 10% and a more conservative Q = 5% (McDonald, 2014)., These critical values were then used to re-evaluate the significance of the findings from the original analysis, where each significant p-value that was lower than its associated FDR critical value remained a significant finding. For example, the SDS scale was ranked as the smallest p-value (i = 1), divided by the total number of tests conducted (m = 6), and multiplied by the identified levels of acceptable type 1 error (e.g., Q = .10), resulting in a FDR critical value of .016. As the original SDS p-value was smaller than this FDR critical value, this finding satisfied the criterion for significance. All original p-values remained significant as they satisfied FDR critical values set at both 10% and 5%.

Prosocial responding and mental health knowledge. Secondary analyses examined participants' prosocial responding and mental health knowledge between pre- and post-intervention. Regarding prosocial responding, participants more frequently reported a higher level of AQ-Helping Behaviour and AQ-Empathy toward people with a mental illness, as well as moderate levels of AQ-Pity. While the AQ-Helping Behaviour and AQ-Empathy subscales both demonstrated a trend toward increased prosocial responding at post-intervention, these differences were not statistically significant (Table 1.4). Findings may have been limited by more frequent endorsement of higher levels on these scales at pre-intervention baseline for both subscales, notably for post-intervention AQ-Helping Behaviour. The BIDR was not associated with any of the measures of prosocial responding at pre- or post-intervention, suggesting that social desirability did not play a significant role in prosocial responding.

Mental health knowledge was also examined at pre- and post-intervention using the individual items of the MHKS (Table 1.5). At pre-intervention baseline, almost all participants correctly noted that psychotherapy and medication can be effective treatments for people with a

mental illness, with 100% and 96% respectively agreeing with these statements. Similarly, all participants correctly identified that depression, schizophrenia, and bipolar disorder are mental disorders; in contrast, fewer participants correctly noted that most people with a mental disorder do not seek care (63%), and that grief (20%) and stress (27%) are not mental disorders. In addition, despite possessing a background in health care training, only 65% of participants felt able to advise someone with a mental illness on how to obtain professional help, while 64% of participants believed that someone with a severe mental illness could fully recover. Mental health knowledge appears to have remained largely stable between pre- and post-intervention, though with a notable rise in the percentage of participants that felt able to advise someone with a mental illness on how to obtain professional help (87%).

Mental health experience. Examining past mental health experience with the LCR, the highest proportion of participants reported having a relative with a severe mental illness (36%), followed by knowing a friend of the family with severe mental illness (17%). In addition, 6% of participants reported personally having a severe mental illness. Exploratory analyses using bivariate correlations examined the relationship between mental health experience and participants' baseline levels of stigma at pre-intervention. Mental health experience was only found to be significantly negatively correlated with perceived dangerousness (DS), $r(49) = -.40$, $p < .01$.

Follow-Up Outcomes

Mental illness stigma and prosocial responding were assessed at 1-month follow-up to examine longitudinal outcomes from the multimodal intervention. Of the participants that completed pre- and post-intervention measures, 19 individuals (36%) completed follow-up. These participants had an average age of 24 ($SD = 5.76$) and were mostly female (94%), white

(89%), and majoring in nursing (84%). Participants that completed follow-up did not significantly differ on demographics, mental illness stigma, or prosocial responding when compared to participants that completed only pre- and post-intervention measures.

A series of paired t-tests examined participants' mental illness stigma and prosocial responding between pre-treatment and follow-up, (Table 1.6). At follow-up, participants continued to endorse significantly reduced desired social distance (SDS) from people with a mental illness relative to pre-intervention scores. An FDR correction, $(i / m)*Q$, was used to correct for the number of stigma measures used ($m = 6$), where the social distance scale was the only significant finding ($i = 1$) and acceptable type 1 error (Q) was set at .10, resulting in a more stringent requirement for statistical significance ($p < .016$). The SDS significance level ($p = .014$) satisfied this criterion and thus retained its significance. All other measures of mental illness stigma no longer significantly differed from pre-intervention scores, suggesting an increase in stigma between post-intervention and follow-up and a return to pre-intervention baseline levels of stigma. For prosocial responding at follow-up, participants continued to endorse levels of helping behaviour and empathy toward people with a mental illness that was not significantly different from their pre-intervention baseline scores. In contrast, participants reported significantly increased pity (AQ-Pity) toward people with a mental illness at follow-up. Again, an FDR correction was used to correct for the number of prosocial responding measures ($m = 3$), where AQ-Pity was the only significant finding ($i = 1$) and acceptable type 1 error (Q) was set at .10, resulting in a more stringent criterion for statistical significance ($p < .03$). The significance level for AQ-Pity ($p < .001$) satisfied this criterion and thus retained its significance.

Discussion

Antistigma interventions that feature live contact with an individual that has a mental illness or provide education on mental illness have been extensively investigated as intervention formats, with a growing body of evidence supporting their efficacy and effectiveness in reducing mental illness stigma (Corrigan et al., 2012). Multimodal interventions that feature multiple intervention formats have been less commonly researched. In addition, leading stigma researchers have called for increased grassroots collaboration with consumers of mental health services (Corrigan, 2012; Stuart, 2005). The primary purpose of this study was to investigate change in audience stigma associated with a multimodal antistigma intervention that featured education, live contact, and a novel Photovoice video. The Photovoice video served as the centrepiece of the intervention, which was developed through grassroots collaboration between a local mental health agency and mental health consumers. This is the first study to examine a grassroots antistigma intervention featuring a Photovoice video, and one of the few studies to date that assessed prosocial responding to people with a mental illness. In addition, secondary exploratory analyses examined factors that may be related to stigma, including mental health familiarity (i.e., mental health knowledge, mental health experience) and prosocial responding. Participants consisted of nursing and kinesiology students who viewed the multimodal intervention during one of their regularly scheduled lectures.

Consistent with past research into multimodal interventions (Michaels et al., 2014; Corrigan et al., 2010), the presentation was associated with a small effect on participants' mental illness stigma between pre- and post-intervention, including significantly decreased perceptions of people with a mental illness as unpredictable and incompetent, decreased fear of people with a mental illness, and decreased desired social distance from people with a mental illness. These

findings support the benefit of this multimodal intervention in reducing some aspects of mental illness stigma at post-intervention. In addition, several participants (n = 19) completed measures at 1-month follow-up in order to investigate long-term outcomes following the intervention. Responses suggested that stigma may have returned to baseline levels, as perceived unpredictability and incompetence, fear, and desired social distance were no longer significantly different from pre-intervention assessment. While these findings could be due to issues with the sample that are discussed below, they could alternatively justify the use of ongoing antistigma interventions as form of "booster shot," in order to maintain stigma reductions longitudinally. Participants did not report any significant changes in their levels of the perceived dangerousness of people with a mental illness, the perceived responsibility of people with a mental illness for their condition, or anger toward people with a mental illness between pre- and post-intervention, or between pre-intervention and follow-up.

Secondary analyses examined any change in prosocial responding and mental health knowledge at post-intervention and follow-up, as well as mental health experience in the context of respondents' baseline stigma. Participants' prosocial responding toward people with a mental illness, including helping behaviour, pity, and empathy did not significantly differ between the baseline pre-intervention measurement and post-intervention measurement. At follow-up, empathy and helping behaviour still did not significantly differ from pre-intervention; however, respondents reported significantly increased pity toward people with a mental illness. This latter finding mirrors a study by Corrigan et al. (2002), which found no significant increase in pity at post-intervention, but a significant increase at follow-up. This finding is difficult to explain. Given that a small self-selected subset of the total sample completed follow-up measures, respondents experiencing increased levels of pity may have been more likely to complete follow-

up. With regard to mental health knowledge, participants demonstrated perfect recognition of depression, schizophrenia, and bipolar disorder at pre-intervention, though had greater difficulty with recognizing that non-pathological states (grief, stress) are not mental disorders. Mental health knowledge was largely stable between pre- and post-intervention; in particular, at post-intervention only 60% of participants believed that an individual with a severe mental health problem could fully recover, which slightly decreased from 64% at pre-intervention. It is possible that this finding is related to the live contact portion of the intervention, in which the presenter with lived experience of mental illness described the recurrent nature of some mental disorders. In contrast, there was an increase in the proportion of participants who felt able to advise a friend on how to seek mental health services following the multimodal intervention.

The relationship between prosocial responding and stigma, and the role of prosocial responding in audience reaction to antistigma intervention, is presently unclear. Prosocial responding and stigma do not appear to be mutually exclusive; for example, a review by Ando, Clement, Barley, and Thornicroft (2011) found that simulating the experience of a psychotic hallucination increased prosocial empathy, while also increasing stigma in the desire for social distance. Furthermore, the distinction between a stigmatizing and prosocial response may not be absolute. In the case of pity, it may be seen as a prosocial emotion for some individuals, while having a more negative or demeaning implication for others (Silván-Ferrero, Pryor, & Reeder, 2007).

With regard to mental health familiarity, participants reported significantly increased mental health knowledge at post-intervention; however, as with measures of mental illness stigma, this change was not maintained at follow-up. Mental health experience was significantly negatively associated with perceived dangerousness at pre-intervention, as might be expected.

No further associations were found in this study. Given the inconsistency of past studies examining mental health experience, and the absence of a relationship between mental health experience and other measures of mental illness stigma in this study future research is needed to better understand the role of this factor in stigma. For example, research may examine different types of mental health experience and contrast different samples (e.g., general public versus mental health providers).

It is noteworthy that at no point in the study did participants report any significant changes in their levels of the perceived dangerousness of people with a mental illness, the perceived responsibility of people for having a mental illness, or anger, empathy, and helping behaviour toward people with a mental illness. These findings may have resulted from restricted variance in the sample in order to detect other significant changes in stigma. Several factors may have restricted the amount of variance available to detect significant changes in stigma and prosocial responding. From a psychometric perspective, it is possible that these measures of mental illness stigma and prosocial responding inadequately captured the constructs they were designed to measure. Several measures were comprised of only three items, which may have resulted in a lack of breadth in item content or in the number of items used to measure each construct. Furthermore, measures of perceived responsibility, empathy, and helping behaviour toward people with mental illness all exhibited inadequate estimates of internal consistency. In addition, pre-intervention scores on the stigma measures tended to be toward the lower end of the scale (possible floor effects), while scores on the prosocial responding measures were generally toward the higher end of the scale (ceiling effects). Consequently, there may have been inadequate variance in the data, and/or limited room for positive change to be measured, in order to detect significant differences on some measures if they existed in population, resulting in

insignificant findings. Given that past research using these measures in college students have found them to be sensitive to capturing varying levels of mental illness stigma (e.g., Corrigan et al., 2002), it may be that the sample used in this study accounted for the lack of significant differences. Perhaps most significantly, the fairly small sample size used (notably at follow-up) may have distorted the findings by resulting in a study that was underpowered in order to detect changes in the constructs of interest; indeed, a post-hoc power analysis conducted for the perceived responsibility of people for having a mental illness found that the measure was underpowered at both post-intervention and follow-up. Additionally, the use of a self-selected sample may have lead to the inclusion of participants who were motivated to report lower stigma and higher prosocial responding, although social desirability was not associated with any measures at pre- or post-intervention. These factors could help explain the apparent return to baseline levels of stigma found at follow-up, which may have been due to the loss of participants to follow-up or the aforementioned possibility of selection bias in the sample.

Limitations

While this study provides support for a multimodal antistigma intervention that features education, a Photovoice video, and live contact, there are some limitations to the design and findings. First, this study used a convenience sample of university students that consisted largely of white females studying nursing, which may limit the generalizability of the findings. While individuals with post-secondary education have been found to report lower stigma when compared to people without post-secondary education (Crisp, Gelder, Goddard, & Meltzer, 2005), it is evident that health professional students do endorse stigma toward mental illness (e.g., Urquhart Law, Rostill-Brookes, & Goodman, 2009) and practicing nurses have also been found to endorse mental illness stigma (Ross & Goldner, 2009). Furthermore, the course content

for nursing students included information on mental health and mental illness, which may have reduced stigma prior to the antistigma presentation (of note, the course did not discuss stigma). These factors may have resulted in the low levels of stigma found at baseline in the current study, which could have limited the variance available to find any changes in stigma. However, in a study by Keane (1991), nursing students reported increased stigma following a course dedicated to psychiatric nursing suggesting that the intervention used in this study did not have a paradoxically harmful effect of increasing stigma. Nevertheless, it is necessary to conduct studies that feature participants with demographic characteristics that are better generalizable to the larger population.

Second, there was no randomization to a control group or an alternative intervention group in order to contrast results from the multimodal intervention. The classroom-based setting of the presentation, and the difficulty in coordinating class times for the intervention sessions, resulted in the convenience sample and the inability to deny or delay the multimodal intervention in order to create a control group. Consequently, findings of reduced stigma at post-intervention cannot be causally linked to the multimodal intervention. Furthermore, those participants that returned to complete post-intervention scores may have been more motivated to report stigma change than those individuals who did not experience stigma change or experienced increased stigma following the intervention. Individuals who dropped out of the study between pre- and post-intervention were excluded from the analyses. It is possible these individuals left the study for a particular reason. Of note, participants who dropped out of the study reported lower empathy toward people with a mental illness at pre-intervention. Hypothetically these participants may have experienced less empathy in response to the multimodal antistigma intervention and been less motivated to complete post-intervention measures. Alternatively, dropouts may have not

completed post-intervention measures for a reason that was not evident from the examination of dropout data. In addition, because the intervention combined several formats (i.e., education, Photovoice, live contact) within a multimodal approach, it was not possible to dismantle the intervention components and identify how each format may have affected stigma between pre- and post-intervention, and between pre-intervention and follow-up, nor was it possible to know if the presence of multiple intervention formats within a single intervention conferred any advantage over the use of a single intervention format. Indeed, it is possible that a single aspect of the intervention served as the primary active ingredient in facilitating stigma change. Dismantling studies featuring the inclusion and exclusion of various components are required in order to understand their relative contributions to stigma reduction. It is worth noting, however, that the intervention did not appear to increase stigma, where past research has suggested that some antistigma intervention approaches may actually increase stigma (Read, Haslam, Sayce, & Davies, 2006).

Finally, some of the AQ subscales (dangerousness, avoidance, segregation) were excluded from analyses due to overlap in item content with the DS and SDS, which are more established measures that were used in this study. The need for a comprehensive measure of mental illness stigma is evident from the limitations of the measures used in this study, and the Opening Minds Stigma Scales recently developed by the Opening Minds Antistigma Initiative of the MHCC hold promise for the use of comprehensive stigma measures that are developed to measure stigma in specific populations (Stuart et al., 2014b).

Conclusion

This study is the first in the literature to examine a multimodal antistigma intervention that features a Photovoice video component. Findings that this multimodal antistigma intervention

approach was associated with reduced mental illness stigma for undergraduate students at post-intervention, including decreased perceptions of people with a mental illness as being unpredictable and incompetent, decreased fear of people with a mental illness, and decreased desired social distance from people with a mental illness. Due to the inclusion of multiple formats within a single multimodal intervention, it is not possible to understand the relative contributions of each factor in reducing mental illness stigma, nor is it possible to know if the combined presence of those components offered any unique advantage in reducing stigma. Consequently, further research is necessary in order to examine the benefit of the multimodal intervention relative to the use of its individual components (e.g., solitary education, live contact, or Photovoice) and relative to a non-intervention control. Given that the Photovoice video is a novel approach to stigma reduction that has not been examined in past research, further research is necessary in order to understand the unique benefit of a Photovoice video as a standalone intervention format. Finally, the video-based format of Photovoice would allow it to be used as an online intervention format, providing the potential for widespread dissemination.

Study 2: Efficacy of Photovoice as an Online Mental Illness Antistigma Intervention and the Role of Empathy in Audience Response: A Randomized Controlled Trial

The three primary formats for mental illness antistigma interventions are education, protest, and contact. Research comparing these formats has established that live contact (i.e., face-to-face) with an individual that has a mental illness is the most efficacious means of reducing audience mental illness stigma (Corrigan et al., 2012). However the utility of an antistigma intervention is also influenced by the feasibility and cost associated with dissemination, especially given the modest resources of mental health advocacy organizations that typically implement antistigma initiatives. While live contact interventions appear to be the most beneficial way to reduce stigma, facilitating these interactions between audiences and people with a mental illness can require significant resources (Clement et al., 2012; Penn et al., 2003). The continued pervasiveness of mental illness stigma (e.g., Phelan et al., 2000; Pescosolido et al., 2010) and the limited resources of advocacy agencies supports the benefit of utilizing cost-effective antistigma interventions that can be widely disseminated to the population. Online video-based interventions may fit this need. Given these considerations, and the findings from Study 1 that supported the potential benefit of a multimodal intervention that incorporates a Photovoice video, Study 2 sought to determine if this Photovoice video could be utilized as an online antistigma intervention for mental illness stigma.

Video and Online Antistigma Interventions

Video-based antistigma interventions may offer some benefits over live contact. Videos provide high fidelity to intervention content as well as greater ease and breadth of dissemination using online video platforms (e.g., YouTube; Clement et al., 2012; Corrigan, 2012; Corrigan et al., 2012). In addition, these benefits could be available at a reduced cost, as video interventions

require less time, money, and resources in order to implement on a broad scale when compared to live contact interventions (Clement et al., 2012). Consequently, identifying a potent video antistigma intervention may assist the efforts of mental health advocacy agencies that attempt to reduce mental illness stigma.

Studies that have examined video antistigma intervention formats have primarily looked at videotaped live contact, where a live contact intervention is videotaped and this video is shown to audiences as an antistigma intervention (e.g., Corrigan, Larson, Sell, Niessen, & Watson, 2007). Two reviews of the literature to date have found videotaped live contact to be beneficial in reducing audience stigma (Corrigan et al., 2012; Yamaguchi et al., 2013). Several studies have examined video antistigma interventions that feature different video content. For example, Michaels et al. (2014) examined a video depicting the experience of stigma by people with a mental illness, their families, and mental health professionals, and found that mental health professionals reported increased knowledge of stigma and decreased stereotyping post-intervention. Faigin and Stein (2008) compared a live and a videotaped theatrical performance about stigma and found that both were associated with reduced stigma at post-intervention, which was maintained at 1-month follow-up. Documentaries have also been examined as video antistigma interventions in various health student populations, though with mixed findings. In a sample of genetic counselling professionals and students, Anderson and Austin (2012) found decreased stereotyping and social distance after viewing an antistigma documentary, though stigma had largely returned to baseline at 1-month follow-up. Medical students have also reported decreased social distance after viewing an antistigma documentary, relative to a control (Kerby, Calton, Dimambro, Flood, & Glazebrook, 2008). In contrast, Penn et al. (2003) found no change in stereotyping or social distance following an antistigma documentary. Finally,

videotaped narratives have been researched, with comparable outcomes to live presentations of similar material (Clement et al, 2012). Therefore, a video format appears to hold promise as an antistigma intervention, though additional research is required.

Despite the proposed dissemination benefits of online antistigma videos, few studies have examined an online intervention format. While the aforementioned studies provide support for a video format, they examined video interventions presented to groups of individuals, which differs from the solitary experience typically provided by videos viewed on the Internet. Two studies have investigated an online antistigma intervention (i.e., *Computer-assisted Education system*, or *CO-ED*) that used an educational approach, which was found to be associated with reduced mental illness stigma at post-intervention in special education teachers (Finkelstein, Lapshin, & Wasserman, 2008) and in medical professors and students (Finkelstein & Lapshin, 2007). Although this program featured educational reading material instead of a video-based component, the findings provide support for an online intervention format. Matteo and You (2012) compared traditional live contact to an online video featuring first-person narratives from three individuals with a mental illness. Undergraduate students reported reduced levels of stigma after viewing the online video intervention, though findings were not statistically significant, while the live contact intervention was associated with a statistically significant decrease in stigma.

These studies offer preliminary support for an online antistigma intervention format. Few studies to date, however, have utilized a rigorous randomized controlled trial design to examine the efficacy of video or online antistigma interventions, necessitating additional research employing this methodology. Furthermore, given the wide range of potential content that can be featured in an antistigma intervention, regardless of format, past research has not provided a

clear understanding of the most beneficial to include in an antistigma intervention. The superior benefit of contact antistigma interventions suggests a uniquely potent characteristic of this format relative to education and protest intervention formats; yet, the majority of antistigma research has focused on identifying the most beneficial antistigma intervention rather than understanding why interventions are differentially effective. Identifying the potential mechanisms of action underlying the benefit of contact interventions could assist in developing a similarly beneficial video antistigma intervention. Additionally, few studies have investigated long-term audience outcomes following any antistigma intervention format (Yamaguchi et al., 2013). Follow-up research with contact interventions has often been limited to 1-week post-intervention, with evidence supporting maintained gains at this time (Corrigan et al., 2012; 2002). Those studies that have examined stigma at 1-month follow-up have reported mixed findings (Anderson & Austin, 2012; Faigin & Stein, 2008), necessitating the need for additional research.

Empathy: Understanding How Antistigma Interventions Reduce Stigma

Empathy refers to "the reactions of one individual to the observed experiences of another" (Davis, 1983, p. 113), where these reactions are prosocial in nature (Batson et al., 1997; Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004; Phelan & Basow, 2007). While much of the stigma literature has examined negative responses toward people with a mental illness, individuals have also been found to experience a range of empathic responses toward people with a mental illness, such as compassion, warmth, friendliness, kindness, and pity (Angermeyer et al., 2010). Angermeyer et al. (2010) theorized that the superior efficacy and effectiveness of live contact in reducing stigma may stem from its ability to evoke an empathic emotional reaction in the audience through exposure to the experience of having a mental illness. Consistent with this theory, individuals exposed to the experience of living as a member of a

marginalized group will often develop empathic emotional reactions, as well as prosocial cognitive and behavioural reactions (Batson et al., 1997; Naylor, Cowie, Walters, Talamelli, & Dawkins, 2009; Phelan & Basow, 2007; Stürmer, Snyder, Kropp, & Siem, 2006). Furthermore, empathy-induced improvements in cognitive, emotional, and behavioural responding toward a single member of a stigmatized group have been found to generalize to the larger group (Batson, Chang, Orr, & Rowland, 2002; Batson et al., 1997). Finally, and perhaps most significantly, meta-analytic work by Pettigrew and Troop (2008) found that empathy is a mediator of the relationship between intergroup contact and reduced prejudice. Unfortunately, this study did not examine prejudice in the context of mental illness stigma, nor did it specify the measures that were used to assess prejudice or the populations examined. Nevertheless, these findings strongly support the role of empathy in reducing negative reactions toward individuals perceived to be part of an "outgroup," which would include members of marginalized groups. In the context of mental illness, Batson et al. (2002) found that inducing empathic emotional reactions improved attitudes and behaviour toward people with substance dependency. Evidence supporting the benefit of empathy in facilitating more adaptive responding to marginalized groups has lead to recommendations that antistigma interventions should incorporate a stimulus that induces empathy in the audience (Batson et al., 2002; Phelan & Basow, 2007). Additional research is required in order to understand if empathy plays a role in the relationship between antistigma interventions and mental illness stigma. These findings could help in the development of antistigma interventions that better target the mechanisms of action underlying stigma reduction.

Photovoice as an Online Antistigma Video

In light of these findings, a video that can evoke an empathic reaction in the audience may serve as a potent antistigma intervention for mental illness stigma. Photovoice has the potential

to serve as an efficacious online antistigma video. As in a contact intervention, Photovoice exposes the audience to the experience of living of a marginalized group, which is thought to evoke empathy and to account for the superior benefit of contact interventions. Indeed, past research has suggested that videos depicting the experience of a stigmatized group can elicit empathic reactions in the audience (Batson et al., 2002; Batson et al., 1997; Penn et al., 2003). In contrast to live contact interventions, the video format of Photovoice capitalizes on the reduced cost and resources associated with its creation, as well as the greater ease of widespread dissemination via the Internet (Clement et al., 2012; Corrigan, 2012; Corrigan et al., 2012). Video also provides methodological benefits for stigma research, as the control over the structure and content of the intervention provides high fidelity that guarantees all audience members receive an identical intervention. Furthermore, it ensures a standard of quality for the intervention, which could vary with a live contact format.

In addition to these pragmatic advantages, Photovoice has unique features that have not been widely examined in past research. Past video antistigma interventions have suffered from a lack of grassroots control by stakeholders (Corrigan et al., 2012) and insufficient community-based participation (Corrigan & Shapiro, 2010). The creation of a Photovoice video avoids these shortcomings by including mental health service users as an essential component throughout each step of the creation and dissemination of the intervention (Wang & Burris, 1994). Additionally, the structure of the Photovoice video (i.e., photographs with voiceovers) is uncommon to traditional antistigma intervention formats and has not been widely researched.

The Current Study

The primary purpose of this study was to examine the efficacy of Photovoice as an online antistigma intervention using a randomized controlled trial (RCT) design. Where study 1

provided initial support for the antistigma benefit of Photovoice as part of a multimodal antistigma intervention, study 2 builds off these findings to investigate the antistigma properties of Photovoice as a standalone online intervention. This study addresses several shortcomings in the stigma literature, including a general lack of RCTs (Link et al., 2004) including RCTs specially investigating video and online antistigma interventions (Corrigan et al., 2012), and inadequate assessment of long-term outcomes from antistigma interventions. Finally, Photovoice is a novel video format for reducing stigma that may help to inform the structure and content of online antistigma campaigns. Given past support for the use of a variety of video formats to reduce stigma (Clement et al., 2012; Corrigan et al., 2012; Reinke et al., 2004; Yamaguchi et al., 2013), the Photovoice video was expected to result in decreased stigma relative to a control video at post-intervention. The long-term outcomes of audience stigma were also of interest. As past research has found long-term stigma reduction associated with an antistigma video (Faigin & Stein, 2008), the Photovoice audience was expected to report maintained reductions in stigma at 1-month follow-up relative to the control group. As in study 1, additional exploratory analyses examined several factors that have been less commonly assessed in stigma research, including mental health knowledge, mental health experience, and prosocial responding.

A secondary purpose of this study was to explore how the Photovoice antistigma intervention reduces stigma in the audience by examining the role of empathy in audience response. In general, there is little understanding of the factors that play a role in stigma reduction following antistigma interventions. Past studies have found that individuals report higher levels of empathy toward people with a mental illness following an antistigma intervention (Batson et al., 1997; Naylor et al., 2009; Phelan & Basow, 2007; Stürmer et al., 2006), suggesting the potential role of empathy in stigma reduction; however, it is unclear if

empathy that is induced by an antistigma intervention plays a mediating role in stigma reduction. In other words, while it appears that antistigma interventions have a beneficial effect in reducing mental illness stigma, less is known about *how* these interventions achieve this outcome. Mediation models are used in order to help answer this question by examining if the relationship between an independent variable (X) and a dependent variable (Y) passes through an intervening (i.e., mediating) variable (M) (Hayes, 2009). Applied to the present study (Figure 2.1), a mediation model was used to examine if the relationship between participants' assigned condition (X) and subsequent mental illness stigma at post-intervention (Y) was transmitted through participants' level of state empathy experienced while the video of their assigned condition (M). Specifically, when compared to participants that viewed a control video, participants that viewed the Photovoice video were expected to report higher levels of state empathy after watching the video, and this state empathy was hypothesized to account for a significant proportion of subsequent stigma reduction. The findings from this study may help to determine if state empathy plays a role in the pathway between antistigma interventions and mental illness stigma reduction. The design of the study had several strengths when conducting a mediation analysis (Hayes, 2013), including an experimental design that randomized participants to the independent variable, and temporal precedence of the independent variable to the proposed mediator, and of the proposed mediator to the dependent variables.

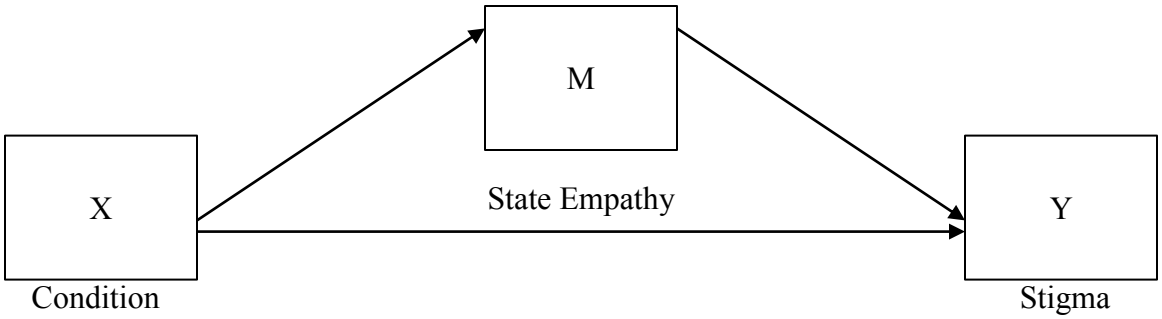


Figure 2.1. A mediation model to test state empathy as a mediator of the relationship between an antistigma intervention and subsequent stigma reduction.

Method

Participants

Participants were recruited from undergraduate psychology courses at Lakehead University. Numerous studies have used undergraduate psychology students to assess for mental illness stigma and to evaluate antistigma interventions. In general, there are mixed findings of the relationship between educational attainment and stigma endorsement (Angermeyer & Dietrich, 2006). Although psychology undergraduate students might be expected to have increased mental health knowledge relative to other undergraduate students, psychology students have endorsed higher levels of discrimination (desired social distance) when compared to medical students (Lincoln et al., 2008), and have endorsed stereotypes toward serious mental illness (schizophrenia) at levels comparable to the general public (Penn & Nowlin-Drummond, 2001). Furthermore, undergraduate students' stigma toward mental illness has been found to be amenable to antistigma interventions, with reduced stigma at post-intervention following live contact (Corrigan et al., 2012; Kolodziej & Johnson, 1996; Mann & Himelein, 2008). Undergraduate psychology students were therefore considered an appropriate sample for the current study. Students were eligible to participate if they were enrolled in a psychology course

offering an opportunity to earn bonus credits for participation in research. In return for their participation, respondents received bonus points toward additional course credit. Eligible students were required to have access to a computer with speakers or headphones as all study components were administered via the study website. No other exclusion criteria were used.

Intervention (Photovoice) and Control Videos

Participants were randomly allocated to view either a control video or an antistigma intervention video. Both videos were 18 minutes in length and presented by embedding a YouTube link on the study website and disabling the ability of participants to skip or pause the video. The antistigma intervention video consisted of a Photovoice video that was created by the Thunder Bay branch of the Canadian Mental Health Association in collaboration with several local mental health consumers. To create the video, these consumers were given cameras and asked to take pictures that were representative of their experience of having and recovering from mental illness. Several photos were then organized into a video presentation with associated voiceovers to explain the meaning of the picture to the audience. To date, this Photovoice video has been used as part of a larger multimodal antistigma intervention that is presented to a live audience (see Study 1). The control video consisted of a documentary on future modes of transportation that did not reference any aspect of mental or physical health or illness. This approach is consistent with the format of control videos used in past antistigma research (Corrigan et al., 2002; Reinke et al., 2004).

Measures

Table 2.1 delineates the measure administration schedule for the present study. Measures of mental illness stigma were administered at pre-intervention and post-intervention in order to assess for change associated with the Photovoice video, and again at 1-month follow-up, to

measure long-term outcomes. Additional measures assessed participant demographics, prosocial responding, and factors that may be related to stigma and audience response to an antistigma intervention, including mental health experience, mental health knowledge, and social desirability.

Demographics. Past research has identified demographics that may be associated with increased levels of mental illness stigma, including male gender (Corrigan et al., 2003; Corrigan & Watson, 2007; Loch et al., 2013; Mann & Himelein, 2004; 2008), non-white ethnicities (Anglin et al., 2006; Corrigan & Watson, 2007), and older adults (Taylor & Dear, 1981). As such, demographic questions measured participants' age, gender, and ethnicity, as well as their university major and years of university completed. A list of the demographic questions used in this study can be found in Appendix B.

Mental illness stigma. The measures of mental illness stigma included those that assessed for stigma toward the general label "mental illness," as well as stigma toward schizophrenia.

The *Dangerousness Scale* (DS; Link et al., 1987; Penn et al., 1994) assessed for participants' belief that people with a mental illness are dangerous. The DS is a self-report measure comprised of 8 items that are rated on a 7-point scale and combined into a total scale score, with higher scores indicative of greater stigma in the form of perceiving people with a mental illness as dangerous. The DS demonstrated adequate internal consistency in the present study ($\alpha = .79$) and in study 1, which is consistent with past research (Link et al., 1987; Penn et al., 1994). The DS can be found in Appendix D.

The *Social Distance Scale* (SDS) provided a proxy of stigmatizing behaviour toward people with a mental illness. The SDS is a longstanding and commonly used self-report measure that consists of 7-items assessing respondents' willingness to interact with people that have a

mental illness in a variety of social situations. Items are combined into a total scale score, with higher scores representative of greater stigma in the form of desired distance from people with a mental illness in various social situations. The SDS demonstrated adequate internal consistency in this study (α = .88) and in study 1, which is consistent with past findings (Corrigan et al., 2002). The SDS can be found in Appendix E.

Several subscales from the self-report *Attribution Questionnaire* (AQ; Corrigan et al., 2002; Corrigan et al., 2007) were administered to measure participants' belief that people with a mental illness are responsible for their condition (AQ-Responsibility) and participants' anger (AQ-Anger) and fear (AQ-Fear) toward people with a mental illness. Each subscale consisted of 3-items which are combined into a total subscale score, with higher scores indicative of greater stigma in the given subscale domain. As in study 1, Cronbach's alpha estimates in the present study found adequate internal consistency for the AQ-Anger (α = .80) and AQ-Fear (α = .87) subscales, while the AQ-Responsibility subscale performed less adequately (α = .56), suggesting the need for caution when interpreting this subscale. The AQ can be found in Appendix F.

In addition, a measure of *naturalistic discrimination* was used at post-intervention to assess participants' actual (versus predicted) discriminatory behaviour toward people with a mental illness. A single question asked participants if they were willing to sign a petition for increased funding for mental health care. Participants that were willing to sign were told their name would be added to the petition, which would be sent to a local member of parliament; in reality this petition was fictitious. Similar fictitious petitions have been used in past research (Corrigan et al., 1999; Rüsch et al., 2009). The naturalistic discrimination vignette and question can be found in Appendix J.

Finally, past research has found greater levels of stigma toward some disorder-specific symptom presentations (e.g., a vignette depicting schizophrenia) when compared to the disorder-nonspecific label of "mental illness" (e.g., Kolodzieg & Johnson, 1996). As such, stigma toward schizophrenia was assessed using the *Vignette-Social Distance Scale* (V-SDS) and the *Vignette-Emotion Scale* (V-EMS; Penn et al., 1994). Participants were asked to read a vignette describing a hypothetical individual that had recovered from schizophrenia symptoms (e.g., hallucinations, emotional flattening; Penn et al., 1994) and then complete the V-SDS and V-EMS. The V-SDS is a modified version of the SDS (described above) designed to provide a 7-item self-report measure of desired social distance from the hypothetical individual with schizophrenia depicted in the vignette. Items on the V-SDS are combined into a total scale score, with higher scores indicative of more stigmatizing desires for social distance from the person in the vignette. Next, the V-EMS asked participants to predict their emotional response to interacting with the individual in the vignette by rating 10 pairs of adjectives (e.g., *pessimistic* versus *optimistic*) anchored at each end of a 7-point scale, with all items combined into a total scale score, and where higher scores indicate more stigmatizing emotional responses toward the individual in the vignette. On both measures, higher scores were indicative of increased stigma toward people with a mental illness. Regarding the internal consistency of these measures in the current study, Cronbach's alpha estimates adequate internal consistency for the the V-SDS ($\alpha = .90$) and the V-EMS ($\alpha = .90$), consistent with past studies (Penn et al., 1994). The V-SDS and V-EMS can be found in Appendix K.

Prosocial responding. Several subscales of the AQ that measure prosocial responding were administered at pre-intervention, post-intervention, and follow-up to assess for any change associated with the Photovoice intervention over time. This included the 2-item AQ-Empathy

subscale and the 3-item AQ-Pity and AQ-Helping subscales, which respectively assessed participants' empathy and pity toward people with a mental illness, and their desire to help people with a mental illness. The items for each subscale are combined into a subscale scale, with higher scores indicative of greater prosocial responding in the given subscale domain. Cronbach's alpha estimates from this study suggested adequate internal consistency for the AQ-Empathy ($\alpha = .92$), AQ-Pity ($\alpha = .76$), and AQ-Helping ($\alpha = .70$) subscales. The AQ can be found in Appendix F.

Mental health knowledge. Participants' knowledge of mental health was assessed using the 12-item self-report *Mental Health Knowledge Schedule* (MHKS; Evans-Lacko et al., 2010). The MHKS items are interpreted individually (i.e., no total scale or subscale score) and include content measuring respondents' general knowledge of mental illness and treatment, and recognition of diagnosable mental disorders. The MHKS can be found in Appendix H.

Mental health experience. Participants' past exposure to mental health difficulties was assessed using the 12-item self-report *Level of Contact Report* (LCR; Holmes et al., 1999). Participants endorsed past experiences with mental health difficulties across a variety of situations, with larger scores associated with endorsing a greater degree of past experience. The scale score was taken from the item endorsed with the highest associated ranking. The LCR has demonstrated adequate inter-rater rank correlations in past research (.83; Holmes et al., 1999). The LCR can be found in Appendix G.

State empathy. In order to identify the empathy that participants' experienced while viewing the Photovoice video, participants' state empathy was assessed using the 6-item *Self-Reported Empathy Scale* (SRES; Batson, 1991). Participants use a 7-point scale to rate the extent to which they experienced several empathic reactions (sympathetic, compassionate, soft-hearted,

warm, tender, moved) while watching the Photovoice video. Responses are summed into a total scale score, where higher scores were indicative of greater state empathy experienced while watching the Photovoice video. Past research using the SRES in other marginalized groups (e.g., people with AIDS) has found adequate internal consistency (α = .92; Batson et al., 1997) and the SRES demonstrated excellent internal consistency in this study (α = .97). The SRES can be found in Appendix L.

Social desirability. The 40-item *Balanced Inventory of Desirable Responding* (BIDR; Paulhus, 1991) was used to measure respondents' tendency to respond with a positive bias and of intentional attempts to appear socially desirable. Respondents rated each item using a 7-point scale from 1 (not true) to 7 (very true), with all items combined into a total scale score of social desirability where higher scores indicate greater socially desirable responding on the scale. Of note, the motivation to respond in a socially desirable manner may be further reduced through the use of online measure administration, which provides respondents with increased privacy and anonymity (Joinson, 1999). Past research has suggested that face-to-face administration of questionnaires may be associated with increased social desirability relative to online administration (Henderson et al., 2012). As in study 1, given the limitations of factor structure of the BIDR, it is not recommended to correct scores based on the possible influence of social desirability (Leite & Beretvas, 2005); instead, any association between the BIDR and a given measure indicated the need to interpret the findings with caution given the possible role of social desirability in responding. The BIDR can be found in Appendix I.

Procedure

Ethical approval for this study was granted by the Lakehead University Research Ethics Board (#119 13-14). All aspects of the study were conducted online through a website developed

using Qualtrics online survey software. Individuals voluntarily accessed the study website using an online participant pool system. Potential participants first read an information form (i.e., study purpose, procedure, time commitment) and a statement of confidentiality (see Appendix N). After providing consent by clicking a button on screen, participants created a unique code in order to link their responses without using identifying information. Data were collected in three phases (Table 2.1). First, participants completed pre-intervention measures and were randomly assigned to either the Photovoice intervention video or the control video. Immediately after viewing the allocated video, individuals completed a measure of state empathy, followed by administration of measures of stigma, prosocial responding, and mental health knowledge in order to assess change associated with each condition. Participants were then invited to complete these measures again at 1-month follow-up. In return for their participation, respondents received bonus points toward additional course credit.

Results

Figure 2.2 demonstrates the flow of participants from initial pre-intervention assessment to 1-month follow-up. A total of 335 individuals consented to the study and participated in some aspect of data collection. Regarding participant dropout, 9% (n = 32) of participants dropped out of the study prior to being randomized to a condition and were excluded from the analyses; this included 7% (n = 24) of participants who finished pre-intervention measures but dropped out prior to being randomized to the Photovoice or control video, and 2% (n = 8) of participants that did not finish pre-intervention measures. Consequently, 303 participants completed pre-intervention measures, were randomized to the Photovoice intervention (n = 156) or the control video (n = 147), and completed post-intervention measures. Of these participants, 34% (n = 104) completed measures at 1-month follow-up, including 56 participants in the Photovoice

intervention condition and 48 participants in the control condition. Several additional participants (n = 20) that completed the measures at 1-month follow-up were excluded from the analyses of follow-up data as they entered an incorrect identification code, meaning these data could not be linked to their pre- and post-intervention responses.

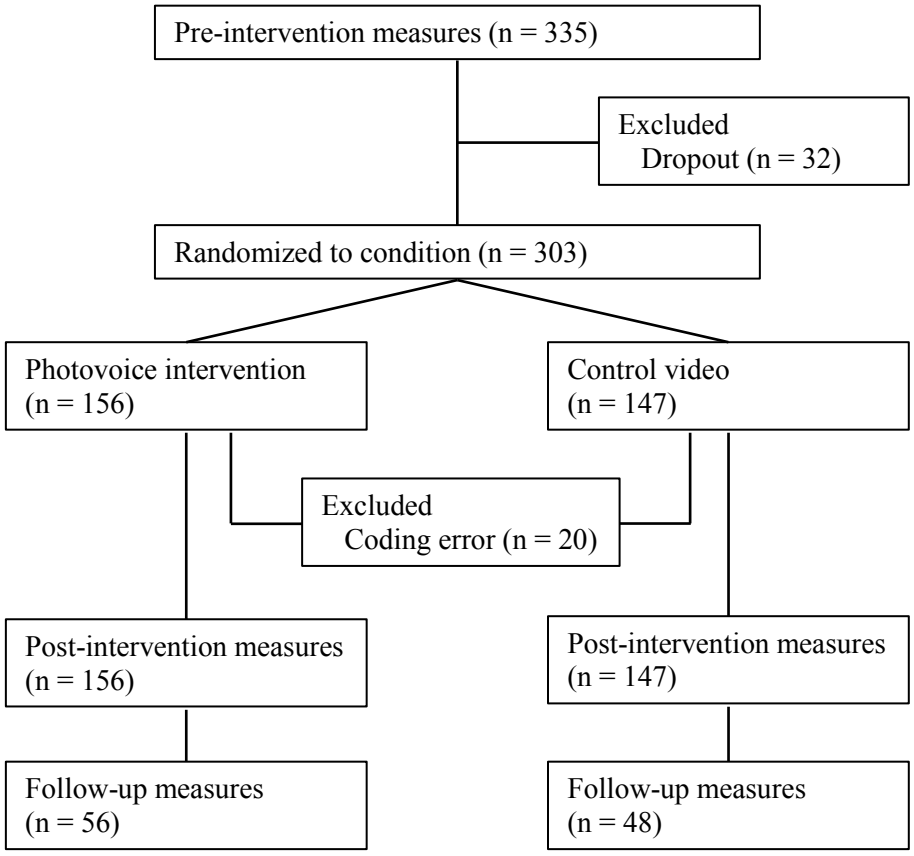


Figure 2.2. Participant allocation from pre-intervention through to 1-month follow-up.

Data Screening

Data screening was conducted with all cases that had complete pre- and post-intervention data (n = 303). Patterns of missing data were examined: at both pre- and post-intervention, 68% of cases had no missing values, while 31% of cases had at least one missing value; in total, however, less than 2% of the overall data were missing. At follow-up, most cases (90%) had

complete values, with less than 1% of the overall data missing. The most common pattern in the data was cases with complete data. Given the low number of missing values (i.e., less than 5% across cases and items), Expectation Maximization was used to estimate missing values based on available data using an iterative procedure (Schlomer, Bauman, & Card, 2010; Tabachnick & Fidell, 2007). Expectation Maximization is equivalent to alternative approaches in cases of low missing data (i.e., less than 5%; Roth, 1994; Scheffer, 2002). In addition, descriptives and boxplots were used to examine data for normality and outliers, and a square root transformation was used to correct for these issues in the AQ-Fear and AQ-Anger subscales (Tabachnick & Fidell, 2007).

Group Differences at Post-Intervention and Follow-Up

As shown in Table 2.2, participants in the intervention and control groups reported similar demographic characteristics. Across both groups, participants were an average age of 21, largely female, white, and had completed 1 year or less of post-secondary education. As shown in Table 2.3, participants in both the Photovoice intervention and control groups completed various outcome measures at pre-intervention, post-intervention, and follow-up assessment. The primary outcome of interest was the comparative level of mental illness stigma in the Photovoice intervention and control groups at post-intervention and follow-up. Secondary analyses assessed additional outcomes in each group, including prosocial responding and mental health knowledge. Means and standard deviation scores for outcomes measures at each phase of measurement are listed in Table 2.3.

Mental illness stigma. A series of ANCOVAs compared the intervention and control groups on various measures of stigma at post-intervention while controlling for pre-intervention scores. ANCOVA is appropriate in a longitudinal controlled design provided that participants

have been randomly assigned to groups: it equates the intervention and control groups on the pre-intervention score in order to identify if the groups differ after accounting for any pre-intervention differences, and it has been shown to provide greater power over repeated measures ANOVA (Sheeber, Sorensen, & Howe, 1996). ANCOVA analyses demonstrated that, relative to the control condition, participants that viewed the Photovoice intervention endorsed significant lower mental illness stigma at post-intervention (Table 2.4). Specifically, after equating the control and intervention groups on the pre-intervention baseline score, participants in the Photovoice intervention endorsed significantly lower anger (AQ-Anger) and fear (AQ-Fear) of people with a mental illness, decreased perception of people with a mental illness as dangerous (DS), and decreased desired social distance from people with a mental illness (SDS). Effect size estimates calculated using Cohen's *d* for ANCOVA (Cohen, 1988; Lipsey & Wilson, 2001) identified these differences as representing small effects, including for the AQ-Anger ($d = .31$), AQ-Fear ($d = .32$) and SDS ($d = .28$), and lower for the DS ($d = .16$).

Additionally, a series of one-way ANOVAs compared the intervention and control groups at post-intervention on vignette-based measures of emotional responding (V-EMS) and desired social distance (V-SDS) toward a hypothetical individual with schizophrenia, and on a naturalistic measure of stigma that asked participants to sign a petition related to mental health funding. No significant differences were noted between the intervention and control groups on any of these outcome measures administered at only post-intervention.

A series of ANCOVAs were also conducted in order to compare the intervention and control groups on levels of stigma again at 1-month follow-up after controlling for pre-intervention scores. As shown in Table 2.5, only desired social distance remained significantly

lower in the Photovoice intervention group when compared to the control group at 1-month follow-up, with Cohen's *d* estimating a medium effect size for this difference (*d* = .58).

Secondary analyses. Secondary analyses used ANCOVA to examine differences between the intervention and control groups on measures of prosocial responding. As shown in Table 2.3, participants in both the intervention and control groups more frequently reported greater levels of prosocial responding at pre-intervention. At both post-intervention and 1-month follow-up, participants in the Photovoice and control groups did not significantly differ on any measure of prosocial responding (AQ-Empathy, AQ-Pity, AQ-Helping).

Participants were also examined on their mental health knowledge using the individual items of the MHKS. Looking at all participants prior to randomization at pre-intervention, 69% agreed that people with a mental illness want to have employment, and 62% would know what advice to give to help a friend with a mental illness access professional help, 79% believed medication is an effective treatment for mental illness, 87% believed psychotherapy is an effective treatment for mental illness, and 48% believed people with a mental illness often do not seek treatment. Regarding recovery, 43% believed that people with severe mental illness can fully recover, while 34% where unsure, and 21% believed people with severe mental illness cannot fully recover. When asked to identify conditions that were representative of mental disorder, 92% correctly identified depression, 95% schizophrenia, and 95% bipolar disorder, while relatively fewer (68%) identified drug addiction as mental illness. In addition, relatively fewer participants correctly identified that stress (39%) and grief (37%) are not mental disorders.

Participants' mental health knowledge was also examined at post-intervention to explore any differences between the Photovoice and control groups. Given that the individual items of the MHKS are meant to be interpreted, rather than a total or subscale score, statistical analyses

were not conducted; instead, the data were examined in order to identify any trends or consistencies. As shown in Table 2.6, relative to the control group, participants in the Photovoice group reported increased knowledge of mental health and correct identification of conditions indicative of mental disorder across most items of the MHKS.

Tertiary analyses. Exploratory analyses examined mental health experience (LCR) as a predictor of pre-intervention mental illness stigma. Past mental health experience was significantly negatively associated with the AQ-Fear (-.27, $p < .01$), AQ-Anger (-.13, $p < .05$) DS (-.28, $p < .01$), and SDS (-.39, $p < .01$), suggesting that individuals with more past familiarity/exposure to mental illness endorsed lower stigma on these measures. Finally, the BIDR was examined for the possible role of social desirability in participants' responding. The BIDR was significantly associated with pre-intervention scores on measures of mental illness stigma and prosocial responding. For mental illness stigma, the BIDR was negatively associated with perceived dangerousness (DS), $r(301) = -.19$, $p < .01$) and desired social distance (SDS), $r(301) = -.17$, $p < .01$. In addition, the BIDR was associated with prosocial responses of pity (AQ-Pity), $r(301) = .17$, $p < .01$, helping behaviour (AQ-Helping Behaviour), $r(301) = .23$, $p < .001$, and empathy (AQ-Empathy), $r(301) < .23$, $p < .001$, toward people with a mental illness. Also of interest was the potential role of social desirability at post-intervention for the Photovoice group. Findings showed that the BIDR was significantly negatively correlated with stigma measures of perceived dangerousness (DS), $r(153) = -.30$, $p < .001$, desired social distance (SDS), $r(153) = -.17$, $p < .05$, and anger (AQ-Anger), as well as significantly positively correlated with prosocial measures of helping behaviour (AQ-Helping Behaviour), $r(153) = .31$, $p < .001$, and empathy (AQ-Empathy), $r(153) = .26$, $p < .01$, toward people with a mental illness. ANCOVA analyses were conducted again on those measures that were significantly different

between the intervention and control groups at post-intervention (i.e., DS, SDS, AQ-Fear, AQ-Anger), this time including the BIDR as a covariate; all measures retained the statistically significant differences found between groups.

Empathy as a Mediator of Stigma Reduction

State empathy (SRES) was measured immediately after participants watched the Photovoice or control video in order to assess empathic reactions experienced during the video. Participants in the Photovoice intervention group ($M = 5.37$; $SD = 1.33$) reported significantly greater state empathy immediately after viewing the Photovoice video ($t = 12.67$, $p < .001$) when compared to participants that viewed the control video ($M = 3.02$; $SD = 1.64$), suggesting that the Photovoice video elicited more of an empathic reaction in the audience relative to the control video.

Mediation models were conducted using the PROCESS macro for SPSS (Hayes, 2012) to examine state empathy as a possible mediator of the relationship between the Photovoice video and post-intervention levels of stigma. As shown in Figure 2.3, participants' randomized condition (i.e., Photovoice versus control) was entered as the dichotomous independent variable (X) in the mediation model, with the Photovoice condition coded 1 and the control condition coded 0, while state empathy (measured by the SRES) was entered a proposed mediator (M), and post-intervention mental illness stigma measures were entered as the dependent variable (Y). Separate models were tested for each measure of mental illness stigma that was significantly lower in the Photovoice group when compared to the control group: the AQ-Fear, AQ-Anger, DS, and SDS measures. Also included in the model are error terms for the mediator (e_M) and dependent variable (e_Y). For each model, pre-intervention scores on the measure were entered as

a covariate in order to control for their effect on post-intervention scores, consistent with recommendations for mediation models (Hayes, 2012, p. 21).

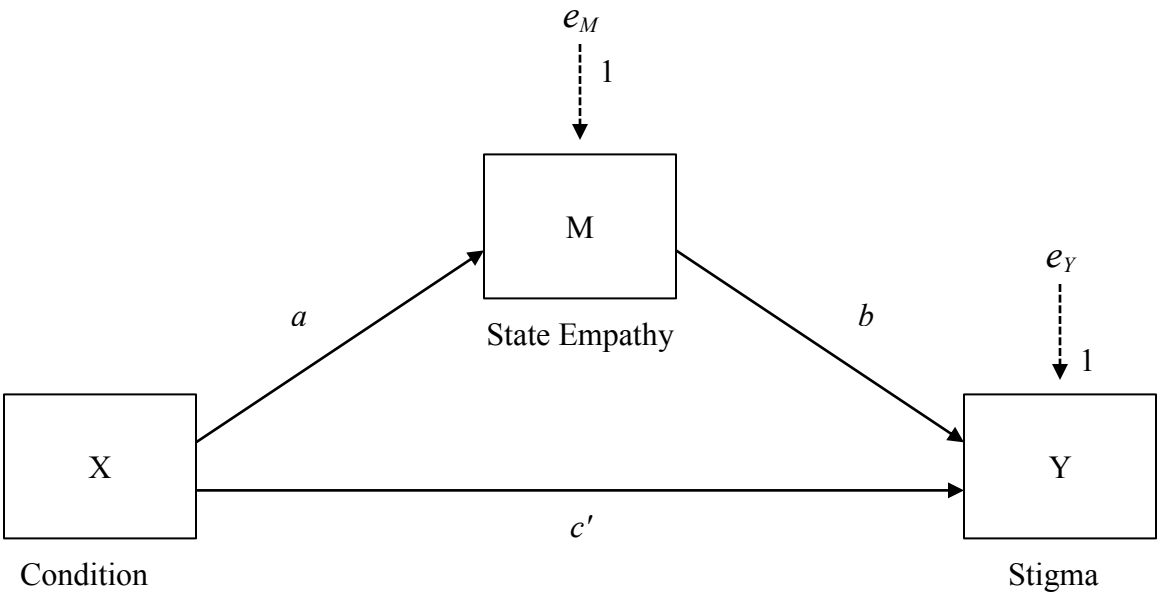


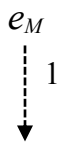
Figure 2.3. Mediation model examining state empathy as a potential mediator of the relationship between assigned condition and post-intervention mental illness stigma.

Models were estimated using a bootstrapping approach (Hayes, 2009; 2013), based on the shortcomings of competing inferential techniques, including the causal steps approach (Baron & Kenny, 1986) and the Sobel test. As reviewed by Rosopa and Stone-Romero (2008), the causal steps approach has been increasingly criticized in the literature due to inherent shortcomings in the technique, including a lack of quantifying or testing the indirect effect and low power stemming from the use of multiple hypothesis tests required in the approach (Hayes, 2009; 2013). In addition, although the Sobel test is based on the estimate of the indirect effect, it requires the generally untenable assumption of normality of the sampling distribution, and thus it was not used. In contrast, while the bootstrapping approach is also based on the estimate of indirect effect in the model, it does not assume a normal sampling distribution; it also provides a

direct test of the indirect effect. As such, bootstrapping is strongly recommended by Hayes (2009; 2013) and was used in the current study.

Using the bootstrapping approach, the relationship between condition (X) and post-intervention mental illness stigma (Y) was examined both as a direct effect (*c'*), and as an indirect effect (*ab*) mediated through the relationship between condition and state empathy (*a*) and subsequently between state empathy and post-intervention mental illness stigma (*b*). Following recommendations by Hayes (2013), mediation was established by using a bias-corrected bootstrap confidence interval for this indirect effect (*ab*) based on 10000 bootstrap samples, where confidence intervals that do not include zero provide 95% confidence that the indirect effect is statistically significant (i.e., 95% confidence that the value of the indirect effect is not zero).

As can be seen in Figure 2.4 and Table 2.7, state empathy mediated the relationship between the conditions and desired social distance from people with a mental illness (SDS). Participants who watched the Photovoice video experienced higher state empathy immediately after the video ($a = 2.39$), and participants who reported higher state empathy expressed less desired social distance from people with a mental illness ($b = -.05$). The 95% confidence interval for this indirect effect ($ab = -.12$) was significant as the confidence interval did not include zero (-.19 to -.06). Furthermore, there was not a significant effect of video condition on stigma reduction independent of its effect on state empathy ($c' = -.09$, $p = .11$).



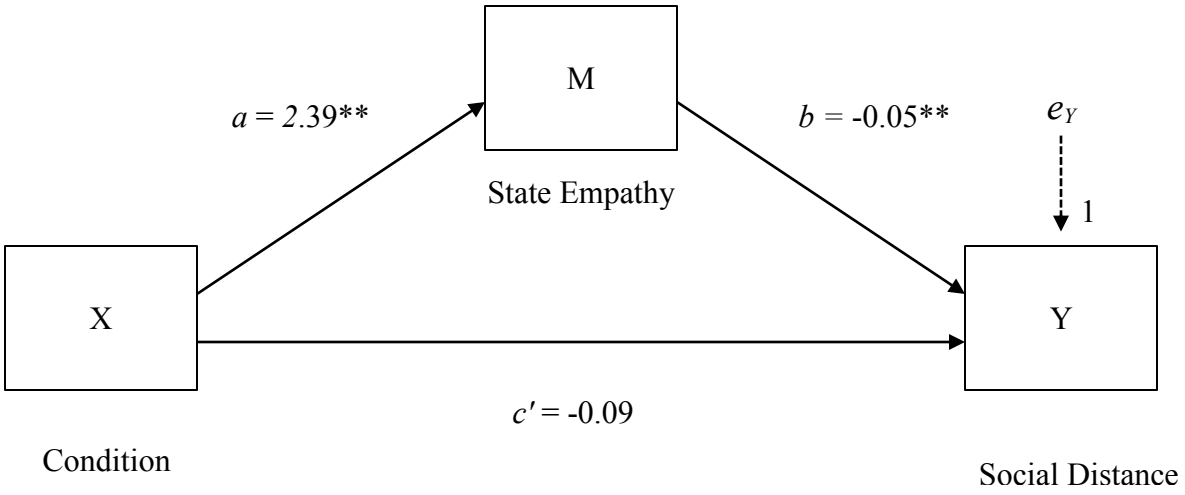
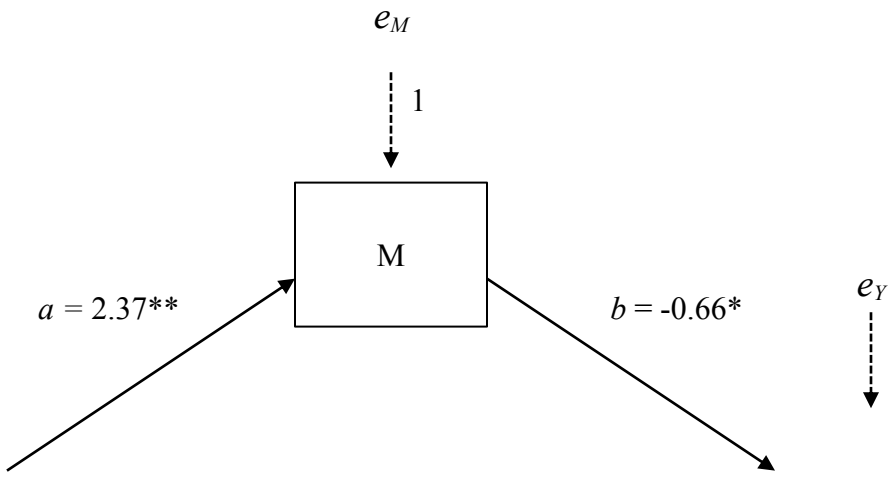


Figure 2.4. State empathy as a mediator of video condition (Photovoice versus control) and reduced desired social distance.
**$p < .001$.

Similarly, as can be seen in Figure 2.5 and Table 2.8, state empathy mediated the relationship between the video condition and the perceived dangerousness of people with a mental illness (as measured using the DS). Participants who watched the Photovoice video experienced higher state empathy immediately after the video ($a = 2.37$), and participants who reported higher state empathy expressed lower perceived dangerousness of people with a mental illness ($b = -.66$). The 95% confidence interval for this indirect effect ($ab = -.16$) was significant, as the confidence interval did not include zero (-.30 to -.027). Furthermore, there was not a significant effect of video condition on stigma reduction independent of its effect on state empathy ($c' = -.42$, $p = .71$).



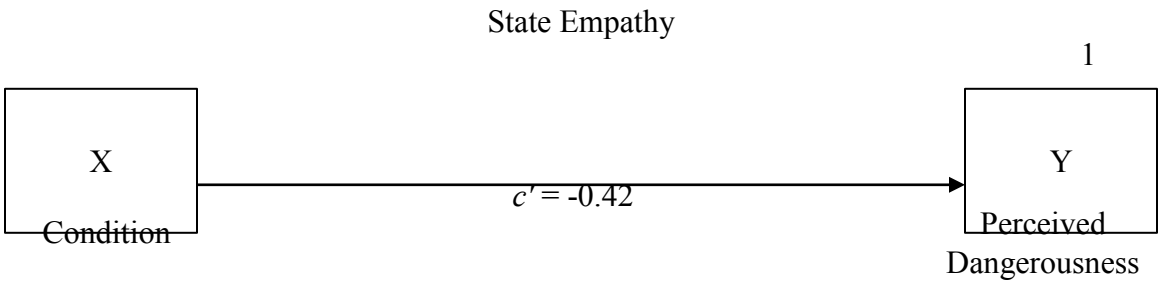


Figure 2.5. State empathy as a mediator of video condition (Photovoice versus control) and decreased perceived dangerousness.
*$p < .05$. **$p < .001$.

In contrast to these findings, state empathy was not found to be a significant mediator of in models tested with fear of people with a mental illness (AQ-Fear) and anger toward people with a mental illness (AQ-Anger) as outcomes.

Discussion

Emerging approaches to stigma reduction include video and online antistigma interventions, which are valued for their potential cost and dissemination benefits (Clement et al., 2012; Corrigan, 2012; Corrigan et al., 2012). Relative to established antistigma interventions (i.e., education and contact), fewer studies have examined video and online interventions. Initial findings have supported the potential utility of video interventions, including videotaped live contact (Corrigan et al., 2012; Yamaguchi et al., 2013), videotaped theatrical performances (Faigin and Stein, 2008), and antistigma documentaries (Anderson & Austin, 2012; Kerby et al., 2008; Penn et al., 2003). Across these studies, however, there is a lack of randomized controlled trials, and the videos used have not been developed using grassroots collaboration (Corrigan et al., 2012). Regarding online antistigma interventions, while initial research has supported online interventions using an education format (Finkelstein & Lapshin, 2007; Finkelstein et al., 2008), only one study has examined an online antistigma video intervention (Matteo and You, 2012).

Consequently, there is a need to capitalize on the online format for antistigma interventions and to examine the efficacy of an online antistigma video developed using grassroots collaboration, such as Photovoice.

Photovoice is a video developed by CMHA through grassroots collaboration with local consumers of mental health services. While Photovoice was associated with reduced mental illness stigma when it was included as part of a live multimodal antistigma intervention in Study 1, a Photovoice video has never been examined as a standalone online video antistigma intervention. This study provided a rigorous examination of the efficacy of Photovoice as an online antistigma intervention using a randomized control trial. In addition, while past research has suggested the possible role of empathy in audience stigma reduction after viewing an antistigma intervention, research has yet to identify if it is a mediator of stigma reduction between pre- and post-intervention. This study examined the role of state empathy as a potential mediator of stigma reduction following the Photovoice antistigma intervention.

Findings from this study support the efficacy of Photovoice as an online antistigma intervention for mental illness stigma, and more generally demonstrates the benefit of the online video-based antistigma intervention format. The Photovoice video had a small effect on respondents' stigmatizing responses, where individuals that viewed the Photovoice video reported decreased perceptions of people with a mental illness as dangerous, decreased anger and fear toward people with a mental illness, and reduced desired social distance from people with a mental illness. Furthermore, individuals that viewed the Photovoice video demonstrated greater mental health knowledge relative to individuals in the control group. To the author's knowledge, these findings are the first to support the efficacy of a Photovoice video as an antistigma intervention, and perhaps one of the first to investigate and provide support for the efficacy of

any online video antistigma intervention. This study also supports the potential utility of an antistigma intervention that was developed using grassroots collaboration with individuals who have experienced mental illness (Corrigan et al., 2012).

Participants in the intervention and control groups did not differ in their belief that people with a mental illness are responsible for their condition, on measures of prosocial responding toward people with a mental illness, or on vignette-based measures of stigma toward schizophrenia. The lack of significant group differences in stigma toward schizophrenia may reflect findings that schizophrenia is one of the most highly stigmatized mental disorders along with substance abuse (Crisp et al., 2000) and thus was less amenable to intervention. Alternatively, the Photovoice video did not focus exclusively on schizophrenia, and only briefly mentioned the experience of hallucinations, which could have weakened its effect on measures specifically targeting this disorder. As the video addressed the experience of mental disorder generally, the use of measures assessing stigma toward more general "mental illness" were deemed to be most appropriate. With regard to prosocial responding, there is little past research investigating this aspect of responding to people with a mental illness, making it difficult to contextualize these findings. One possibility is that these findings reflect a true lack of significant differences between the intervention and control groups, where this antistigma intervention reduced stigma but did not increase prosocial responding. Alternatively, psychometric limitations of the prosocial measures may have failed to adequately capture positive responses to people with a mental illness. Additional research into prosocial responding is necessary, including improved theoretical conceptualization of the responses that are included in prosocial responding and the development of associated measures.

At 1-month follow-up, the Photovoice video was found to have a medium effect on desired social distance; participants who viewed the Photovoice video continued to report maintained reductions in desired social distance from people with a mental illness relative to the control group, which is consistent with an increased willingness to engage socially with people that have a mental illness. In contrast, the intervention and control groups were no longer significantly different in the belief that people with a mental illness are dangerous, or in fear or anger toward people with a mental illness. Additionally, similar to post-intervention, the intervention and control groups did not significantly differ in perceived responsibility of people with a mental illness, or in any measure of prosocial responding toward people with a mental illness. Consequently, while participants that viewed the Photovoice video had returned to pre-intervention beliefs about the dangerousness of people with a mental illness and feelings of anger and fear, they maintained their increased willingness to interact socially with people that have a mental illness (as measured by the SDS). This willingness may increase the likelihood of contact with people that have mental illness, and subsequent opportunities for stigma reduction. In contrast, the intervention and control groups did not differ on any other measure of mental illness stigma or prosocial responding at follow-up, meaning that the intervention group had returned to their pre-intervention baseline scores on measures of anger (AQ-Anger) and fear (AQ-Fear) toward people with a mental illness, and the perceived dangerousness of people with a mental illness.

One explanation for these findings is that emotional responses to people with a mental illness may require more intense intervention in order to produce long-term changes. Whereas the AQ-Fear and AQ-Anger subscales assessed respondents' emotional responses to people with a mental illness, the SDS asked participants to predict their behaviour in the future. Similar

results have been found in the literature on psychological treatment of fear in phobias, where Internet-based interventions have been shown to increase willingness to interact with a feared stimulus, while emotional responses remained stable (Andersson et al., 2009). In other words, participants might be more willing to confront a feared stimulus but may report unchanged levels of emotional distress in the absence of adequate exposure. Indeed, given the maintained willingness to interact with individuals that have a mental disorder, participants may have had insufficient opportunities to engage with individuals that have a mental illness in the month following the Photovoice intervention. Alternatively, participants may have had opportunities to interact with people that have a mental illness but felt unprepared or incompetent in their ability to interact appropriately with people with a mental illness, where past research have identified the beneficial effect of programs that help teach individuals (e.g., family members) how to interact appropriately with people that have a mental illness (e.g., McFarlane, Dixon, Lukens, & Lucksted, 2003). Indeed, the Photovoice video was not oriented toward skill development in participants, rather a reduction in their stigmatizing responses. Nevertheless, participants' maintained willingness to interact with people with a mental illness suggests that they will be more receptive to such opportunities for interaction in the future. This finding is particularly encouraging given that it is behavioural change, rather than attitudinal change, that will lead to fewer instances of discrimination for people with a mental illness (Stuart, 2005). Moving forward, research should include longer follow-up periods to avoid the risk that the effects of the intervention on stigma go undetected with follow-up periods of insufficient duration. It is noteworthy that the effect size for desired social distance was larger at follow-up than at post-intervention. It is possible that participants who experienced larger drops in desired social distance at post-intervention returned to complete follow-up measures; however, this

interpretation may be more questionable given that no other measure of mental illness stigma demonstrated a similar drop in stigma and instead returned to pre-intervention baseline levels. Alternatively, as discussed above, it may be that participants experienced greater reductions in desired social distance between pre-intervention and follow-up, relative to pre- and post-intervention.

These findings provide support for the efficacy of online antistigma videos generally, and the use of Photovoice as a specific type of online video content, in reducing mental illness stigma both immediately following the intervention and, in the case of desired social distance, at 1-month follow-up. Given the lack of rigorous randomized control trials investigating grassroots based antistigma interventions or online video interventions, these findings provide an important contribution to the literature and support continued investigation into online video antistigma interventions. Future research should examine the relative efficacy of different antistigma video content in order to identify the most beneficial content in reducing stigma. In addition, the most beneficial online antistigma video content should be compared to live contact interventions in reducing stigma, which is currently the gold standard in antistigma interventions, while accounting for the cost and dissemination benefits of an online video.

The small effect sizes found in this study deserve additional consideration. It is difficult to know if these small changes in stigma would result in meaningful, or clinically significant, in the behaviour of those individuals that reported decreased stigma and, perhaps more importantly, if people with a mental illness would notice any decrease in stigmatization. Given that the effect sizes are small, it is questionable that people with mental illness would notice any difference in their daily lives should they interact with one of these individuals that participated in the study. That said, it should be noted that these changes followed a single 20 minute video, which is an

objectively small dose of any intervention, notably in the context of the frequent stigmatizing images in media and the confirmation bias that serve to continually reinforce stigmatizing responses in individuals that have negative views of people with a mental illness. It is possible that, similar to psychotherapy, antistigma interventions may contain a dose-response effect, where an increased dose of the intervention results in improved gains, to a certain point. This interpretation may be further supported by the findings of studies 1 and 2, where most measures of stigma that had decreased at post-intervention had returned to baseline levels at 1-month follow-up. As suggested in study 1, booster sessions of antistigma intervention may be required in order to maintain any gains in stigma reduction.

In addition, this study is one of the first to examine a factor that accounts for how an antistigma intervention reduces mental illness stigma. While past researchers have recommended that antistigma interventions should strive to induce empathy in the audience (Batson et al., 2002; Phelan & Basow, 2007), this study was the first to demonstrate that empathy is a mediator of the relationship between an antistigma Photovoice video and subsequent reductions in mental illness stigma, including decreased perceived dangerousness of people with a mental illness and desired social distance from people with a mental illness. These findings suggest that one way in which the Photovoice video may have reduced stigma was by inducing empathic reactions in participants. Identifying mediators that help to understand how antistigma interventions reduce stigma are necessary in order to develop interventions that capitalize on these factors in order to maximally reduce mental illness stigma an audience. As such, antistigma interventions may derive particular benefit if they are developed in order to elicit an empathic reaction in the audience. Consequently, a fertile area of future research may be investigating the relative way in which different video formats or content engenders viewer empathy, and how this subsequently

effects stigma and prosocial responding, toward developing a video which maximizes the empathic response in the viewer. In addition, a more comprehensive understanding of the mediators that account for the effect of antistigma interventions is needed in order to develop optimal interventions, necessitating additional research in this area. In addition, where empathy may be conceptualized as an emotional response, it is possible that additional factors mediate the relationship between antistigma interventions and stigma reduction. As demonstrated by Pettigrew and Troop's (2008) meta-analysis, cognitive factors (knowledge) and other emotional reactions (anxiety) appear to mediate prejudice reduction toward outgroups following live contact interventions. Similar factors may mediate stigma reduction following antistigma intervention. Additional cognitive factors (e.g., attitude change) could also play a role in stigma reduction. This nascent area of research has room for a great deal of future work and may be particularly beneficial in helping to develop antistigma interventions with maximum utility.

This finding may be extrapolated to help understand why live contact antistigma interventions are consistently superior to education interventions (e.g., Corrigan et al., 2012). A live contact intervention engages the audience by exposing to the salient stimulus, which in this case is a person with a mental illness, relative to a more passive education, where the audience is provided with information. It could be hypothesized that a live contact intervention is better able to create empathic responses in the audience, thereby resulting in superior decreases in mental illness stigma. Future research is needed in order to establish this connection, and this study provides impotence in order to further investigate and capitalize on empathy as a possible mechanism of action for antistigma interventions. Such findings would help advocacy agencies better develop antistigma interventions in order to maximize empathic responding and derive superior stigma reduction.

Limitations

This study has several limitations that should be acknowledged. First, the generalizability of the findings from this study may be limited by the sample, which was largely comprised of white female undergraduate students enrolled in psychology courses. As addressed, however, there are mixed findings between the relationship between educational attainment and levels of mental illness stigma (Angermeyer & Dietrich, 2006; Lincoln et al., 2008), and psychology students have endorsed similar levels of stigma toward serious mental illness when compared to the general public (Penn & Nowlin-Drummond, 2001). Furthermore, research using a population-based sample did not find a link between mental illness stigma (desired social distance) and age, race, gender, or educational attainment (Martin et al., 2000). Nevertheless, research using a sample of the general public is necessary in order to identify the real world effectiveness of the intervention and increase the generalizability of the findings.

Second, the measures used in this study had some limitations. Only self-report measures were used to measure the outcomes of interest, including mental illness stigma, prosocial responding, and mental health knowledge. While self-report measures are the most commonly used format to measure mental illness stigma, their subjectivity is vulnerable to social desirability (Link et al., 2004). Indeed, social desirability was found to be significantly associated with measures of mental illness stigma and prosocial responding, which should be considered when interpreting the results. That said, all findings retained significance when controlling for the potential confounding effect of social desirability. Furthermore, the online measure administration may have assisted in reducing the potential influence of social desirability, as recommended by past stigma researchers (Corrigan & Shapiro, 2010; Henderson et al., 2012; Skitka & Sargis, 2006).

In addition, the majority of measures used in this study assessed stigma and prosocial responses toward the somewhat generic category of "mental illness," rather than toward specific mental disorder categories (e.g., depressive disorders) or specific disorders (e.g., major depressive disorder). While this approach is consistent with a large portion of stigma research, it fails to capture disorder-specific stigma. Furthermore, it is impossible to know what each participant conceptualized *mental illness* to represent. Future research using these measures may benefit from a simple qualitative question asking participants to describe the symptoms and features they pictured in response the term *mental illness*.

Third, with regard to the mediation analyses conducted in this study, it is important to interpret these findings with caveats (Hayes, 2013). While state empathy was shown to play a role in the relationship between the Photovoice video condition and subsequent stigma reduction at post-intervention, this is only one of many possible mediators that could play a role in stigma reduction following an antistigma intervention. Furthermore, this model does not tell us about what factors may influence the relationship between Photovoice and state empathy, or between state empathy and stigma reduction. It is reasonable that video content would impact the level of empathy elicited in the viewer, and additional variables not measured in this study could impact the content that a given individual responds to, and even the ability of an individual to experience empathy. The wide variety of potentially important mediating factors necessitates further research into this promising area. Findings have the potential to help better develop antistigma interventions to have maximal benefit in reducing stigma.

Conclusion

This study is, to the author's knowledge, the first in the literature to examine a Photovoice video, developed using a grassroots approach, as an online antistigma video intervention for

mental illness stigma. Findings demonstrate that a Photovoice video decreases audience mental illness stigma post-intervention, including perceived dangerousness and fear of people with a mental illness, and anger toward and desired social distance from people with a mental illness. Furthermore, at one-month follow-up, participants that viewed the Photovoice video continued to express an increased willingness to engage with people that have mental illness. These findings support the benefit of online antistigma videos generally, and the use of Photovoice as an online video format. Given the low cost and ease of dissemination for online videos, this appears to be a promising format for future antistigma interventions. In addition, this study is one of the first to investigate how antistigma interventions reduce mental illness stigma. Findings demonstrated that audience members' level state empathy after viewing the Photovoice antistigma video plays a mediational role in subsequent stigma reduction. This could have implications for the development of antistigma interventions, and suggests that interventions that elicit higher audience empathy could result in lower levels of mental illness stigma.

Concluding Discussion

These studies indicate that (1) grassroots-based antistigma interventions can reduce mental illness stigma, (2) a multimodal intervention, which included education, Photovoice, and live contact, was associated with reduced mental illness stigma in nursing and kinesiology students, (3) a Photovoice video is an efficacious antistigma intervention when presented as an online video, and (4) empathy plays a role in mediating the relationship between antistigma interventions and mental illness stigma reduction. Points (3) and (4) above are particularly noteworthy and may represent the most important contributions by this body of work. Specifically, this study is the first to demonstrate that a brief online video intervention (in this research, a Photovoice video) can reduce mental illness stigma and create long-term (1-month) improvements in the willingness of individuals to interact with people that have a mental illness. Furthermore, this study is the first to empirically demonstrate that empathy plays a role in how mental illness stigma is decreased following an antistigma intervention. These findings can be used to inform the development of antistigma interventions and suggest that an online video that is able to elicit empathy in the viewer may have particular utility as an antistigma intervention.

A shortcoming of antistigma research is reliance on the use of self-report inventories in order to measure negative reactions (i.e., stigma), which most individuals recognize as being socially undesirable despite their automaticity in elicitation and widespread prevalence. As in any self-report assessment, demand characteristics are likely to be present. Researchers often attempt to counteract the effects of explicit (i.e., self-report) measures and obtain a respondent's "true" stigma by measuring implicit (i.e., unconscious) responses using reaction time laboratory tasks; however, regardless of whether implicit or explicit measures of stigma are used, these measures may represent only a small aspect of abstract concepts, such as stigma and its theorized

components (Kazdin, 2006). Ongoing development, research, and refinement of mental illness stigma theories and associated assessment measures will drive better understanding and reduction of mental illness stigma. Future research would benefit from testing the proposed relationships between the constructs proposed to represent mental illness stigma, such as negative cognitive, emotional, and behavioural reactions to mental illness stigma. The development of associated theoretically-based measures is required and sorely lacking in the literature to date. Furthermore, given the persistence of mental illness stigma despite increased awareness and efforts to reduce its pernicious effect, it is evident that stigmatizing responses are difficult to ameliorate. For lasting stigma reduction to occur, it may be necessary for repeated exposure to antistigma interventions, which could be facilitated through the use of video interventions. Additionally, adequate opportunities for individuals to interact with people that have mental illness may be beneficial in ensuring that individuals experience the empathic reactions that play a role in stigma reduction, as demonstrated in the present study. Finally, while other research similar to the current study have found that individuals endorse an increased willingness to interact with individuals that have a mental illness, stigma research generally is unable to identify if any of the findings translate into real behavioural changes in daily life toward people with a mental illness (Stuart, 2012).

Given the high lifetime prevalence of mental illness, and the importance of appropriate treatment in order to alleviate the associated suffering and economic burden, antistigma interventions play a role not only in awareness, but also in public health. Marginalized groups inherently occupy the fringes of society, despite their need for attention and adequate care. The pervasiveness of mental illness stigma suggests that, despite increased awareness and publicity around mental illness, it continues to elicit negative stigmatizing reactions from society.

Continued research into mental illness stigma and antistigma interventions can inform the development of interventions that maximize stigma reduction at the lowest cost and with the maximum breadth of dissemination.

References

Allport, G. W. (1954). *The nature of prejudice*. New York, NY: Basic Books.

Altman, D. G., & Bland, J. M. (2007). Statistics notes: Missing data. *BMJ, 334,* 424. doi:10.1136/bmj.38977.682025.2C

Anderson, K., & Austin, J. C. (2012). Effects of a documentary film on public stigma related to mental illness among genetic counselors. *Journal of Genetic Counseling, 21*(4), 573-581. doi:10.1007/s10897-011-9414-5

Andersson, G., Waara, J., Jonsson, U., Malmaeus, F., Carlbring, P., & Öst, L. G. (2009). Internet-based self-help versus one-session exposure in the treatment of spider phobia: A randomized controlled trial. *Cognitive Behaviour Therapy, 38*(2), 114-120. doi:10.1080/16506070902931326

Ando, S., Clement, S., Barley, E. A., & Thornicroft, G. (2011). The simulation of hallucinations to reduce the stigma of schizophrenia: A systematic review. *Schizophrenia Research, 133*(1), 8-16. doi:10.1016/j.schres.2011.09.011

Angermeyer, M. C., & Dietrich, S. (2006). Public beliefs about and attitudes towards people with mental illness: A review of population studies. *Acta Psychiatrica Scandinavica, 113*(3), 163-179. doi:10.1111/j.1600-0447.2005.00699.x

Angermeyer, M. C., Holzinger, A., & Matschinger, H. (2009). Mental health literacy and attitude towards people with mental illness: A trend analysis based on population surveys in the eastern part of Germany. *European Psychiatry, 24*(4), 225-232. doi:10.1016/j.eurpsy.2008.06.010

Angermeyer, M. C., Holzinger, A., & Matschinger, H. (2010). Emotional reactions to people with mental illness. *Epidemiology and Psychiatric Sciences, 19*(1), 26-32. doi:10.1017/S1121189X00001573

Angermeyer, M. C., & Matschinger, H. (1997). Social distance towards the mentally ill: Results of representative surveys in the Federal Republic of Germany. *Psychological Medicine, 27*(1), 131-141. doi:10.1016/S0920-9964(03)00186-5

Angermeyer, M. C., & Matschinger, H. (2003). The stigma of mental illness: Effects of labelling on public attitudes towards people with mental disorder. *Acta Psychiatrica Scandinavica, 108*(4), 304-309. doi:10.1034/j.1600-0447.2003.00150.x

Angermeyer, M. C., & Matschinger, H. (2004). The stereotype of schizophrenia and its impact on discrimination against people with schizophrenia: Results from a representative survey in Germany. *Schizophrenia Bulletin, 30*(4), 1049-1061. doi:10.1093/oxfordjournals.schbul.a007120

Angermeyer, M. C., & Matschinger, H. (2005). Labeling - stereotype - discrimination: An investigation of the stigma process. *Social Psychiatry and Psychiatric Epidemiology, 40*(5), 391-395. doi:10.1007/s00127-005-0903-4

Anglin, D. M., Link, B. G., & Phelan, J. C. (2006). Racial differences in stigmatizing attitudes toward people with mental illness. *Psychiatric Services, 57*(6), 857-862. doi:10.1176/ps.2006.57.6.857

Atzema, C. L., Schull, M. J., & Tu, J. V. (2011). The effect of a charted history of depression on emergency department triage and outcomes in patients with acute myocardial infarction. *Canadian Medical Association Journal, 183*(6), 663-669. doi:10.1503/cmaj.100685

Ay, P., Save, D., & Fidanoglu, O. (2006). Does stigma concerning mental disorders differ through medical education?: A survey among medical students in Istanbul. *Social Psychiatry and Psychiatric Epidemiology, 41*(1), 63-67. doi:10.1007/s00127-005-0994-y

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182. doi:10.1037/0022-3514.51.6.1173

Batson, C. D. (1991). *The altruism question: Toward a logical answer.* Hillsdale, NJ: Erlbaum.

Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group?. *Personality and Social Psychology Bulletin, 28*(12), 1656-1666. doi:10.1177/014616702237647

Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., . . . & Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group?. *Journal of Personality and Social Psychology, 72*(1), 105-118. doi:10.1177/014616702237647

Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond.* (2nd ed.). New York, NY: The Guilford Press.

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological), 57*(1), 289-300. Retrieved from http://www.jstor.org/stable/2346101

Bland, J. M., & Altman, D. G. (1996). Statistics notes: Transforming data. *BMJ, 312,* 770. doi:10.1136/bmj.312.7033.770

Bordieri, J. E., & Drehmer, D. E. (1986). Hiring decisions for disabled workers: Looking at the cause. *Journal of Applied Social Psychology, 16*(3), 197-208. doi:10.1111/j.1559-1816 .1986.tb01135.x

Bosnjak, M., & Tuten, T. L. (2003). Prepaid and promised incentives in web surveys: An experiment. *Social Science Computer Review, 21*(2), 208-217. doi:10.1177/0894439303021002006

Catalani, C., & Minkler, M. (2010). Photovoice: A review of the literature in health and public health. *Health Education & Behavior, 37*(3), 424-451. doi:10.1177/1090198109342084

Clement, S., Jarrett, M., Henderson, C., & Thornicroft, G. (2010). Messages to use in population-level campaigns to reduce mental health-related stigma: Consensus development study. *Epidemiologia e Psichiatria Sociale, 19*(1), 72-79. doi:10.1017/S1121189X00001627

Clement, S., van Nieuwenhuizen, A., Kassam, A., Flach, C., Lazarus, A., de Castro, M., . . . & Thornicroft, G. (2012). Filmed v. live social contact interventions to reduce stigma: Randomised controlled trial. *The British Journal of Psychiatry, 201*(1), 57-64. doi:10 .1192/bjp.bp.111.093120

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Corrigan, P. W. (2000). Mental health stigma as social attribution: Implications for research methods and attitude change. *Clinical Psychology: Science and Practice, 7*(1), 48-67. doi:10.1093/clipsy.7.1.48

Corrigan, P. W. (2002). Testing social cognitive models of mental illness stigma: The Prairie State stigma studies. *Psychiatric Rehabilitation Skills, 6*(2), 232-254. doi:10.1080 /10973430208408434

Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist, 59*(7), 614-625. doi: 10.1037/0003-066X.59.7.614

Corrigan, P. W. (2012). Research and the elimination of the stigma of mental illness [Editorial]. *The British Journal of Psychiatry, 201*, 7-8. doi:10.1192/bjp.bp.111.103382

Corrigan, P. W., Green, A., Lundin, R., Kubiak, M. A., & Penn, D. L. (2001). Familiarity with and social distance from people who have serious mental illness. *Psychiatric Services, 52*(7), 953-958. doi:10.1176/appi.ps.52.7.953

Corrigan, P. W., Larson, J., Sells, M., Niessen, N., & Watson, A. C. (2007). Will filmed presentations of education and contact diminish mental illness stigma?. *Community Mental Health Journal, 43*(2), 171-181. doi:10.1007/s10597-006-9061-8

Corrigan, P. W., & Lee, E.-J. (2013). Recovery and stigma in people with psychiatric disabilities. In J. Rosenberg & S. J. Rosenberg (Eds.), *Community mental health: Challenges for the 21st century* (2nd ed., pp. 3-21). New York, NY: Routledge.

Corrigan, P. W., Markowitz, F. E., & Watson, A. C. (2004). Structural levels of mental illness stigma and discrimination. *Schizophrenia Bulletin, 30*(3), 481-491. Retrieved from http://schizophreniabulletin.oxfordjournals.org/content/30/3/481.full.pdf+html

Corrigan, P. W., Markowitz, F. E., Watson, A., Rowan, D., & Kubiak, M. A. (2003). An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior, 44*(2), 162-179. doi:10.2307/1519806

Corrigan, P. W., Morris, S. B., Michaels, P. J., Rafacz, J. D., & Rüsch, N. (2012). Challenging the public stigma of mental illness: A meta-analysis of outcome studies. *Psychiatric Services, 63*(10), 963-973. doi:10.1176/appi.ps.005292011

Corrigan, P. W., & Penn, D. L. (1999). Lessons from social psychology on discrediting psychiatric stigma. *American Psychologist, 54*(9), 765. doi:10.1037/0003-066X.54.9.765

Corrigan, P. W., Rafacz, J. D., Hautamaki, J., Walton, J., Rüsch, N., Rao, D., . . . & Reeder, G. (2010). Changing stigmatizing perceptions and recollections about mental illness: the effects of NAMI's In Our Own Voice. *Community Mental Health Journal, 46*(5), 517-522. doi:10.1007/s10597-009-9287-3

Corrigan, P. W., River, L. P., Lundin, R. K., Wasowski, K. U., Campion, J., Mathisen, J., . . . & Kubiak, M. A. (1999). Predictors of participation in campaigns against mental illness stigma. *The Journal of Nervous and Mental Disease, 187*(6), 378-380. Retrieved from http://journals.lww.com/jonmd/Citation/1999/06000/Predictors_of_Participation_in_Campaigns_against.8.aspx

Corrigan, P. W., Rowan, D., Green, A., Lundin, R., River, P., Uphoff-Wasowski, K., . . . & Kubiak, M. A. (2002). Challenging two mental illness stigmas: Personal responsibility and dangerousness. *Schizophrenia Bulletin, 28*(2), 293-309. doi:10.1093/oxfordjournals.schbul.a006939

Corrigan, P. W., & Shapiro, J. R. (2010). Measuring the impact of programs that challenge the public stigma of mental illness. *Clinical Psychology Review, 30*(8), 907-922. doi:10.1016/j.cpr.2010.06.004

Corrigan, P. W., & Wassel, A. (2008). Understanding and influencing the stigma of mental illness. *Journal of Psychosocial Nursing and Mental Health Services, 46*(1), 42-48. doi:10.3928/02793695-20080101-04

Corrigan, P. W., & Watson, A. C. (2002). The paradox of self-stigma and mental illness. *Clinical Psychology: Science and Practice, 9*(1), 35-53. doi:10.1093/clipsy.9.1.35

Corrigan, P. W., & Watson, A. C. (2007). The stigma of psychiatric disorders and the gender, ethnicity, and education of the perceiver. *Community Mental Health Journal, 43*(5), 439-458. doi:10.1007/s10597-007-9084-9

Couture, S., & Penn, D. (2003). Interpersonal contact and the stigma of mental illness: A review of the literature. *Journal of Mental Health, 12*(3), 291-305. doi:10.1080/09638231000118276

Crisp, A., Gelder, M., Goddard, E., & Meltzer, H. (2005). Stigmatization of people with mental illnesses: A follow-up study within the Changing Minds campaign of the Royal College of Psychiatrists. *World Psychiatry, 4*(2), 106113. Retrieved from http://www.wpanet.org/uploads/Publications/WPA_Journals/World_Psychiatry/Past_Issues/English/wpa-06-2005.pdf

Crisp, A. H., Gelder, M. G., Rix, S., Meltzer, H. I., & Rowlands, O. J. (2000). Stigmatisation of people with mental illnesses. *The British Journal of Psychiatry, 177*(1), 4-7. doi:10.1192/bjp.177.1.4

Crocker, J., Major, B. M., & Steele, C. (1998). Social stigma. In D. T. Gilbert, S. T. Fiske, & G. Lindzay (Eds.), *The handbook of social psychology* (4 ed., Vol. 2, pp. 504-553). New York, NY: Oxford University Press.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349-354. doi:10.1037/h0047358

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113-126. doi:10.1037/0022-3514.44.1.113

Dunlap, W. P., Cortina, J. M., Vaslow, J. B., & Burke, M. J. (1996). Meta-analysis of experiments with matched groups or repeated measures designs. *Psychological Methods, 1*(2), 170-177. doi:10.1037/1082-989X.1.2.170

Evans-Lacko, S., Little, K., Meltzer, H., Rose, D., Rhydderch, D., Henderson, C., & Thornicroft, G. (2010). Development and psychometric properties of the mental health knowledge schedule. *Canadian Journal of Psychiatry, 55*(7), 440-448. Retrieved from http://publications.cpa-apc.org/media.php?mid=996

Faigin, D. A., & Stein, C. H. (2008). Comparing the effects of live and video-taped theatrical performance in decreasing stigmatization of people with serious mental illness. *Journal of Mental Health, 17*(6), 594-606. doi:10.1080/09638230701505822

Finkelstein, J., & Lapshin, O. (2007). Reducing depression stigma using a web-based program. *International Journal of Medical Informatics, 76*(10), 726-734. doi:10.1016/j.ijmedinf.2006.07.004

Finkelstein, J., Lapshin, O., & Wasserman, E. (2008). Randomized study of different anti-stigma media. *Patient Education and Counseling, 71*(2), 204-214. doi:10.1016/j.pec.2008.01.002

Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 2, pp. 357-411). New York, NY: McGraw-Hill.

Fleming, J., Mahoney, J., Carlson, E., & Engebretson, J. (2009). An ethnographic approach to interpreting a mental illness photovoice exhibit. *Archives of Psychiatric Nursing, 23*(1), 16-24. doi:10.1016/j.apnu.2008.02.008

Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity.* Englewood Cliffs, NJ: Prentice-Hall.

Green, S. B., Lissitz, R. W., & Mulaik, S. A. (1977). Limitations of coefficient alpha as an index of test unidimensionality. *Educational and Psychological Measurement, 37*(4), 827-838. doi:10.1177/001316447703700403

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408-420. doi:10.1080/03637750903310360

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/ public/process2012.pdf

Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: The Guilford Press.

Hayward, P., & Bright, J. A. (1997). Stigma and mental illness: A review and critique. *Journal of Mental Health, 6*(4), 345-354. doi:10.1080/09638239718671

Hegarty, P., & Golden, A. M. (2008). Attributional beliefs about the controllability of stigmatized traits: Antecedents or justifications of prejudice?. *Journal of Applied Social Psychology, 38*(4), 1023-1044. doi:10.1111/j.1559-1816.2008.00337.x

Henderson, C., Evans-Lacko, S., Flach, C., & Thornicroft, G. (2012). Responses to mental health stigma questions: The importance of social desirability and data collection method. *Canadian of Journal of Psychiatry, 57*(3), 152-160. Retrieved from http://publications .cpa-apc.org/media.php?mid=1381

Hergenrather, K. C., Rhodes, S. D., Cowan, C. A., Bardhoshi, G., & Pula, S. (2009). Photovoice as community-based participatory research: A qualitative review. *American Journal of Health Behavior, 33*(6), 686-698. doi:10.5993/AJHB.33.6.6

Hilton, J. L., & von Hippel, W. (1996). Stereotypes. *Annual Review of Psychology, 47*(1), 237-271. doi:10.1146/annurev.psych.47.1.237

Holmes, E. P., Corrigan, P. W., Williams, P., Canar, J., & Kubiak, M. A. (1999). Changing attitudes about schizophrenia. *Schizophrenia Bulletin, 25*(3), 447-456. doi:10.1093/oxfordjournals.schbul.a033392

Joinson, A. (1999). Social desirability, anonymity, and Internet-based questionnaires. *Behavior Research Methods, Instruments, & Computers, 31*(3), 433-438. doi:10.3758/BF03200723

Jorm, A. F. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *The British Journal of Psychiatry, 177*(5), 396-401. doi:10.1192/bjp.177.5.396

Judd, C. M., & Park, B. (1993). Definition and assessment of accuracy in social stereotypes. *Psychological Review, 100*(1), 109-128. doi:10.1037/0033-295X.100.1.109

Judd, C. M., Ryan, C. S., & Park, B. (1991). Accuracy of the judgment of in-group and out-group variability. *Journal of Personality and Social Psychology, 61*(3), 366-379. doi:10.1037//0022-3514.61.3.366

Kazdin, A. E. (2006). Arbitrary metrics: Implications for identifying evidence-based treatments. *American Psychologist, 61*(1), 42-49. doi:10.1037/0003-066X.61.1.42

Keane, M. (1991). Acceptance vs. rejection: Nursing students' attitudes about mental illness. *Perspectives in Psychiatric Care, 27*(3), 13-18. doi:10.1111/j.1744-6163.1991.tb01557.x

Kerby, J., Calton, T., Dimambro, B., Flood, C., & Glazebrook, C. (2008). Anti-stigma films and medical students' attitudes towards mental illness and psychiatry: Randomised controlled trial. *The Psychiatrist, 32*(9), 345-349. doi:10.1192/pb.bp.107.017152

Knaak, S., & Patten, S. (2013). *North Bay mental health orientation with photovoice: Evaluation report.* Retrieved from Mental Health Commission of Canada website:

http://www.mentalhealthcommission.ca/English/system/files/private/document/Stigma_OM_North_Bay_Mental_Health_Orientation_Evaluation_Report_ENG.pdf

Kolodziej, M. E., & Johnson, B. T. (1996). Interpersonal contact and acceptance of persons with psychiatric disorders: A research synthesis. *Journal of Consulting and Clinical Psychology, 64*(6), 1387-1396. doi:10.1037/0022-006X.64.6.1387

Laguilles, J. S., Williams, E. A., & Saunders, D. B. (2011). Can lottery incentives boost web survey response rates?: Findings from four experiments. *Research in Higher Education, 52*(5), 537-553. doi:10.1007/s11162-010-9203-2

Lauber, C., Nordt, C., Braunschweig, C., & Rössler, W. (2006). Do mental health professionals stigmatize their patients?. *Acta Psychiatrica Scandinavica, 113*(Suppl. 429), 51-59. doi:10.1111/j.1600-0447.2005.00718.x

Law, G. U., Rostill-Brookes, H., & Goodman, D. (2009). Public stigma in health and non-healthcare students: Attributions, emotions and willingness to help with adolescent self-harm. *International Journal of Nursing Studies, 46*(1), 107-118. doi:10.1016/j.ijnurstu.2008.08.014

Lazowski, L., Koller, M., Stuart, H., & Milev, R. (2012). Stigma and discrimination in people suffering with a mood disorder: A cross-sectional study. *Depression Research and Treatment, 2012*, doi:10.1155/2012/724848

Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: Reliability and validity of the empathy quotient. *Psychological Medicine, 34*(5), 911-920. doi:10.1017/S0033291703001624

Leite, W. L., & Beretvas, S. N. (2005). Validation of scores on the Marlowe-Crowne social desirability scale and the balanced inventory of desirable responding. *Educational and Psychological Measurement, 65*(1), 140-154. doi:10.1177/0013164404267285

Lim, K.-L., Jacobs, P., Ohinmaa, A., Schopflocher, D., & Dewa, C. S. (2008). A new population-based measure of the economic burden of mental illness in Canada. *Chronic Diseases in Canada, 28*(3). Retrieved from http://publications.gc.ca/collections/collection_2009/aspc-phac/H12-27-28-3E.pdf

Lincoln, T. M., Arens, E., Berger, C., & Rief, W. (2008). Can antistigma campaigns be improved? A test of the impact of biogenetic vs psychosocial causal explanations on implicit and explicit attitudes to schizophrenia. *Schizophrenia Bulletin, 34*(5), 984-994. doi:10.1093/schbul/sbm131

Link, B. G., & Cullen, F. T. (1986). Contact with the mentally ill and perceptions of how dangerous they are. *Journal of Health and Social Behavior*, *27*(4), 289-302. Retrieved from http://www.jstor.org/stable/2136945

Link, B. G., Cullen, F. T., Frank, J., & Wozniak, J. F. (1987). The social rejection of former mental patients: Understanding why labels matter. *American Journal of Sociology, 92*(6), 1461-1500. doi:10.1086/228672

Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology, 27,* 363-385. doi:10.1146/annurev.soc.27.1.363

Link, B. G., Phelan, J. C., Bresnahan, M., Stueve, A., & Pescosolido, B. A. (1999). Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. *American Journal of Public Health*, *89*(9), 1328-1333. doi:10.2105/AJPH.89.9.1328

Link, B. G., Yang, L. H., Phelan, J. C., & Collins, P. Y. (2004). Measuring mental illness stigma. *Schizophrenia Bulletin, 30*(3), 511-541. doi:10.1093/oxfordjournals.schbul.a007098

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis* (1st ed.). Thousand Oaks, CA: Sage Publications.

Loch, A. A., Hengartner, M. P., Guarniero, F. B., Lawson, F. L., Wang, Y.-P., Gattaz, W. F., Rössler, W. (2013). The more information, the more negative stigma towards schizophrenia: Brazilian general population and psychiatrists compared. *Psychiatry Research, 205*, 185-191. doi:10.1016/j.psychres.2012.11.023

Lyons, M., & Ziviani, J. (1995). Stereotypes, stigma, and mental illness: Learning from fieldwork experiences. *American Journal of Occupational Therapy, 49*(10), 1002-1008. doi:10.5014/ajot.49.10.1002

Mann, C. E., & Himelein, M. J. (2004). Factors associated with stigmatization of persons with mental illness. *Psychiatric Services, 55*(2), 185-187. doi:10.1176/appi.ps.55.2.185

Mann, C. E., & Himelein, M. J. (2008). Putting the person back into psychopathology: An intervention to reduce mental illness stigma in the classroom. *Social Psychiatry and Psychiatric Epidemiology, 43*(7), 545-551. doi:10.1007/s00127-008-0324-2

Martin, J. K., Pescosolido, B. A., & Tuch, S. A. (2000). Of fear and loathing: The role of "disturbing behavior," labels, and causal attributions in shaping public attitudes toward people with mental illness. *Journal of Health and Social Behavior 41*(2), 208-223. doi:10 .2307/2676306

Matteo, E. K., & You, D. (2012). Reducing mental illness stigma in the classroom. *Teaching of Psychology, 39*(2), 121-124. doi:10.1177/0098628312437720

McDonald, J. H. (2014). *Handbook of biological statistics* (3rd ed.). Baltimore, MD: Sparky House Publishing.

McFarlane, W. R., Dixon, L., Lukens, E., & Lucksted, A. (2003). Family psychoeducation and schizophrenia: A review of the literature. *Journal of Marital and Family Therapy, 29*(2), 223-245. doi: 10.1111/j.1752-0606.2003.tb01202.x

Menec, V. H. & Perry, R. P. (1998). Reactions to stigmas among Canadian students: Testing an attribution-affect-help judgment model. *The Journal of Social Psychology, 138*(4), 443-453 doi:10.1080/00224549809600399

Mental Health Commission of Canada. (2012a). *Opening minds: Program overview.* Retrieved from http://www.mentalhealthcommission.ca/English/system/files/private/document /Opening%20Minds%28preview%29_0.pdf

Mental Health Commission of Canada. (2012b). *Changing directions, changing lives: The mental health strategy for Canada.* Calgary, AB: Author.

Michaels, P. J., Corrigan, P. W., Buchholz, B., Brown, J., Arthur, T., Netter, C., & MacDonald-Wilson, K. L. (2014). Changing stigma through a consumer-based stigma reduction program. *Community Mental Health Journal,* 50(4), 395-401. doi:10.1007 /s10597-013-9628-0

Morris, S. B., & Deshon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods, 7*(1), 105-125. doi:10.1037//1082-989X.7.1.105

Naylor, P. B., Cowie, H. A., Walters, S. J., Talamelli, L., & Dawkins, J. (2009). Impact of a mental health teaching programme on adolescents. *The British Journal of Psychiatry, 194*(4), 365-370. doi:10.1192/bjp.bp.108.053058

Nordt, C., Rössler, W., & Lauber, C. (2006). Attitudes of mental health professionals toward people with schizophrenia and major depression. *Schizophrenia Bulletin, 32*(4), 709-714. doi:10.1093/schbul/sbj065

Nunnally, J. C. (1978). *Psychometric theory.* New York: McGraw-Hill.

Ottati, V., Bodenhausen, G. V., & Newman, L. S. (2005). Social psychological models of mental illness stigma. In P. W. Corrigan (Ed.), *On the stigma of mental illness: Practical strategies for research and social change* (pp. 99-128). Washington, DC: American Psychological Association.

Page, S. (1977). Effects of the mental illness label in attempts to obtain accommodation. *Canadian Journal of Behavioural Science, 9*(2), 85-90. doi:10.1037/h0081623

Patten, S. B., Williams, J. V., Lavorato, D. H., Bulloch, A. G., Charbonneau, M., Gautam, M., . . . & Stuart, H. (2016). Perceived stigma among recipients of mental health care in the general Canadian population. *The Canadian Journal of Psychiatry*. Advance online publication. doi:10.1177/0706743716639928

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17-59). San Diego, CA: Academic Press.

Paulhus, D. L. (1994). *Balanced Inventory of Desirable Responding: Reference manual for BIDR Version 6.* Unpublished manuscript, University of British Columbia, Vancouver, Canada.

Peluso, É. D. T. P., & Blay, S. L. (2009). Public stigma in relation to individuals with depression. *Journal of Affective Disorders, 115*(1), 201-206. doi:10.1016/j.jad.2008.08.013

Penn, D. L., Chamberlin, C., & Mueser, K. T. (2003). The effects of a documentary film about schizophrenia on psychiatric stigma. *Schizophrenia Bulletin, 29*(2), 383-391. doi:10.1093/oxfordjournals.schbul.a007012

Penn, D. L., Guynan, K., Daily, T., Spaulding, W. D., Garbin, C. P., & Sullivan, M. (1994). Dispelling the stigma of schizophrenia: What sort of information is best?. *Schizophrenia Bulletin, 20*(3), 567-578. doi:10.1093/schbul/20.3.567

Penn, D. L., & Martin, J. (1998). The stigma of severe mental illness: Some potential solutions for a recalcitrant problem. *Psychiatric Quarterly, 69*(3), 235-247. Retrieved from http://link.springer.com/article/10.1023/A:1022153327316

Penn, D. L., & Nowlin-Drummond, A. (2001). Politically correct labels and schizophrenia. *Schizophrenia Bulletin, 27*(2), 197-203. doi:10.1093/oxfordjournals.schbul.a006866

Pescosolido, B. A., Martin, J. K., Long, J. S., Medina, T. R., Phelan, J. C., & Link, B. G. (2010). "A disease like any other"? A decade of change in public reactions to schizophrenia, depression, and alcohol dependence. *American Journal of Psychiatry, 167*(11), 1321-1330. doi:10.1176/appi.ajp.2010.09121743

Pettigrew, T. F., & Tropp, L. R. (2008). How does intergroup contact reduce prejudice? Meta-analytic tests of three mediators. *European Journal of Social Psychology, 38*(6), 922-934. doi:10.1002/ejsp.504

Phelan, J. C. (2005). Geneticization of deviant behavior and consequences for stigma: The case of mental illness. *Journal of Health and Social Behavior, 46*(4), 307-322. doi:10.1177/002214650504600401

Phelan, J. E., & Basow, S. A. (2007). College students' attitudes toward mental illness: An examination of the stigma process. *Journal of Applied Social Psychology, 37*(12), 2877-2902. doi:10.1111/j.1559-1816.2007.00286.x

Phelan, J. C., Link, B. G., Stueve, A., & Pescosolido, B. A. (2000). Public conceptions of mental illness in 1950 and 1996: What is mental illness and is it to be feared?. *Journal of Health and Social Behavior, 41*(2), 188-207. doi:10.2307/2676305

Phelan, J. C., Yang, L. H., & Cruz-Rojas, R. (2006). Effects of attributing serious mental illnesses to genetic causes on orientations to treatment. *Psychiatric Services, 57*(3), 382-387. doi:10.1176/appi.ps.57.3.382

Piner, K. E., & Kahle, L. R. (1984). Adapting to the stigmatizing label of mental illness: Foregone but not forgotten. *Journal of Personality and Social Psychology, 47*(4), 805-811. doi:10.1037/0022-3514.47.4.805

Read, J., Haslam, N., Sayce, L., & Davies, E. (2006). Prejudice and schizophrenia: A review of the 'mental illness is an illness like any other' approach. *Acta Psychiatrica Scandinavica, 114*(5), 303-318. doi:10.1111/j.1600-0447.2006.00824.x

Reinke, R. R., Corrigan, P. W., Leonhard, C., Lundin, R. K., & Kubiak, M. A. (2004). Examining two aspects of contact on the stigma of mental illness. *Journal of Social and Clinical Psychology, 23*(3), 377-389. doi:10.1521/jscp.23.3.377.35457

Roth, P. L. (1994). Missing data: A conceptual review for applied psychologists. *Personnel Psychology, 47*, 537-560. doi:10.1111/j.1744-6570.1994.tb01736.x

Rosopa, P. J., & Stone-Romero, E. F. (2008). Problems with detecting assumed mediation using the hierarchical multiple regression strategy. *Human Resource Management Review, 18*(4), 294-310. doi:10.1016/j.hrmr.2008.07.009

Ross, C. A., & Goldner, E. M. (2009). Stigma, negative attitudes and discrimination towards mental illness within the nursing profession: A review of the literature. *Journal of Psychiatric and Mental Health Nursing, 16*(6), 558-567. doi:10.1111/j.1365-2850.2009.01399.x

Rüsch, N., Angermeyer, M. C., & Corrigan, P. W. (2005). Mental illness stigma: Concepts, consequences, and initiatives to reduce stigma. *European Psychiatry, 20*, 529-539. doi:10.1016/j.eurpsy.2005.04.004

Rüsch, N., Angermeyer, M. C., & Corrigan, P. W. (2005). Mental illness stigma: Concepts, consequences, and initiatives to reduce stigma. *European Psychiatry, 20*, 529-539. doi:10.1016/j.eurpsy.2005.04.004

Rüsch, N., Corrigan, P. W., Wassel, A., Michaels, P., Olschewski, M., Wilkniss, S., & Batia, K. (2009). Ingroup perception and responses to stigma among persons with mental illness. *Acta Psychiatrica Scandinavica, 120*(4), 320-328. doi:10.1111/j.1600-0447.2009.01403.x

Russinova, Z., Rogers, E. S., Gagne, C., Bloch, P., Drake, K. M., & Mueser, K. T. (2014). A randomized controlled trial of a peer-run antistigma photovoice intervention. *Psychiatric Services, 65*(2), 242-246. doi:10.1176/appi.ps.201200572

Sacco, W. P., & Dunn, V. K. (1990). Effect of actor depression on observer attributions: Existence and impact of negative attributions toward the depressed. *Journal of Personality and Social Psychology, 59*(3), 517-524. doi:10.1037/0022-3514.59.3.517

Scheffer, J. (2002). Dealing with missing data. *Research Letters in the Information and Mathematical Sciences, 3*, 153-160. Retrieved from http://mro.massey.ac.nz/bitstream/handle/10179/4355/Dealing_with_Missing_Data.pdf?sequence=1&isAllowed=y

Schlomer, G. L., Bauman, S., & Card, N. A. (2010). Best practices for missing data management in counseling psychology. *Journal of Counseling Psychology, 57*(1), 1-10. doi:10.1037/a0018082

Schomerus, G., Schwahn, C., Holzinger, A., Corrigan, P. W., Grabe, H. J., Carta, M. G., & Angermeyer, M. C. (2012). Evolution of public attitudes about mental illness: A systematic review and meta-analysis. *Acta Psychiatrica Scandinavica, 125*(6), 440-452. doi:10.1111/j.1600-0447.2012.01826.x

Sharac, J., Mccrone, P., Clement, S., & Thornicroft, G. (2010). The economic impact of mental health stigma and discrimination: A systematic review. *Epidemiol Psichiatria Sociale, 19*(3), 223-232. doi:10.1017/S1121189X00001159

Sheeber, L. B., Sorensen, E. D., & Howe, S. R. (1996). Data analytic techniques for treatment outcome studies with pretest/posttest measurements: An extensive primer. *Journal of Psychiatric Research, 30*(3), 185-199. doi:10.1016/0022-3956(96)00012-X

Sijtsma, K. (2009). On the use, misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika, 74*(1), 107-120. doi:10.1007/S11336-008-9101-0

Silván-Ferrero, M. D. P., Pryor, J. B., & Reeder, G. D. (2007). Psychological reactions to perceived stigmas: Relationship between affective ambivalence and controllability of stigma. *International Journal of Social Psychology, 22*(2), 137-148. doi:10.1174/021347407780705384

Skitka, L. J., & Sargis, E. G. (2006). The Internet as psychological laboratory. *Annual Review of Psychology, 57*, 529-555. doi:10.1146/annurev.psych.57.102904.190048

Socall, D. W., & Holtgraves, T. (1992). Attitudes toward the mentally ill: The effects of labels and beliefs. *The Sociological Quarterly, 33*(3), 435-445. http://www.jstor.org/stable/4121327

Sosowsky, L. (1980). Explaining the increased arrest rate among mental patients: A cautionary note. *The American Journal of Psychiatry, 137*(12), 1602-1604. doi:10.1176/ajp.137.12.1602

Statistics Canada (2003). *The daily Canadian community health survey: Mental health and well-being.* Retrieved from http://www.statcan.gc.ca/daily-quotidien/030903/dq030903-eng.pdf

Stöber, J., Dette, D. E., & Musch, J. (2002). Comparing continuous and dichotomous scoring of the Balanced Inventory of Desirable Responding. *Journal of Personality Assessment, 78*(2), 370-389. doi:10.1207/S15327752JPA7802_10

Stuart, H. (2003). Violence and mental illness: An overview. *World Psychiatry, 2*(2), 121-124. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1525086/pdf/wpa020121.pdf

Stuart, H. (2005). Fighting stigma and discrimination is fighting for mental health. *Canadian Public Policy, 31*(s1), 21-28. Retrieved from http://www.utpjournals.com/Canadian-Public-Policy.html/

Stuart, H. (2006). Mental illness and employment discrimination. *Current Opinion in Psychiatry, 19*(5), 522-526. doi:10.1097/01.yco.0000238482.27270.5d

Stuart, H. (2012). The stigmatization of mental illnesses. *The Canadian Journal of Psychiatry, 57*(8), 455-456. Retrieved from http://cpa.sagepub.com/content/57/8/455.full.pdf+html

Stuart H. (2014a). Opening minds in Canada: Background and rationale. *The Canadian Journal of Psychiatry, 59*(10, Suppl. 1), S8-S12. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213755/pdf/cjp-2014-vol59-october-supplement-s8-s12.pdf

Stuart, H. (2014b). Opening minds in Canada: Targeting change. *The Canadian Journal of Psychiatry, 59*(10, Suppl. 1), S13-S18. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213747/pdf/cjp-2014-vol59-october-supplement-s13-s18.pdf

Stuart, H., & Arboleda-Flórez, J. (2001). Community attitudes toward people with schizophrenia. *The Canadian Journal of Psychiatry, 46*(3), 245-252. Retrieved from http://cpa.sagepub.com/content/46/3/245.full.pdf+html

Stuart, H., Patten, S. B., Koller, M., Modgill, G., & Liinamaa, T. (2014). Stigma in Canada: Results from a rapid response survey. *The Canadian Journal of Psychiatry, 59*(10, Suppl. 1), S27-S33. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213747/pdf/cjp-2014-vol59-october-supplement-s13-s18.pdf

Stürmer, S., Snyder, M., Kropp, A., & Siem, B. (2006). Empathy-motivated helping: The moderating role of group membership. *Personality and Social Psychology Bulletin, 32*(7), 943-956. doi:10.1177/0146167206287363

Stürmer, S., Snyder, M., & Omoto, A. M. (2005). Prosocial emotions and helping: The moderating role of group membership. *Journal of Personality and Social Psychology, 88*(3), 532-546. doi:10.1037/0022-3514.88.3.532

Szeto, A. C., Luong, D., & Dobson, K. S. (2012). Does labeling matter? An examination of attitudes and perceptions of labels for mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 48*, 659-671. doi:10.1007/s00127-012-0532-7

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). New York, NY: Pearson.

Taylor, S. M., & Dear, M. J. (1981). Scaling community attitudes toward the mentally ill. *Schizophrenia Bulletin, 7*(2), 225-240. doi:10.1093/schbul/7.2.225

Urquhart Law, G., Rostill-Brookes, H., & Goodman, D. (2009). Public stigma in health and non-healthcare students: Attributions, emotions, and willingness to help with adolescent self-harm. *International Journal of Nursing Studies, 46*, 107-118. doi:10.1016/j.ijnurstu.2008.08.014

Ventimiglia, M., & MacDonald, D. A. (2012). An examination of the factorial dimensionality of the Marlowe Crowne social desirability scale. *Personality and Individual Differences, 52*(4), 487-491. doi:10.1016/j.paid.2011.11.016

Wang, C., & Burris, M. A. (1994). Empowerment through photo novella: Portraits of participation. *Health Education & Behavior, 21*(2), 171-186. doi:10.1177/109019819402100204

Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior, 24*(3), 369-387. doi:10.1177/109019819702400309

Wark, C., & Galliher, J. F. (2007). Emory Bogardus and the origins of the social distance scale. *The American Sociologist, 38*(4), 383-395. doi:10.1007/s12108-007-9023-9

Weiden, P. J., & Olfson, M. (1995). Cost of relapse in schizophrenia. *Schizophrenia Bulletin, 21*(5), 419-429. doi:10.1093/schbul/21.3.419

Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct.* New York: Guilford.

Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology, 55*(5), 738-748. doi:10.1037 //0022-3514.55.5.738

Wood, A. L., & Wahl, O. F. (2006). Evaluating the effectiveness of a consumer-provided mental health recovery education presentation. *Psychiatric Rehabilitation Journal, 30*(1), 46-53. doi:10.2975/30.2006.46.53

Yamaguchi, S., Wu, S. I., Biswas, M., Yate, M., Aoki, Y., Barley, E. A., & Thornicroft, G. (2013). Effects of short-term interventions to reduce mental health-related stigma in university or college students: A systematic review. *The Journal of Nervous and Mental Disease, 201*(6), 490-503. doi:10.1097/NMD.0b013e31829480df

Table 1.1

Measure Administration Schedule

Time	Measures	Citation
Pre-Intervention	Demographics	
	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Unpredictability-Incompetence Scale	Angermeyer & Matschinger, 2004
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Level of Contact Report	Holmes et al., 1999
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010
	Balanced Inventory of Desirable Responding	Anderson & Austin, 2012
Post-Intervention	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Unpredictability-Incompetence Scale	Angermeyer & Matschinger, 2004
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010
1-Month Follow-Up	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Unpredictability-Incompetence Scale	Angermeyer & Matschinger, 2004
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010

Table 1.2

Pre- and Post-Intervention Measures of Mental Illness Stigma

		Pre-Intervention		Post-Intervention			
Measure	*n*	*M*	*SD*	*M*	*SD*	*t* (df)	Cohen's *d*
UI	51	2.00	.61	1.83	.55	2.30 (50)*	.30
DS	52	2.32	.81	2.21	.86	.98 (51)	.13
AQ-Responsibility	52	2.94	1.11	2.78	1.21	1.20 (51)	.14
AQ-Anger	52	1.97	.95	1.83	.91	1.15 (51)	.15
AQ-Fear	51	2.14	1.11	1.83	1.06	2.91 (50)**	.32
SDS	51	2.02	.58	1.77	.57	5.30 (50)***	.43

Note. UI = Unpredictability-Incompetence Scale; DS = Dangerousness Scale; AQ = Attribution Questionnaire; SDS = Social Distance Scale.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 1.3

Multiplicity Correction for Measures of Mental Illness Stigma

		False Discovery Rate (FDR)		
Measure	*p*	Rank (*i*)	*Q* = 10%	*Q* = 5%
SDS	<.001	1	.016*	.008*
AQ-Fear	.005	2	.033*	.016*
UI	.02	3	.005*	.025*
AQ-Responsibility	.24	4	.067	.033
AQ-Anger	.25	5	.083	.041
DS	.33	6	.100	.050

Note. FDR = *(i / m)*Q*; m = total number of tests conducted (i.e., 6). UI = Unpredictability-Incompetence Scale; DS = Dangerousness Scale; AQ = Attribution Questionnaire; SDS = Social Distance Scale.

*remained significant following FDR correction.

Table 1.4

Pre- and Post-Intervention Measures of Prosocial Responding

		Pre-Intervention		Post-Intervention			
Measure	*n*	*M*	*SD*	*M*	*SD*	*t* (df)	*p*
AQ-Helping Behaviour	51	7.38	1.22	7.52	1.11	-.92 (50)	.36
AQ-Empathy	51	7.70	1.19	7.82	1.49	-.57 (50)	.57
AQ-Pity	52	5.32	1.68	5.29	1.72	.26 (51)	.80

Note. AQ = Attribution Questionnaire.

Table 1.5

Pre- and Post-Intervention Mental Health Knowledge

	Pre-Intervention		Post-Intervention	
MHKS Item	% Correct	*M*	% Correct	*M*
True				
1. Most people with mental health problems want to have paid employment.	87%	4.40	90%	4.65
2. If a friend had a mental health problem, I know what advice to give them to get professional help.	65%	3.56	87%	4.14
3. Medication can be an effective treatment for people with mental health problems.	96%	4.31	90%	4.37
4. Psychotherapy (e.g., talking therapy or counselling) can be an effective treatment for people with mental health problems.	100%	4.67	94%	4.68
5. People with severe mental health problems can fully recover.	64%	3.67	60%	3.71
6. Depression	100%	4.90	100%	4.98
9. Schizophrenia	100%	4.98	98%	4.94
10. Bipolar disorder	100%	4.98	100%	5.00
11. Drug addiction	88%	4.37	92%	5.00
False				
6. Most people with mental health problems go to a healthcare professional to get help.	63%	3.62	59%	3.53
8. Stress	27%	2.44	31%	2.67
12. Grief	20%	2.50	22%	2.53

Note. % Correct is defined as a respondent selecting "slightly agree" or "strongly agree" to True items, and "slightly disagree" or "strongly disagree" to False items. MHKS = Mental Health Knowledge Schedule.

Table 1.6

Pre-Intervention and Follow-Up Measures of Mental Illness Stigma and Prosocial Responding

	Pre-Intervention		Follow-Up			
Measure	*M*	*SD*	*M*	*SD*	*t* (18)	*p*
Mental Illness Stigma						
SDS	2.01	.72	1.81	.61	2.73	.01
UI	1.85	.70	1.64	.56	1.16	.26
AQ-Responsibility	2.67	1.21	2.47	1.28	1.16	.26
AQ-Fear	2.23	1.21	2.07	1.35	.64	.53
DS	2.28	.90	2.19	1.03	.43	.67
AQ-Anger	2.04	.90	2.04	1.24	.00	1.00
Prosocial Responding						
AQ-Pity	5.03	1.79	5.94	1.95	-5.17	< .001
AQ-Empathy	7.42	1.46	7.65	1.28	-1.21	.24
AQ-Helping Behaviour	7.43	1.46	7.33	1.04	.35	.73

Note. UI = Unpredictability-Incompetence Scale; DS = Dangerousness Scale; AQ = Attribution Questionnaire; SDS = Social Distance Scale.

Table 2.1

Measure Administration Schedule

Time	Measure	Reference
Pre-Intervention	Demographics	
	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Level of Contact Report	Holmes et al., 1999
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010
	Balanced Inventory of Desirable Responding	Anderson & Austin, 2012
Randomization to Photovoice Video (Intervention) or Control Video		
Post-Intervention	Self-Reported Empathy Scale	Batson, 1991
	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010
	Vignette Social Distance Scale	Penn et al., 1994
	Vignette Emotion Scale	Penn et al., 1994
	Naturalistic Discrimination Measure	
Follow-Up (1 month)	Attribution Questionnaire	Corrigan et al., 2002; Corrigan et al., 2007
	Dangerousness Scale	Link et al., 1987; Penn et al., 1994
	Social Distance Scale	
	Mental Health Knowledge Schedule	Evans-Lacko et al., 2010
	Naturalistic Discrimination Measure	

Table 2.2

Baseline Variables for Intervention and Control Groups

Variable	Intervention (n = 156)	Control (n = 147)
Average Age	21.69 (SD = 5.44)	21.17 (SD = 4.86)
Gender		
Male	46 (29%)	32 (22%)
Female	110 (71%)	114 (78%)
Ethnicity		
White	133 (85%)	130 (88%)
Black	5 (3%)	4 (3%)
First Nations	3 (2%)	5 (3%)
Post-Secondary Education		
1 year or less	98 (63%)	84 (57%)
2 years	27 (17%)	27 (18%)
3 years	20 (13%)	24 (16%)
4 years	8 (5%)	7 (5%)
5 years or more	3 (2%)	5 (3%)
Stigma		
AQ-Responsibility	3.05 (SD = 1.23)	2.92 (SD = 1.27)
AQ-Anger	2.12 (SD = 1.26)	1.98 (SD = 1.38)
AQ-Fear	2.28 (SD = 1.45)	2.21 (SD = 1.45)
DS	2.98 (SD = 1.06)	2.98 (SD = 1.00)
SDS	2.20 (SD = .64)	2.16 (SD = .53)
Prosocial Responding		
AQ-Pity	5.95 (SD = 1.78)	5.80 (SD = 1.82)
AQ-Helping Behaviour	7.01 (SD = 1.58)	6.91 (SD = 1.29)
AQ-Empathy	7.15 (SD = 1.75)	7.00 (SD = 1.56)

Note. AQ = Attribution Questionnaire; DS = Dangerousness Scale; SDS = Social Distance Scale.

Table 2.3

Mean Scores and Standard Deviations of Outcome Measures

	Pre-Treatment *M* (*SD*)		Post-Treatment *M* (*SD*)		Follow-Up *M* (*SD*)	
Measure	Photovoice	Control	Photovoice	Control	Photovoice	Control
Mental Illness Stigma						
AQ-Responsibility	3.05 (1.23)	2.92 (1.27)	2.93 (1.56)	2.92 (1.38)	2.79 (1.33)	3.02 (1.22)
AQ-Anger	2.05 (1.23)	2.21 (1.29)	1.78 (1.26)	2.17 (1.45)	1.96 (.97)	2.06 (1.21)
AQ-Fear	2.22 (1.52)	2.36 (1.36)	1.92 (1.42)	2.32 (1.43)	1.96 (1.19)	2.32 (1.36)
DS	2.99 (1.06)	2.97 (1.01)	2.80 (1.11)	2.98 (1.01)	2.64 (.96)	2.83 (1.01)
SDS	2.20 (.65)	2.15 (.53)	1.92 (.68)	2.09 (.59)	.81 (.51)	1.10 (.49)
V-SDS			2.17 (.65)	2.24 (.60)		
V-EMS			2.79 (.96)	2.92 (.89)		
Prosocial Responding						
AQ-Pity	5.91 (1.78)	5.80 (1.84)	6.09 (1.98)	6.05 (1.74)	5.63 (1.71)	5.86 (1.63)
AQ-Empathy	7.11 (1.76)	7.02 (1.55)	7.02 (2.07)	6.86 (1.62)	6.93 (2.17)	6.69 (1.47)
AQ-Helping	6.99 (1.58)	6.93 (1.27)	7.07 (1.91)	6.88 (1.33)	6.96 (1.63)	6.18 (1.13)

Note. AQ = Attribution Questionnaire; DS = Dangerousness Scale; SDS = Social Distance Scale; V-SDS = Vignette Social Distance Scale; V-EMS = Vignette Emotion Scale.

Table 2.4

Group Differences in Mental Illness Stigma at Post-Intervention

	df	*MS*	*F*	*p*	Cohen's *d*
AQ-Responsibility	1, 296	.58 (1.01)	.57	ns	
AQ-Anger	1, 294	.58 (.06)	9.47	< .01	.31
AQ-Fear	1, 296	.68 (.07)	9.46	< .01	.32
DS	1, 297	2.65 (.57)	4.63	< .05	.16
SDS	1, 296	3.40 (.14)	24.31	< .001	.28
V-SDS[a]	1, 296	.44	1.11	ns	
V-EMS[a]	1, 296	1.21	1.39	ns	

Note. AQ = Attribution Questionnaire; DS = Dangerousness Scale; SDS = Social Distance Scale; V-SDS = Vignette Social Distance Scale; V-EMS = Vignette Emotion Scale; ns = not significant.

[a] Group differences were examined using one-way ANOVA.

Table 2.5

Group Differences in Mental Illness Stigma at 1-Month Follow-Up

	df	*MS*	*F*	*p*	*d*
AQ-Responsibility	1, 100	.92 (.92)	.99	ns	
AQ-Anger	1, 100	.00 (.76)	.003	ns	
AQ-Fear	1, 100	.02 (.04)	.46	ns	
DS	1, 101	.60 (.46)	1.30	ns	
SDS	1, 101	1.26 (.13)	9.11	< .01	.58

Note. AQ = Attribution Questionnaire; DS = Dangerousness Scale; SDS = Social Distance Scale; ns = not significant.

Table 2.6

Post-Intervention Mental Health Knowledge in the Photovoice and Control Groups

	Photovoice		Control	
MHKS Item	*M*	*SD*	*M*	*SD*
13. Most people with mental health problems want to have paid employment.	4.34	.86	4.00	.92
14. If a friend had a mental health problem, I know what advice to give them to get professional help.	3.98	.88	3.76	1.01
15. Medication can be an effective treatment for people with mental health problems.	4.08	.94	4.00	.84
16. Psychotherapy (e.g., talking therapy or counselling) can be an effective treatment for people with mental health problems.	4.39	.79	4.28	.72
17. People with severe mental health problems can fully recover.	3.73	.92	3.27	1.18
18. Most people with mental health problems go to a healthcare professional to get help.[a]	2.88	1.09	3.14	1.04
19. Depression	4.66	.76	4.51	.91
20. Stress[a]	2.58	1.27	2.76	1.32
21. Schizophrenia	4.82	.52	4.83	.60
22. Bipolar disorder	4.83	.51	4.81	.57
23. Drug addiction	4.00	1.22	3.85	1.29
24. Grief[a]	2.50	1.28	2.75	1.29

Note. MHKS = Mental Health Knowledge Schedule.

[a] smaller values indicative of greater knowledge.

Table 2.7

Model Coefficients for State Empathy as a Mediator of Reduced Desired Social Distance Following Antistigma Intervention

		M (SRES)				*Y* (SDS)		
		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Condition)	*a*	2.39	.17	< .001	*c*'	-.09	.06	.11
M (SRES)					*b*	-.05	.01	< .001
constant	i_1	3.30	.34	< .001	i_2	.04	.10	< .001
		$R^2 = 0.37$				$R^2 = 0.68$		
		$F(1, 292) = 191.28$, $p < .001$				$F(3, 290) = 207.52$, $p < .001$		

Note. X = condition (Photovoice or control); M = proposed mediator; Y = outcome variable; SRES = Self-Reported Empathy Scale; SDS = Social Distance Scale.

Table 2.8

Model Coefficients for State Empathy as a Mediator of Reduced Perceived Dangerousness Following Antistigma Intervention

		M (SRES)				*Y* (DS)		
		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Condition)	*a*	2.37	0.17	< .001	*c*'	-.419	.11	.709
M (SRES)					*b*	-.663	.03	< .05
constant	i_1	3.00	0.12	< .001	i_2	.995	.16	< .001
		$R^2 = .39$				$R^2 = .51$		
		$F(1, 293) = 187.93, p < .001$				$F(3, 291) = 100.147, p < .001$		

Note. Note. X = condition (Photovoice or control); M = proposed mediator; Y = outcome variable; SRES = Self-Reported Empathy Scale; DS = Dangerousness Scale.

Appendix A: Multimodal Intervention Fidelity Checklist

Class/Section:

Date:

Introduction: Names and affiliation of presenters

Explanation of Photovoice methodology/rationale

Handouts (slide show, reflection sheet)

Presentation of Photovoice video

Live Contact

- Group discussion: comments, responses to film/reflection, questions
- Discussion of attitudes/actions that support recovery in mental illness

Notes:

_____
_____
_____
_____
_____
_____

Appendix B: Demographics

1. How old are you?

2. What is your gender?

   ____ male
   ____ female
   ____ transgendered

3. Which ethnicity best represents you?

   ____ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)
   ____ Black (e.g., African, Haitian, Jamaican, Somali)
   ____ Chinese
   ____ Filipino
   ____ First Nations or Native Canadian
   ____ Japanese
   ____ Latin American
   ____ Native Hawaiian or other Pacific Islander
   ____ South Asian
   ____ South East Asian
   ____ White (Caucasian)

4. What is your university major?

5. How many years of university have you completed?

   ____ 1
   ____ 2
   ____ 3
   ____ 4
   ____ 5 or more

Appendix C: Unpredictability-Incompetence Scale

1	2	3	4	5
Totally Disagree				Totally Agree

1. People with mental illness are completely unpredictable.
2. People with mental illness are not capable of making important decisions about their lives.
3. People with mental illness definitely need a guardian.
4. You never know what a person with mental illness is going to do next.
5. People with mental illness are quick to lose their self-control.
6. People with mental illness can't think logically.

Scoring: Sum the respondent's scores on each item to obtain the total scale score.

Appendix D: Dangerousness Scale

Please rate the following questions using the scale below:

1	2	3	4	5	6	7
strongly agree			no opinion			strongly disagree

1. If a group of former mental patients lived nearby, I would not allow my children to go to the movie theatre alone. (R)
2. If a former mental patient applied for a teaching position at a grade school and was qualified for the job I would recommend hiring him or her.
3. One important thing about mental patients is that you cannot tell what they will do from one minute to the next. (R)
4. If I know a person has been a mental patient, I will be less likely to trust him. (R)
5. The main purpose of mental hospitals should be to protect the public from mentally ill people. (R)
6. If a former mental patient lived nearby I would not hesitate to allow young children under my care to play on the sidewalk. (R)
7. Although some mental patients seem may seem all right it is dangerous to forget for a moment that they are mentally ill. (R)
8. There should be a law forbidding a former mental patient the right to obtain a hunting license. (R)

Scoring: Sum the respondent's scores on all items to obtain the total scale score.
(R) = reverse score

Appendix E: Social Distance Scale

Please rate the following statements on the following scale about a person with severe mental illness:

0 = definitely willing
1 = probably willing
2 = probably unwilling
3 = definitely unwilling

1. How would you feel about renting a room in your home to someone with a severe mental illness?
2. How about as a worker on the same job as someone with a severe mental illness?
3. How would you feel having someone with a severe mental illness as a neighbour?
4. How about having someone with a severe mental illness as the caretaker of your children for a couple of hours?
5. How about having your children marry someone with a severe mental illness?
6. How would you feel about introducing someone with a severe mental illness to a young woman you are friendly with?
7. How would you feel about recommending someone with a severe mental illness for a job working for a friend of yours?

Scoring: Sum the respondent's scores on all items to obtain the total scale score.

Appendix F: Attribution Questionnaire

Please circle the number of the best answer to each of the following:

1. I would feel aggravated by persons with mental illness.

1 2 3 4 5 6 7 8 9
not at all very much

2. I would feel unsafe around persons with mental illness.

1 2 3 4 5 6 7 8 9
no, not at all yes, very much

3. Persons with mental illness terrify me.

1 2 3 4 5 6 7 8 9
not at all very much

4. How angry do persons with mental illness make you feel?

1 2 3 4 5 6 7 8 9
not at all very much

5. I think persons with mental illness pose a risk to other people unless they are hospitalized.

1 2 3 4 5 6 7 8 9
not at all very much

6. I feel pity for persons with mental illness.

1 2 3 4 5 6 7 8 9
none at all very much

7. How controllable do you think mental illnesses are?

1 2 3 4 5 6 7 8 9
not at all under personal control completely under personal control

8. How irritated would you feel by a person with mental illness?

1 2 3 4 5 6 7 8 9
not at all very much

9. How dangerous do you feel a person with mental illness is?

1 2 3 4 5 6 7 8 9
not at all very much

10. I would feel threatened by a person with mental illness.

1 2 3 4 5 6 7 8 9
no, not at all yes, absolutely

11. How scared of a person with a mental illness would you feel?

1 2 3 4 5 6 7 8 9
none at all very much

12. How likely is it that you would help a person with a mental illness?

1 2 3 4 5 6 7 8 9
definitely would not help definitely would help

13. How certain do you feel that you would help a person with a mental illness?

1 2 3 4 5 6 7 8 9
not at all certain absolutely certain

14. How much sympathy would you feel for a person with a mental illness?

1 2 3 4 5 6 7 8 9
none at all very much

15. How much warmth would you feel for a person with a mental illness?

1 2 3 4 5 6 7 8 9
none at all very much

16. I feel compassion for persons with mental illness.

1 2 3 4 5 6 7 8 9
none at all very much

17. How responsible do you think a person with a mental illness is for their present condition?

1 2 3 4 5 6 7 8 9
not at all responsible very much responsible

18. How frightened of a person with a mental illness would you feel?

1 2 3 4 5 6 7 8 9
none at all very much

19. How sorry do you feel for persons with mental illness?

1 2 3 4 5 6 7 8 9
none at all very much

20. I would try to avoid a person with a mental illness.

1 2 3 4 5 6 7 8 9
definitely definitely not

21. How much concern do you feel for persons with mental illness?

1 2 3 4 5 6 7 8 9
none at all very much

22. If I were a landlord, I probably would rent an apartment to a person with mental illness.

1 2 3 4 5 6 7 8 9
definitely definitely not

23. I would think that a person with mental illness is at fault for their condition.

1 2 3 4 5 6 7 8 9
not at all very much

24. If I were an employer, I would interview a person with mental illness for a job.

1 2 3 4 5 6 7 8 9
definitely definitely not

25. I would share a car pool with a person with mental illness each day.

1 2 3 4 5 6 7 8 9
definitely definitely not

26. I think it would be best for the community if persons with mental illness were put away in a psychiatric hospital.

1 2 3 4 5 6 7 8 9
definitely definitely not

27. How much do you think an asylum, where persons with mental illness can be kept away from the community, is best?

1	2	3	4	5	6	7	8	9
not at all								very much

28. If I were in charge of treatment for persons with mental illness, I would force them to live in a group home.

1	2	3	4	5	6	7	8	9
definitely								definitely not

Scoring: Sum the items associated with each subscale to the obtain subscale score.

AQ-Responsibility: items 7 + 17 + 23
AQ-Dangerousness: items 2 +9 + 10
AQ-Fear items 1 + 4 + 8
AQ-Anger: items 3 + 11 + 18
AQ-Helping Behaviour: items 12 +13 + 21
AQ-Pity: items 6 + 14 + 19
AQ-Empathy: items 15 +16

Appendix G: Level of Contact Report

Please read each of the following statements carefully. After you have read all the statements below, place a checkmark by the statements that best depict your exposure to persons with a severe mental illness.

I have watched a movie or television show in which a character depicted a person with mental illness. (3)
My job involves providing services/treatment for persons with a severe mental illness. (8)
I have observed, in passing, a person I believe may have had a severe mental illness. (2)
I have observed persons with a severe mental illness on a frequent basis. (5)
I have a severe mental illness. (12)
I have worked with a person who had a severe mental illness at my place of employment. (6)
I have never observed a person that I was aware had a severe mental illness. (1)
My job includes providing services to persons with a severe mental illness. (7)
A friend of the family has a severe mental illness. (9)
I have a relative who has a severe mental illness. (10)
I have watched a documentary on the television about severe mental illness. (4)
I live with a person who has a severe mental illness. (11)

Scoring: Each item has a unique scoring weight in brackets, where greater contact has a higher weight. The total scale score is the item with the highest weight endorsed by the respondent.

Appendix H: Mental Health Knowledge Schedule

For each of the following statements, respond by ticking one box only. Mental health problems refer, for example, to conditions for which an individual would be seen by healthcare staff.

strongly agree	slightly agree	neither agree nor disagree	slightly disagree	strongly disagree	don't know

1. Most people with mental health problems want to have paid employment.
2. If a friend had a mental health problem, I know what advice to give them to get professional help.
3. Medication can be an effective treatment for people with mental health problems.
4. Psychotherapy (e.g., talking therapy or counselling) can be an effective treatment for people with mental health problems.
5. People with severe mental health problems can fully recover.
6. Most people with mental health problems go to a healthcare professional to get help.

Say whether you think each condition is a type of mental illness by ticking one box only for each condition.

strongly agree	slightly agree	neither agree nor disagree	slightly disagree	strongly disagree	don't know

7. Depression
8. Stress
9. Schizophrenia
10. Bipolar disorder (manic-depression)
11. Drug addiction
12. Grief

Scoring: Items used individually and are not combined into subscale scores.

Appendix I: Balanced Inventory of Desirable Responding

Use the scale below for each statement to indicate how much you agree with it.

1	2	3	4	5	6	7
Not True			Somewhat True			Very True

1. My first impressions of people usually turn out to be right.
2. It would be hard for me to break any of my bad habits. (R)
3. I don't care to know what other people really think of me.
4. I have not always been honest with myself. (R)
5. I always know why I like things.
6. When my emotions are aroused, it biases my thinking. (R)
7. Once I've made up my mind, other people can seldom change my opinion.
8. I am not a safe driver when I exceed the speed limit. (R)
9. I am fully in control of my own fate.
10. It's hard for me to shut off a disturbing thought. (R)
11. I never regret my decisions.
12. I sometimes lose out on things because I can't make up my mind soon enough. (R)
13. The reason I vote is because my vote can make a difference.
14. My parents were not always fair when they punished me. (R)
15. I am a completely rational person.
16. I rarely appreciate criticism. (R)
17. I am very confident of my judgments.
18. I have sometimes doubted my ability as a lover. (R)
19. It's all right with me if some people happen to dislike me.
20. I don't always know the reasons why I do the things I do. (R)
21. I sometimes tell lies if I have to. (R)
22. I never cover up my mistakes.
23. There have been occasions when I have taken advantage of someone. (R)
24. I never swear.
25. I sometimes try to get even rather than forgive and forget. (R)
26. I always obey laws, even if I'm unlikely to get caught.
27. I have said something bad about a friend behind his or her back. (R)
28. When I hear people talking privately, I avoid listening.
29. I have received too much change from a salesperson without telling him or her. (R)
30. I always declare everything at customs.
31. When I was young I sometimes stole things. (R)
32. I have never dropped litter on the street.
33. I sometimes drive faster than the speed limit. (R)
34. I never read sexy books or magazines.
35. I have done things that I don't tell other people about. (R)
36. I never take things that don't belong to me.

37. I have taken sick leave from work or school even though I wasn't really sick. (R)
38. I have never damaged a library book or store merchandise without reporting it.
39. I have some pretty awful habits. (R)
40. I don't gossip about other people's business.

Scoring: Sum all items into a total scale score.
(R) = reverse score

Appendix J: Naturalistic Measure of Discrimination

Mental illness carries a significant cost both to the individuals that experience the symptoms and to the larger society, due to health care costs and lost productivity. Canada currently allocates 7.2% of its total health care spending to mental health treatment, which is lower than most developed nations.

Would you be willing to sign this petition that will be sent to our local Member of Parliament (Bruce Hyer) asking for an increase in the funding that mental health treatment receives in Ontario? This increase would come at the expense of funding currently allocated to physical health concerns. Your participation in this petition is completely voluntary. If you choose "yes," your name will be added to the survey.

Yes
No

Appendix K: Vignette, Vignette Social Distance Scale, Vignette Emotional Reaction

A description of a 27-year-old man, Jim Johnson, follows. About 2 years ago, Jim was hospitalized after being diagnosed with schizophrenia. After receiving treatment, he now appears to have recovered and is doing fairly well. Before admission to the hospital, Jim was experiencing problems in perceiving the world around him. He would sometimes hear voices, which were hallucinations. His process of thinking was confused and he would often shift from one idea to another. At times he was difficult to understand. Jim demonstrated little emotional expression. He rarely smiled or got angry. In general, he appeared sympathetic to others. In fact, Jim had gradually withdrawn from his family and friends so that any type of social contact was minimal. This apathy also related to how Jim seemed to feel about himself, because his skills in grooming and hygiene deteriorated.

Based on the description of Jim Johnson, please rate the following statements on the following scale:

0	1	2	3
definitely willing	probably willing	probably unwilling	definitely unwilling

1. How would you feel about renting a room in your home to someone like Jim Johnson?
2. How about as a worker on the same job as someone like Jim Johnson?
3. How would you feel having someone like Jim Johnson as a neighbour?
4. How about as the caretaker of your children for a couple of hours?
5. How about having your children marry someone like Jim Johnson?
6. How would you feel about introducing Jim Johnson to a young woman you are friendly with?
7. How would you feel about recommending someone with a severe mental illness for a job working for a friend of yours?

If you were to interact with Jim Johnson, indicate how you would feel:

					neutral				
1.	Pessimistic	1	2	3	4	5	6	7	Optimistic	(R)
2.	Tranquil	1	2	3	4	5	6	7	Anxious	
3.	Supportive	1	2	3	4	5	6	7	Resentful	
4.	Fearful	1	2	3	4	5	6	7	Confident	(R)
5.	Empathic	1	2	3	4	5	6	7	Angry	
6.	Disgusted	1	2	3	4	5	6	7	Sympathetic	(R)
7.	Apprehensive	1	2	3	4	5	6	7	Comfortable	(R)
8.	Irritable	1	2	3	4	5	6	7	Patient	(R)
9.	Relaxed	1	2	3	4	5	6	7	Tense	
10.	Calm	1	2	3	4	5	6	7	Nervous	

Scoring: Score each scale by summing the respondent's scores across all items to obtain the total scale score for each.
(R) = reverse score

Appendix L: Self-Reported Empathy Scale

Please rate the extent to which you experienced the following emotions while viewing the Photovoice video:

1	2	3	4	5	6	7
not at all			don't know			extremely

1. sympathetic
2. compassionate
3. soft-hearted
4. warm
5. tender
6. moved

Scoring: Sum the respondent's scores across all items to obtain the total scale score.

Appendix M: Electronic Information and Consent Form (Study 1)

Study: Students' views and opinions about mental health

Dear Potential Participant,

Thank you for considering participating in our study. You have been invited to participate in this research because your class will be viewing a presentation about mental health. Please note that your participation in the research component is voluntary. Apart from agreeing to have your class view the presentation about mental health, your instructor is not involved in this research; s/he will not know who participates in the research and will not have access to any of your information.

Purpose: The purpose of this study is to examine university students' views and opinions about mental health.

Procedure: If you choose to participate, this study will be conducted online and will consist of 3 phases. Each phase will ask you some questions about your views and opinions about mental health, which will take approximately 30 minutes to complete each time. In phase 1, you will be asked to fill out some online questionnaires anytime in the next week, prior to the presentation. After attending the presentation taking place during your class, phase 2 will again ask you to fill out online questionnaires anytime in the week following the presentation. Finally, phase 3 will ask you to fill out online questionnaires four weeks following the presentation.

Compensation: As compensation for participating in the research, participants will receive a ballot for a draw each time they complete a phase of the study. Prizes will include two $50 MasterCard gift cards and two $25 Mastercard gift cards.

Risks: There is no reason to believe that there are any risks associated with taking part in this study.

Benefits: Students that choose to participate in this study will help provide valuable information that can be used to better understand students' views and opinions regarding mental health.

Confidentiality: If you agree to participate in this study, the researchers (listed below) will be the only individuals that will have direct access to the information you provide. The researchers are required to ensure that any information you provide is kept confidential. The information that is collected from this study will be kept in a locked, secure place for five years following the completion of the study, at which time the information will be destroyed.

Participation: It is important that you understand that your participation in this study is completely voluntary. Your agreement or refusal to participate in this study will have no impact on your course and your professor will not be aware of your choice. If you do decide to participate, you may decide at any time during the study that you want to leave the study and you will face no penalty as a result. However, once the study is complete the responses you provide will be made anonymous and, as a result, you will not be able to withdraw your responses from the study. At any point during the study you may refuse to answer any question that you would prefer not to answer. Finally, choosing not to participate will not in any way affect your status within your class.

Publication of Research Findings: Your name and individual responses will not be published in any work stemming from this research and all results will be presented in aggregate form. Findings from this research will be used as part of a dissertation. In addition, manuscripts and posters documenting the research findings may be submitted for publication and conference presentations in the future. If you would like information on the results of the study, contact information will be provided to you once the study is complete.

Questions: We have tried to provide extensive information regarding what this study entails. If you have any further questions or concerns regarding this study, please do not hesitate to contact us.

Investigators:
Dr. Amanda Maranzan
Greg Tippin, M.A.
Kimberly Mularcyzk
Department of Psychology
Lakehead University
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Study Contact:
Greg Tippin, M.A.
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This research has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or swright@lakeheadu.ca

This research has been approved by the Confederation College Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Don Duclos at the Research Ethics Board at 807-475-6694 or don.duclos@confederationc.on.ca

Consent

By participating in this research, you understand and agree to the following conditions:

You have read and understand the purpose and nature of this study, as detailed in the information letter.

You agree to participate in this study.

The information you provide will be used to help understand students' views and opinions about mental health.

You are a completely voluntary participant in this study and are free to withdraw from the study at any time or choose not to answer any question. However, once the study is complete the

responses you provide will be made anonymous and, as a result, you will not be able to withdraw your responses from the study.

The information that is collected from this study will be securely stored at Lakehead University for five years following the completion of the study, at which time the information will be destroyed.

At the end of this study, a summary of the results will be available to you upon request via email to Greg Tippin (gtippin@lakeheadu.ca).

Findings from this study will be used as part of a dissertation and may be submitted for publication and conference presentations. At the end of the study, all information you provide will be anonymous and will not be traceable to your name, thus your name will not be published in any documents stemming from this research and your identity will remain confidential.

I have read the information letter provided and have been told how to obtain more information about this study. My completion of the following questionnaires indicates that I understand the information provided and agree to participate in this research.

This research has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or swright@lakeheadu.ca

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Appendix N: Electronic Information and Consent Form (Study 2)

Study: Students' views and opinions about mental health

Dear Potential Participant,

Thank you for considering participating in our study.

Purpose: The purpose of this study is to examine university students' views and opinions about mental health. Please note that your participation in the research component is voluntary. Apart from agreeing to have your class view the presentation about mental health, your instructor is not involved in this research; s/he will not know who participates in the research and will not have access to any of your information.

Procedure: If you choose to participate, this study will be conducted completely online through this website. This study will consist of two parts. In part 1, you will be asked some questions about mental health, which will take approximately 30 minutes to complete. You will then view a 30-minute video presentation. Next, you will be asked some more questions about mental health, which will take approximately 30 minutes to complete. In total, part 1 will take approximately 1 hour and 30 minutes to complete.

Part 2 of the study will occur 4 weeks following the completion of part 1. At this time, you will be asked to return to this website and answer some more questions about mental health. Part 2 will take approximately 30 minutes to complete.

Compensation: As compensation for participating in the research, participants will receive bonus credit that may be used as credit toward applicable psychology courses. Participation in part 1 of the study will be worth 1.5 bonus points, while participation in part 2 will be worth 0.5 bonus points.

Risks: There is no reason to believe that there are any risks associated with taking part in this study.

Benefits: Students that choose to participate in this study will help provide valuable information that can be used to better understand students' views and opinions regarding mental health.

Confidentiality: If you agree to participate in this study, the researchers (listed below) will be the only individuals that will have direct access to the information you provide. The researchers are required to ensure that any information you provide is kept confidential. The information that is collected from this study will be kept in a locked, secure place for five years following the completion of the study, at which time the information will be destroyed.

Participation: It is important that you understand that your participation in this study is completely voluntary. If you do decide to participate, you may decide at any time during the study that you want to leave the study and you will face no penalty as a result. However, once the study is complete the responses you provide will be made anonymous and, as a result, you will not be able to withdraw your responses from the study. At any point during the study you may refuse to answer any question that you would prefer not to answer.

Publication of Research Findings: Your name and individual responses will not be published in any work stemming from this research and all results will be presented in aggregate form. Findings from this research will be used as part of a dissertation. In addition, manuscripts and posters documenting the research findings may be submitted for publication and conference presentations in the future. If you would like information on the results of the study, contact information will be provided to you once the study is complete.

Questions: We have tried to provide extensive information regarding what this study entails. If you have any further questions or concerns regarding this study, please do not hesitate to contact us.

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Consent

Study: Students' views and opinions about mental health

By participating in this research, you understand and agree to the following conditions:

You have read and understand the purpose and nature of this study, as detailed in the information letter.

You agree to participate in this study.

The information you provide will be used to help understand students' views and opinions about mental health.

You are a completely voluntary participant in this study and are free to withdraw from the study at any time or choose not to answer any question. However, once the study is complete the responses you provide will be made anonymous and, as a result, you will not be able to withdraw your responses from the study.

The information that is collected from this study will be securely stored at Lakehead University

for five years following the completion of the study, at which time the information will be destroyed.

At the end of this study, a summary of the results will be available to you upon request via email to Greg Tippin (gtippin@lakeheadu.ca).

Findings from this study will be used as part of a dissertation and may be submitted for publication and conference presentations. At the end of the study, all information you provide will be anonymous and will not be traceable to your name, thus your name will not be published in any documents stemming from this research and your identity will remain confidential.

I have read the information letter provided and have been told how to obtain more information about this study. My completion of the following questionnaires indicates that I understand the information provided and agree to participate in this research.

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