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Information vs. inspiration: Evaluating the effectiveness of mental illness stigma-reduction messages[☆]

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ABSTRACT

Numerous countries, communities, and organizations have conducted campaigns aimed at reducing the stigma of mental illness. Using an online experiment, we evaluate the relative effectiveness of three types of campaign messages (information about the biological origins of an illness, information about the psycho-social origins of an illness, and inspirational information about the competence of those with an illness) for reducing the perceived stigma (how I think others feel) and personal stigma (how I personally feel) tied to two illnesses (depression and schizophrenia). Drawing on expectation states theories (EST), affect control theories (ACT), and past research, we expected all three messages to reduce both types of stigma, with their relative effectiveness following this order: competence > psycho-social > biology. We find that the messages are more effective at reducing personal stigma than perceived stigma and that the competence message reduces both types of stigma more effectively than the other messages. More specifically, we find that (1) none of the messages reduce the perceived stigma of depression, (2) only the competence message consistently reduces the perceived stigma of schizophrenia, (3) only the competence message reduces personal stigma toward individuals with depression, and (4) all three messages reduce personal stigma toward individuals with schizophrenia and do so equally well. The findings provide support for propositions in EST and ACT and suggest that stigma-reduction campaigns that focus on the competence and capabilities of individuals with a mental illness will be more effective than those that focus on information about the origins of mental illness.

The stigma of mental illness is widespread. Numerous studies in the U.S. (Kroska et al., 2014, 2015; Lucas and Phelan, 2019; Markowitz and Engelman, 2018; Parcesepe and Cabassa, 2013; Thibodeau and Principino, 2019) and elsewhere (Schomerus et al., 2012) suggest that people tend to fear, negatively evaluate, and seek social distance from individuals known to have a mental illness, patterns that have held steady for several decades. Not surprisingly, psychiatric clients' perceptions of these prejudicial attitudes and discriminatory behaviors are associated with a host of negative outcomes, including unemployment and reduced earnings (Sharac et al., 2010), restricted social networks (Perlick et al., 2001), sexual isolation (Thornicroft et al., 2009), reduced help-seeking

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(Schnyder et al., 2017), a low quality of life (Markowitz et al., 2011), reduced self-esteem and self-efficacy (Marcussen et al., 2019; Markowitz et al., 2011), and self-stigmatization more broadly (Rüsch et al., 2014).

The deleterious effects of mental illness stigma have led numerous governments and non-profit organizations to conduct campaigns and interventions aimed at reducing the stigma. Campaigns are interventional messages that are disseminated broadly, in some cases to an entire country, whereas interventions are messages or programs targeted at a smaller audience. Although efficacy assessments of campaigns show mixed results, a voluminous literature on the effectiveness of interventions suggests that stigma-reduction campaigns could be an effective route to reducing prejudicial attitudes, a conclusion established in four meta-analyses of intervention studies (Clement et al., 2013; Corrigan et al., 2012; Corrigan et al., 2015; Griffiths et al., 2014). Nonetheless, questions about the effectiveness of the campaigns remain, so we examine message effectiveness in ways that begin to address to those questions. Using an online experiment, disseminated to students at a community college in the South and a public university in the Midwest, we examine the effect of three broad types of messages (two informational and one inspirational) on attitudes toward individuals with depression and individuals with schizophrenia. We draw on both empirical work and two sets of social psychological theories, affect control theories (Heise, 1979, 2007; Robinson and Smith-Lovin, 2018) and expectation states theories (Berger et al., 1977; Berger and Webster, 2018), to develop hypotheses regarding the relative efficacy of each message.

1. Information and inspiration

All stigma-reduction campaigns are in some way informational, delineating the symptoms and causes of mental illness, the benefits of treatment, the importance of supporting those with an illness, and/or the damage of discrimination, and they deliver the information on varied platforms (e.g., television, radio, web sites, social media) and in multiple ways (e.g., educational text, narration, and firsthand accounts). But, some campaigns focus exclusively on medical information, often emphasizing the nature and causes of mental illness. For example, the campaigns created by *beyondblue*, an Australian-based non-profit organization, are largely informational, disseminating information about the symptoms, causes, and treatments of depression and anxiety, with the goal of raising awareness about these illnesses and their concomitant stigma (Hickie, 2004). Similarly, the Open-the-Doors Campaign, implemented in over 20 countries, disseminated information about the nature and treatment of schizophrenia, with the goal of improving public attitudes toward individuals with schizophrenia and their families (Sartorius and Schulze, 2005).

Other campaigns, by contrast, focus on both medical information *and* inspiration by including details about the competence, accomplishments, and positive attributes of people with a mental illness. Many of these campaigns, including Scotland's "See Me" campaign and the U.S.'s National Alliance on Mental Illness's (NAMI's) "In Our Own Voice" campaign, feature clips or written excerpts from individuals who describe their mental illness and their lives more broadly, often noting their jobs, family roles, and/or friendships. By showing their success in fulfilling these roles, the campaigns communicate an inspirational, or competence-focused, message. Other messages more directly attest to clients' capabilities, as shown in this excerpt from the "Living with a Mental Health Condition" page on NAMI's website:

"Every year people overcome the challenges of mental illness to do the things they enjoy. Through developing and following a treatment plan, you can dramatically reduce many of your symptoms. People with mental health conditions can and do pursue higher education, succeed in their careers, make friends and have relationships. Mental illness can slow us down, but we don't need to let it stop us" (National Alliance on Mental Illness, 2021).

But one of the clearest examples of competence messages may be Phases 1 and 3 of New Zealand's five phase "Like Minds, Like Mine" campaign. Phase 1, with the tag line "Are you prepared to judge?," featured a set of internationally famous people (e.g., Albert Einstein, Audrey Hepburn). At the end, the voice-over said, "These people were affected by mental illness. They weren't judged by it. One in five New Zealanders is affected by some degree of mental illness at any time. How much they suffer depends on you. Are you prepared to judge?" Phase 3 offered a similar message but featured New Zealanders and concluded with the tag line "Know me before you judge me" (Wylie and Lauder, 2012). In short, all stigma-reduction campaigns include information, but some or parts of some also interject inspirational information focused on the competence and accomplishments of individuals with a mental illness.

2. Effectiveness studies

Despite the popularity of stigma-reduction campaigns, however, the evidence regarding their effectiveness is limited (Corrigan, 2012) and mixed (Dumesnil and Verger, 2009). Mixed findings are also found among studies examining the effect of smaller-scale interventions (e.g., Corrigan et al., 2012). These mixed results led several scholars to conduct reviews or meta-analyses aimed at assessing the overall effectiveness of campaigns and interventions. These analyses consistently suggest that stigma-reduction campaigns (Dumesnil and Verger, 2009), mass media interventions (Clement et al., 2013), and interventions more generally (Corrigan et al., 2012, 2015; Griffiths et al., 2014) modestly reduce prejudicial attitudes toward individuals with a mental illness. And this result holds when the meta-analyses are restricted to studies that use randomized controlled trials, or "true experiments" (Clement et al., 2013; Corrigan et al., 2012: sub-analysis; Griffiths et al., 2014), including true experiments that evaluate interventions viable for mass media distribution (Clement et al., 2013) and those with a second follow-up measure administered, on average, 330 days (median = 45 days) after the initial post-test (Corrigan et al., 2015).

Despite the robustness of these trends, however, questions remain. First, studies that examine campaign effectiveness evaluate the effectiveness of a single campaign, leaving questions about the *relative* effectiveness of different types of campaigns unanswered. Studies that examine interventions more generally (rather than campaigns, per se) do often examine different messages across

conditions, but only a handful include a condition with a competence message (Corrigan et al., 2013; Kerby et al., 2008; Reinke et al., 2004; Wood and Wahl, 2006). And the few that do lack conditions with other types of messages, so it is not clear how a competence message compares to other types of messages. Thus, questions remain about the effectiveness of different types of campaign messages, particularly the effectiveness of competence messages in comparison to information-focused messages. This dearth is surprising because, as we discuss below, research and propositions in well-established social psychological theories, including expectation states theories (EST) (Berger and Webster, 2018) and affect control theories (ACT) (Robinson and Smith-Lovin, 2018), suggest that positive competence information about individuals in a cultural category may gradually elevate status beliefs about the category (EST) and the goodness and potency sentiments tied to that category (ACT), suggesting that competence messages may be especially helpful for reducing stigma.

Second, although true experiments provide the strongest internal validity for assessing causal relationships, we see two methodological limitations in the design of the true experiments typically used to investigate these questions. First, many lack a cover story designed to disguise the purpose of the study. For example, only 16 percent (5/31) of the studies on prejudice in Clement and her colleagues' (2013) and Griffiths and her colleagues' (2014) meta-analyses included a cover story.¹ The absence of a cover story heightens the risk of social desirability bias, a common measurement problem in studies of mental illness stigma (Corrigan and Shapiro, 2010). Consequently, questions remain about the extent to which the findings in many of the intervention experiments reflect genuine attitude change.

In addition, many of the true experiments investigating these questions use a pretest, a measure of the dependent variable(s) prior to—and usually immediately prior to—exposure to the intervention. For example, 84 percent (26/31) of the experiments on prejudice in Clement and her colleagues' (2013) and Griffiths and her colleagues' (2014) meta-analyses used one. Although pretests give researchers data on the degree of change for each participant, random assignment makes them unnecessary unless researchers expect an especially small number of participants per condition (e.g., less than 30) or differential attrition across conditions. And dropping the pretest is valuable because the pretest may interact with the treatment, threatening the study's external validity, a risk that is more pronounced when the dependent variable is an attitude. For example, a pretest could prompt participants to think critically about their own attitudes, thereby increasing their responsiveness to the intervention. Or, it could prompt them to feel defensive about their attitudes, thereby increasing their resistance to the intervention. Thus, the frequent use of pretests in this literature leaves questions about the extent to which interventional messages independently (i.e., without a pretest) reduce (or fail to reduce) prejudicial attitudes.

3. Our study

We explore campaign-message effectiveness in ways that begin to address these questions. We use an online experiment to assess the relative effectiveness of three types of “public service” messages—two modeled after informational campaigns and one modeled after competence-focused campaigns. All three include a recovery-oriented statement (“With proper therapy, however, symptoms can decline dramatically”), given the consensus about the effectiveness of that type of message (Clement et al., 2010), but the two informational messages also inform participants about the origins of the illness, with one noting biological origins and the value of drug therapy and the other noting psycho-social origins and the value of cognitive behavioral therapy (manipulated text bolded):

Biological origins condition: **“Depression/Schizophrenia is caused, in part, by genetics and problems with certain naturally occurring brain chemicals. With proper drug therapy, however, symptoms can decline dramatically.”**

Psycho-social origins condition: **“Depression/Schizophrenia is caused, in part, by stressful life circumstances and personal trauma. With proper cognitive behavioral therapy, however, symptoms can decline dramatically.”**

By contrast, the competence message highlights the capabilities of individuals with a mental illness, using text that resembles the NAMI message we quoted above:

“With proper therapy, however, symptoms can decline dramatically. People with depression/schizophrenia can function at a high level, obtain advanced degrees, and work in high status occupations (e.g., as managers, authors, scientists, attorneys, political leaders).”

We cross the three messages with the two diagnoses, allowing us to determine the relative effectiveness of each message for reducing prejudice toward individuals with each type of diagnosis. We also compare the experimental conditions to a control group that receives no mental health message. In addition, we use a cover story designed to disguise the purpose of the study. And we include a control for the tendency to give socially desirable responses in case the random assignment does not create perfect equality across conditions in that tendency. Finally, we do not administer a pretest, allowing us to safely generalize our findings to real-life situations wherein individuals are not pretested before exposure to a campaign message.

Our focal outcome is attitudes toward people with a mental illness, commonly termed *personal stigma* (e.g., Griffiths et al., 2014). We measure it with a composite measure of participants' perceptions of the status, competence, and likability of individuals with a mental illness. Personal stigma captures what Pescosolido and Martin (2015:97) term “traditional prejudice,” the “preconceived

¹ We include in the denominator only the 31 non-overlapping studies in those two meta-analyses with analyzable outcome data on prejudice toward individuals with a mental illness. We exclude the five in Clement et al. (2013) that examine prejudice toward individuals with a diagnosis not usually considered a mental illness (autism, cognitive disability, and Tourette syndrome).

unfavorable judgments toward persons with discredited conditions and/or statuses or who occupy stigmatized statuses.” We also examine the way the messages affect perceptions of how *most people* view people with a mental illness, commonly termed *perceived stigma* (e.g., Griffiths et al., 2014; Pescosolido and Martin, 2015). Perceived stigma in our study reflects the same components as personal stigma: perceptions of the status, competence, and likability of individuals with a mental illness. But, unlike personal stigma, it reflects what participants think most people think, or “generalized second-order beliefs” (Mize 2019). Both perceived and personal stigma are measured in varied ways in the stigma literature, as shown in meta-analyses of this literature (Griffiths et al., 2014). Our measures fit with the concepts’ definitions in the stigma literature (preconceived unfavorable judgment) and with concepts in the social psychological theories that undergird our competence hypotheses.

3.1. Hypotheses

Biological causes. In the past, advocates for individuals with a mental illness proposed that disseminating information about the genetic and biological origins of mental illness would be an effective route to reducing stigma. They argued that understanding mental illness as a brain disease would reduce blame and increase sympathy (e.g., Corrigan, 2000; Johnson, 1989). That perspective was evident in the 1999 U.S. Surgeon General’s Report (U.S. Department of Health and Human Services (DHHS), 1999) and a 2003 report on mental health also published by the DHHS (U.S. New Freedom Commission on Mental Health, 2003). But, by the early 2000s, a few scholars began to speculate that a genetic or brain disease framework could actually magnify stigma by increasing perceptions of the illness as serious and persistent (Corrigan and Watson, 2004; Phelan, 2002) and began calling for evidence-based de-stigmatization campaigns (Read, 2002). Within a few years, researchers began to evaluate that idea and generally found, as expected, that a genetics explanation for mental illness magnified stigma by increasing perceptions of the illness as serious and persistent, and those perceptions often increased intentions to seek social distance from individuals diagnosed with or showing symptoms of a psychiatric illness, results evident in both correlational data (Pescosolido et al., 2010; Schnittker, 2008) and experimental data (Lincoln et al., 2008; Phelan, 2005; Walker and Read, 2002). Thus, contrary to the early intuitions from mental health advocates, many studies suggest that a pure genetic framework will not reduce and may even increase perceived and personal stigma.

Drawing on these findings, we expect the message about the biological origins of depression and schizophrenia to be less effective than the other two messages at reducing perceived and personal stigma. But, because our biological origins message (as with all of our messages) includes a recovery-oriented statement, we do expect it to reduce the two stigma outcomes:

Biological Origins Hypotheses a-b: Exposure to information regarding the biological origins of a mental illness will reduce (a) perceived stigma and (b) personal stigma.

Relative Effectiveness Hypotheses 1a-b: Exposure to information regarding the biological origins of a mental illness will reduce (a) perceived stigma and (b) personal stigma less effectively than exposure to information about either the psycho-social origins of the illness or the competence of individuals with the mental illness.

Psycho-social causes. After the early push to promote the biological origins of mental illness, advocates began suggesting that the dissemination of information about the varied origins—biological as well as environmental—of mental illnesses was an effective route to reduce stigma (Pilgrim and Rogers, 2005:2547). As with the biology messages, the goal appeared to be blame-reduction via education. And, as recently as 2010, over half of the researchers and practitioners participating in a consensus study on the effectiveness of various anti-stigma messages reported that information about the psycho-social origins of mental illness could be effective (Clement et al., 2010). Consistent with those expectations, many studies show that exposure to a psycho-social origins message reduces prejudicial attitudes (e.g., Read and Law, 1999) and that the endorsement of a psycho-social explanation is associated with less prejudicial attitudes (Dietrich et al., 2004; for a review, see Read et al., 2006:), although some show that exposure to such a message has no effect (Read and Harré, 2001; Walker and Read, 2002) or mixed effects (Lincoln et al., 2008).

Despite these somewhat mixed effects, we draw on the general trend in the results and hypothesize that information about the psycho-social origins of a mental illness will reduce perceived and personal stigma:

Psycho-social Origins Hypotheses a-b: Exposure to information regarding the psych-social origins of a mental illness will reduce (a) perceived stigma and (b) personal stigma.

Competence. As noted above, a few of the stigma-reduction campaigns emphasize the capabilities and accomplishments of individuals with a mental illness, an approach most clearly shown in two phases of New Zealand’s “Like Mind, Like Mine” campaign. This approach is intuitively sensible because it counters the incompetence stereotype of mental illness (Pescosolido et al., 2013). It also aligns with the recent push away from interventional messages that elicit pity and toward messages that promote empathy and feelings of parity with psychiatric clients (Corrigan and Fong, 2014). And, indeed, research evaluating New Zealand’s campaign (Wylie and Lauder, 2012) and this interventional approach more generally (Corrigan et al., 2013; Kerby et al., 2008; Reinke et al., 2004; Wood and Wahl, 2006) suggests that it is an effective way to reduce prejudicial attitudes toward individuals with a mental illness.

These results also align with well-established social psychological theories, including expectation states theories and affect control theories. Work in the EST research program (Berger and Fişek, 2006; Harkness, 2014; Pugh and Wahrman, 1983) suggests that status beliefs about a social category (such as the belief that people with a mental illness are incompetent) may be gradually weakened through exposure to individuals whose behavior, skills, and/or positions defy those beliefs, particularly if others endorse the alternative beliefs (Ridgeway and Correll, 2006). Similarly, ACT proposes that the goodness and power tied to an identity, such as “a mentally ill person,” are learned and can change through reading about, watching, or experiencing interactions with those occupying that identity (Heise, 2007:70–72), so if identity enactments become more positive and powerful so too should the sentiments tied to

that identity. Thus, both EST and ACT suggest that the competence message, which includes information about the competence and positive and powerful accomplishments of people with a mental illness (i.e., obtaining advanced degrees, succeeding in high status jobs), should elevate impressions of the competence, status, and likability of individuals with a mental illness, both personally (personal stigma) and culturally (perceived stigma).

Drawing on these literatures, we expect the competence message to reduce perceived and personal stigma. Given the consistency in the findings regarding the effectiveness of competence messages and the somewhat mixed findings regarding the effectiveness of psycho-social messages, we also expect the competence message to reduce stigma more effectively than the psycho-social message:

Competence Hypotheses a-b: Exposure to information about the competence of individuals with a mental illness will reduce (a) perceived stigma and (b) personal stigma.

Relative Effectiveness Hypotheses 2a-b: Exposure to information about the competence of individuals with a mental illness will reduce (a) perceived stigma and (b) personal stigma more effectively than information about the psycho-social origins of the mental illness.

Together the two relative effectiveness hypotheses suggest the following ordering for the effectiveness of each message: Competence > Psycho-social Origins > Biological Origins.

3.2. Perceived vs. personal stigma

Perceived stigma is a type of status belief (i.e., belief about the status most people associate with a characteristic, such as gender, race, or a mental health diagnosis), a core concept in the EST literature. Perceived stigma also overlaps with the ACT concept of fundamental sentiments (the usual affective meanings tied to social concepts, such as “a person with depression”). EST and ACT studies suggest that these beliefs and sentiments are highly stable (Heise, 2007, 2010; Ridgeway, 2011), suggesting that perceived stigma is also fairly stable and slow to change. Personal stigma, by contrast, is a first-order belief (how I feel), which should be more malleable since it is not anchored to the culture. Therefore, we expect the public service messages to be more effective at changing personal stigma than perceived stigma.

3.3. Mediation

We also explore bi-directional mediation between perceived and personal stigma. Research on socialization and attitude development suggests that individuals’ personal beliefs are tied to the beliefs held by those around them (Mortimer and McLaughlin, 2014), so if message exposure immediately affects participants’ perception of the larger cultural view of individuals with depression and schizophrenia (perceived stigma), that cultural view may then inform their own views (personal stigma); that is, perceived stigma may mediate the relationship between message exposure and personal stigma. Yet, mediation could also work in the other direction. Research on the false consensus effect—i.e., falsely assuming that others share one’s own perspective (Krueger and Clement, 1994)—suggests that if message exposure immediately affects personal stigma, those personal views may then inform participants’ impressions of the larger cultural view; thus, personal stigma could mediate the effect of message exposure on perceived stigma. We cannot establish the time order for the changes in perceived and personal stigma, so we cannot adjudicate between these two mediation possibilities. Nonetheless, we do explore both in the analyses.

4. Methods

Our experiment was web-based and distributed to students at a community college in the South and a public university in the Midwest between September of 2014 and December of 2016. In both schools, students in sociology classes were given extra credit for completing the study.

4.1. Cover story

To conceal our interest in the stigma of mental illness, we told participants our study was designed to gather information about contemporary American culture and to assess individuals’ ability to remember information in cultural messages they read on the computer. We communicated the cover story in multiple ways: through the instructions we gave instructors for describing the study their students, through our informed consent sheet, and in instructions to the study (see [Online Appendix A](#)), which stated that we were interested in “education and health culture” in the United States.

We also continued the cover story through the kinds of questions we asked. As we explain below, two of the three public service messages focused on non-psychiatric issues (high blood pressure and osteoporosis, displayed in [Online Appendix B](#)) to disguise our interest in reactions to the mental health message. And all of the messages were followed by a “memory question,” thus fulfilling our cover story about assessing message recall. In addition, we embedded the mental illness stigma items in between items focused on the stigma tied to juvenile delinquents (asked first) and high school dropouts (asked last), two groups that fit with our education and health cover story.

4.2. Sample

We collected data from 1,033 people, with 757 from the community college and 276 from the public university. Of the 1,033, 866 had complete data for the variables in this study. We included two attention check questions and dropped the 140 participants who failed both, giving us a sample of 726 cases. We assessed selection effects for these two exclusion criteria (missing values and failed both attention checks) with pairwise correlations between the participants' status on the two exclusion variables and the study conditions, and we did so in two ways: with all the cases (1,033) and without the cases that were dropped on the other selection criterion. None of the correlations reached significance, suggesting that any selection effects for conscientiousness (answering all the study questions) and attentiveness (reading instructions carefully enough to pass one attention check) were equally distributed across conditions.

4.3. Independent variable: message exposure

We crossed two illnesses (depression and schizophrenia) with three types of messages (biological origins, psycho-social origins, and competence) and included a control (no mental health message), creating a 3×2 design with an additional control, giving us seven conditions.

We collected twice as many control condition cases as experimental condition cases. The six mental health messages are displayed in the [Appendix](#). Participants in the six experimental conditions read three public service messages (one on either depression or schizophrenia and two others), whereas those in the control condition read only two. The first message focused on high blood pressure; the third (second in the control condition) focused on osteoporosis. Directly below each message, participants were asked an open-ended question and given an open text box for the answer, allowing them to view the message (and even copy and paste from it) while answering the question. As shown in the [Appendix](#), participants in the biological and psycho-social origins conditions were asked what the message says about the causes of depression/schizophrenia, and those in the competence conditions were asked what the message says individuals with depression/schizophrenia can do. On the next screen, they were asked a "memory question" about the illness symptoms. The open-ended question was designed to promote the retention of the manipulated text and it served as a manipulation check, and both questions helped fulfill our cover story.

Manipulation check. We checked the success of the manipulation by examining responses to the first question (discussed above). Only six percent of the participants failed the check, but failure was significantly higher in the competence conditions than in the others. Many who failed the check in the competence conditions appeared to have understood the question ("According to this message, what kinds of things can people with depression/schizophrenia do?") to be asking about symptoms or treatments. Because of this variability in failure rates by condition, we do not drop the participants who failed the check. We do, however, control for it in all the models. We also replicated our analyses after dropping the cases that failed the check, and the results are highly similar, with the same coefficients reaching significance. Note that our retention of these cases allows us to show how campaign messages affect a group that includes individuals who are not paying careful attention to the message, increasing the applicability of our findings to real-life settings.

4.4. Dependent variables: perceived stigma and personal stigma

Perceived stigma. The perceived stigma measures were introduced with the instructions to "Please use the slider to indicate how you think most people feel about people with schizophrenia/depression." The instructions were followed by ten items related to status (follower/leader, low status/high status, not respected/respected), competence (incapable/capable, incompetent/competent, unknowledgeable/knowledgeable), and likability (inconsiderate/considerate, uncooperative/cooperative, unlikable/likable, unpleasant/pleasant). The stimulus above each slider read, "Most people feel people with schizophrenia/depression are:," with the negative adjective on the left end and the positive adjective on the right. The values range from 0 to 100, with high values reflecting high stigma. Principal-factor analyses show that the ten items load strongly on a single dimension, with 4.38 and 0.42 as the first two eigenvalues for the depression items and 5.24 and 0.35 as the first two eigenvalues for the schizophrenia items²; therefore, we used the summed average of the items. The alpha reliability is 0.88 for the 454 cases in the depression and control conditions and 0.91 for the 450 cases in the schizophrenia and control conditions. Both variables approximate a normal distribution, with a non-significant chi-square for the joint test of skewness and kurtosis. [Table 1](#) displays descriptive statistics for this and the other variables in the analysis.

Personal stigma. Personal stigma was operationalized with the same ten items used for perceived stigma, but the instructions read, "Please use the slider to indicate how you feel about people with schizophrenia/depression." The stimulus above each slider read, "I feel people with schizophrenia/depression are:." Again, principal-factor analyses show that the items load strongly on a single dimension, with 4.79 and 0.34 as the first two eigenvalues for the depression items and 5.10 and 0.34 as the first two for the schizophrenia items, so we again used the summed average of the ten items. The alpha reliability is 0.87 for the 454 participants in the depression and control conditions and 0.91 for the 450 in the schizophrenia and control conditions. Both variables have significant kurtosis, but no transformations reduce this.

As noted earlier, to conceal our interest in the perceptions of psychiatric clients, we asked participants the same twenty questions

² If participants had rated categories of people that were more varied in their cultural meaning (e.g., babies, mobsters, lawyers, mothers), we would expect the likability items to be somewhat independent of the competence and status items.

Table 1
Descriptive statistics for sample (N = 726).

Variables in Analyses	Mean	SD	Min	Max
Dependent Variables				
Perceived stigma - individuals with depression (N = 454)	64.16	13.58	20	100
Perceived stigma - individuals with schizophrenia (N = 450)	69.53	14.49	15.3	100
Personal stigma - individuals with depression (N = 454)	48.97	14.69	0	100
Personal stigma - individuals with schizophrenia (N= 450)	52.67	13.96	3.6	94.1
Independent Variables				
Conditions				
Biological origins message - depression	.13		0	1
Psycho-social origins message - depression	.13		0	1
Competence message - depression	.12		0	1
Biological origins message - schizophrenia	.12		0	1
Psycho-social origins message - schizophrenia	.12		0	1
Competence message - schizophrenia	.13		0	1
Control: no message about mental illness (omitted)	.25		0	1
Passed manipulation check	.94		0	1
Data collected in community college in South (0 = public university in Midwest)	.74		0	1
Participant attributes				
English is first language	.90		0	1
Female	.76		0	1
Age	23.65	7.70	16	57
Year in college				
First year (0-30 credit hours) (omitted)	.51		0	1
Sophomore (31-60 credit hours)	.33		0	1
Junior (61-90 credit hours)	.11		0	1
Senior (91 or more credit hours)	.03		0	1
Post-baccalaureate student	.01		0	1
Frequency of religious service attendance	3.18	1.68	1	7
Political conservatism	46.56	24.05	0	100
Socially desirable responses	.47	.21	0	1

about juvenile delinquents (asked first) and high school dropouts (asked last). All participants were asked about the stigma of both depression and schizophrenia. Participants in experimental conditions rated the group that corresponded to their condition first, and we used only the data from the rating that corresponds to their condition. We randomized the ordering of the depression and schizophrenia questions in the control conditions and used data from both sets of responses.

Alternative operationalizations. We explored the possibility that perceived and personal stigma were part of a single dimension by putting items for both into a single factor analysis, but the results clearly show they are not: the personal and perceived stigma items loaded onto separate factors, creating a two-factor result. In addition, the correlations between perceived and personal stigma are low ($r = 0.233$ for depression; $r = 0.356$ for schizophrenia), further indicating that these are distinct constructs.

4.5. Participant attributes

Community college in the South is a dichotomous variable with public university in the Midwest omitted. *English as primary language* and *female* are also dichotomous. *Age* was measured in years, with age-squared included when it improved model fit. *Sophomore* (31–60 credit hours), *junior* (61–90 credit hours), *senior* (91 or more credit hours), and *post-baccalaureate student* are dummy variables, with first year student (0–30 credit hours) omitted. *Frequency of religious service attendance* ranges from 1 (never) to 7 (daily). *Political conservatism* was measured with participants' self-identification on a slider below the prompt: "Politically, I am:," with "Extremely Liberal" (coded as 0) on the left end of the slider and "Extremely Conservative" (coded as 100) on the right. We measured the tendency to give *socially desirable responses* at the end of the survey, using a shortened (10-item) version of the Marlowe-Crowne Social Desirability Scale that has strong psychometric properties (Fischer and Fick, 1993). The items ask participants to give true or false answers to statements such as "I have never intensely disliked anyone." High scores indicate socially desirable responses.

5. Results

5.1. Perceived stigma

As shown in Table 1, we have 726 cases in our analyses, with 178 in the control condition, 276 in the depression conditions, and 272 in the schizophrenia conditions. We use the same control participants for the examination of the depression and schizophrenia conditions, so the N is 454 for the depression condition analyses and 450 for the schizophrenia condition analyses. As shown, perceived stigma scores are higher than personal stigma scores, differences that are highly significant in paired t-tests ($t = 18.5$, $p < .001$ for depression; $t = 22.2$, $p < .001$ for schizophrenia).

Table 2 displays coefficients from the OLS regressions of perceived stigma on conditions and controls, results relevant to part "a" of

Table 2

Coefficients from OLS regressions of perceived stigma on conditions and controls.

Model:	Perceived Stigma Toward:					Proportion of Model 4 coefficients mediated by personal stigma ^a
	Individuals with Depression		Individuals with Schizophrenia			
	1	2	3	4	5	
Conditions (0 = no message about mental illness)						
Biological origins message - depression/schizophrenia	.20 (1.74)	.42 (1.75)	.37 (1.87)	-.27 (1.86)	2.14 (1.76)	8.98**
Psycho-social origins message - depression/schizophrenia	-.56 (1.72)	-.88 (1.72)	-3.37 [†] (1.88)	-4.29* (1.89)	-2.44 (1.77)	.43*
Competence message - depression/schizophrenia	.88 (1.90)	.90 (1.90)	-4.67* (1.98)	-4.18* (1.98)	-1.79 (1.87)	.57**
Personal stigma toward individuals with schizophrenia					.39*** (.05)	
N	454	454	450	450	450	
R ²	.005	.041	.023	.078	.203	
Adjusted R ²	-.007	.008	.012	.044	.172	

Note: Unstandardized coefficients; standard errors are in parentheses; [†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests). All models control for data collection site and the manipulation check. Models 2, 4, and 5 also control for the participant attributes listed in Table 1, and Models 4 and 5 control for age-squared.

^a Significance values come from Sobel test (two-tailed tests).

our hypotheses. All of the models control for the data collection site and the manipulation check; Models 2, 4, and 5 also control for the participant attributes listed in Table 1, and Models 4 and 5 control for age-squared. As expected with random assignment, the condition coefficients generally change very little when the participant attributes are controlled in Models 2 and 4. To conserve space, we display only the condition coefficients in this and the remaining table, but the full results are displayed in the Online Appendix C.

As shown in Models 1 and 2, none of the messages affect the perceived stigma of depression, and there are no significant differences between any of the experimental condition coefficients (not shown). Thus, for the perceived stigma of depression, we have no support for the three message-exposure hypotheses and no support for relative effectiveness hypotheses.

As shown in Models 3 and 4, both the psycho-social and competence messages reduce the perceived stigma of schizophrenia, although the psycho-social message reaches significance only in Model 4. Thus, for the perceived stigma of schizophrenia we have support for the competence message hypothesis, partial support for the psycho-social origins hypothesis, and no support for the biological origins hypothesis.

As predicted in the relative effectiveness H1a, the competence message reduces the perceived stigma of schizophrenia more effectively than the biological origins message in Model 3 ($b = -5.04$, $se = 2.24$, $p = .025$) and, at a marginally significant level, in Model 4 ($b = -3.91$, $se = 2.25$, $p = .083$). The psycho-social origins message also reduces perceived stigma more effectively than the biological origins message, but that difference reaches only marginal significance in both Models 3 ($p = .085$) and 4 ($p = .063$). Contrary to the relative effectiveness H2a, however, the competence message does not reduce the perceived stigma of schizophrenia more effectively than the psycho-social origins message (not shown).

Table 3

Coefficients from OLS regressions of personal stigma on conditions and controls.

Model:	Personal Stigma Toward:					Proportion of Model 4 coefficients mediated by perceived stigma ^a
	Individuals with Depression		Individuals with Schizophrenia			
	1	2	3	4	5	
Conditions						
Biological origins message - depression/schizophrenia	-2.66 (1.85)	-3.01 (1.88)	-5.73** (1.77)	-6.24*** (1.78)	-6.15*** (1.65)	.02
Psycho-social origins message - depression/schizophrenia	-2.70 (1.83)	-2.90 (1.84)	-4.89** (1.78)	-4.78** (1.80)	-3.27 [†] (1.69)	.32*
Competence message - depression/schizophrenia	-8.06*** (2.03)	-7.83*** (2.04)	-6.21*** (1.87)	-6.19** (1.89)	-4.71** (1.77)	.24*
Perceived stigma toward individuals with schizophrenia					.35*** (.04)	
N	454	454	450	450	450	
R ²	.036	.059	.056	.093	.216	
Adjusted R ²	.025	.025	.045	.059	.185	

Note: Unstandardized coefficients; standard errors are in parentheses; [†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests). All models control for data collection site and the manipulation check. Models 2, 4, and 5 also control for the participant attributes listed in Table 1 and age-squared.

^a Significance values come from Sobel test (two-tailed tests).

5.2. Personal stigma

Table 3 displays coefficients from the OLS regressions of personal stigma on conditions and controls, results relevant to part “b” of the hypotheses. Again, all of the models control for the site of data collection and the manipulation check. Models 2, 4, and 5 control for the participant attributes listed in Table 1 and age-squared. Again, as expected, the condition coefficients change very little when the participant attributes are controlled in Models 2 and 4.

As shown in Models 1 and 2, only the competence message reduces personal stigma toward individuals with depression. Thus, for depression, we find strong support for the competence hypothesis but no support for the other two message-exposure hypotheses. And in line with both relative effectiveness hypotheses, the competence message reduces the personal stigma of depression more than either the biology message (e.g., Model 2: $b = -4.82$, $se = 2.27$, $p = .034$) or the psycho-social message (e.g., Model 2: $b = -4.93$, $se = 2.25$, $p = .029$). But, contrary to relative effectiveness H1b, the psycho-social message is just as ineffective as the biology message.

As shown in Models 3 and 4, all three messages reduce personal stigma toward individuals with schizophrenia, results that support all three message-exposure hypotheses. But, contrary to the relative effectiveness hypotheses, we find no significant differences in the size of these effects (not shown).

5.3. Mediation

Tables 2 and 3 show that one or more of the messages affects three types of stigma (personal stigma of depression and both the perceived and personal stigma of schizophrenia), so those three stigma outcomes could mediate the effect of the message on the corollary type of stigma (perceived or personal). Our analyses suggest that the personal stigma of depression does not mediate the effect of the competence message on the perceived stigma of depression (not shown) but that both types of schizophrenia stigma could function as mediators.

As shown in Model 5 in Table 2, the personal stigma of schizophrenia mediates the effects of all three messages on the perceived stigma of schizophrenia, reducing the effects of the two significant coefficients (the psycho-social origins message and the competence message) to non-significance. Thus, if these two messages affect personal stigma before perceived stigma, the effect of the messages on perceived stigma may be due, in part, to individuals projecting their personal views onto the larger culture, patterns in line with the false consensus effect.

But, as shown in Model 5 of Table 3, the reverse mediation process is also possible, with the effects of both the psycho-social origins and the competence messages on personal stigma mediated, in part, by perceived stigma. Thus, if these messages affect the perceived stigma of schizophrenia before personal stigma, the effects of these two messages on personal stigma may be due, in part, to individuals using their understanding of the larger cultural view to develop their own views. We cannot determine with these data which type of stigma changes first (or if the changes are simultaneous), so we cannot adjudicate between these two possibilities, but these results suggest both are possible. Future work that clarifies the time order of these changes will be valuable for understanding more about how these processes unfold.

6. Discussion and conclusion

Numerous countries and organizations have conducted campaigns aimed at reducing prejudicial attitudes toward individuals with a mental illness. Reviews of the literature on campaign effectiveness (Dumesnil and Verger, 2009) and meta-analyses aimed at assessing the effectiveness of interventions more generally (Clement et al., 2013; Corrigan et al., 2012, 2015; Griffiths et al., 2014) suggest that campaigns and interventions modestly reduce prejudicial attitudes. Nonetheless, several questions remain. First, only a handful of experiments have examined the effectiveness of a competence-focused message, and none have assessed its effectiveness against an information-focused message, so it is not clear how competence messages compare to the more typical information-focused message. This empirical gap is surprising because research and propositions in expectation states theories (Berger and Webster, 2018) and affect control theories (Robinson and Smith-Lovin, 2018) intuitively suggest that exposure to positive competence information about people in a cultural category can gradually increase observers' impressions of the competence, potency, and goodness tied to that cultural category and that this process should occur both with personal views (i.e., personal stigma) and with perceptions of how that group is viewed in the culture at large (i.e., perceived stigma). Second, most of the intervention experiments lack a cover story that disguises the purpose of the study, so questions also remain about the extent to which the findings in many of these experiments reflect genuine attitude change or social desirability bias. Finally, the frequent use of pretests in intervention experiments leaves questions about the extent to which interventional messages reduce prejudicial attitudes when the messages do not immediately follow a pretest.

We sought to address these questions using an online experiment to evaluate the relative effectiveness of three “public service” messages, each highlighting different information: the biological origins of mental illness and the value of drug therapy, the psycho-social origins of mental illness and the value of cognitive behavioral therapy, and the capabilities of individuals with a mental illness and the value of therapy. We crossed the three messages with the two diagnoses and compared each experimental group to a control group that received no mental health message. We also used a cover story, controlled for the tendency to give socially desirable responses, and did not administer a pretest, thus addressing limitations in other studies of stigma-reducing interventions. We examined two measures of stigma: individuals' own views of people with a mental illness (personal stigma) and individuals' perceptions of how most people view people with a mental illness (perceived stigma). And we considered the possibility that change in personal stigma was mediated by perceived stigma and vice versa.

We found that the competence message reduced stigma more effectively than the other two messages and that all the messages were

more effective at changing personal stigma than perceived stigma. More specifically, we found that (1) none of the messages reduced the perceived stigma of depression, (2) only the competence message consistently reduced the perceived stigma of schizophrenia, (3) only the competence message reduced personal stigma toward individuals with depression, and (4) all three messages reduced personal stigma toward individuals with schizophrenia and did so equally well.

We also identified four mediation possibilities related to the perceived and personal stigma of schizophrenia. The effect of the psycho-social and competence messages on the personal stigma of schizophrenia declines significantly when perceived stigma is controlled, suggesting that perceived stigma may mediate the effect of those messages on personal stigma. But, the reverse causal direction is also possible, because the effect of those messages on perceived stigma declines significantly when personal stigma is controlled. Experiments that include multiple post-tests will be useful for determining the temporal ordering of these changes, thus adjudicating between these mediational possibilities.

6.1. Theoretical implications

Competence message. Our competence hypotheses were derived, in part, from research and propositions in EST and ACT. Work in the EST research program suggests that exposure to new status information affirming the competence of individuals in a cultural category may positively alter assessments of individuals in that category and perhaps the category overall (Harkness, 2014; Ridgeway and Correll, 2006). Similarly, according to ACT, exposure to good and potent behavior from actors occupying a given identity gradually increases the goodness and potency tied to that identity (Heise, 2007). Our findings are consistent with those ideas for three of the four outcomes, showing that information about the educational and career potential of individuals with depression and schizophrenia improved participants' personal view of the status, competence, and likeability of those individuals, and, importantly, it improved participants' perceptions of what *most* people think about individuals with schizophrenia, suggesting that the competence message can affect generalized second-order beliefs about schizophrenia.

Despite its effect on the perceived stigma of schizophrenia, the competence message failed to change the perceived stigma of depression. That difference may be due to differences in illness familiarity. Depression, which is more common than schizophrenia, is likely to be more familiar to people, and familiarity may reduce receptivity to new information. The social desirability coefficients, shown in the full models displayed in the [Online Appendix C](#), also suggest a divergence in malleability between the stigma of the two illnesses. As shown, social desirability is negatively related to the perceived and personal stigma of schizophrenia but is unrelated to the perceived and personal stigma of depression, suggesting that even a desire to give socially desirable responses does not alter participants' responses regarding individuals with depression. Together these patterns suggest that it may take repeated message exposures to alter attitudes related to depression and other illnesses that individuals feel they already understand.

Biology and psycho-social messages. Although researchers initially expected a biology message to reduce stigma by removing the perception that individuals were to blame for their illness, many eventually doubted that view and proposed that such messages might even magnify stigma by increasing perceptions of mental illness as serious and persistent (e.g., Phelan, 2002). The logic behind the advocacy of a psycho-social message was similar—blame-reduction via education—although it has received less criticism than the biology message. Our findings are consistent with the newer view of origins messages, with the biology message reducing only one of four types of stigma and the psycho-social message only consistently reducing one of four. Together these results suggest the limits of information and blame-reduction as mechanisms for reducing the stigma of mental illness.

6.2. Policy implications

The competence message had the largest number of beneficial effects, reducing all but the perceived stigma of depression. The effectiveness of the competence message is not especially surprising, because the message directly counters the impression that psychiatric clients are incompetent and aligns with social psychological research on impression formation. What is surprising is its limited use in campaigns. New Zealand's campaigns and Scotland's "See me" campaign, both infused with this inspirational message, are the exceptions to a landscape of largely informational campaign messages. Thus, our findings suggest that organizations and governments that are developing new campaigns should consider incorporating an inspirational, competence-based theme.

Researchers could also explore the effectiveness of additional types of competence messages. Our competence message, which focused on educational and career capabilities, may not be useful for reducing the stigma toward individuals whose illness does preclude educational and career accomplishments. The message could even have unintended consequences if it implied that those individuals were not working hard enough. Thus, future studies that explore the effectiveness of messages focused on competence in other roles, including family and friendship roles, will be important. If such messages were disseminated broadly, researchers could then examine their effects on attitudes and the experiences of individuals with a mental illness to determine if the messages reduce discriminatory experiences. Such a study would likely require a quasi-experimental design, such as a multiple time series design, that would include data collection before and after dissemination in regions with and without a campaign.

Yet, the competence message was not the only message that had beneficial effects. The psycho-social message reduced the perceived stigma of schizophrenia in one model, and both the biology and the psycho-social messages reduced personal stigma toward individuals with schizophrenia. So, there may be benefits to including informational components along with the competence message for schizophrenia anti-stigma campaigns.

All three messages reduced the stigma of schizophrenia more effectively than the stigma of depression, a difference that may be due to participants' greater familiarity with depression. Therefore, the campaigns and programs that target young people (e.g., Watson et al., 2004) may be especially important, given that young people may hold less firmly established opinions about individuals with a

psychiatric illness and, therefore, may be more receptive to messages about depression and other familiar illnesses.

The messages also altered personal stigma more effectively than perceived stigma, affecting two of the six perceived stigma scores but four of the six personal stigma scores. These results are not a clear policy limitation, given that the ultimate goal of anti-stigma campaigns is to alter personal stigma, but they do mean that campaigns, particularly informational campaigns, will be less successful at altering personal stigma *through* a change in perceived stigma.

6.3. Future work

Our study was a preliminary effort to evaluate the relative effectiveness of informational and competence messages as stigma-reduction tools, and we see many ways to build on it. It will be useful for future studies to replicate our experiment on a broader, ideally representative, sample. It would also be useful to test the effect of messages delivered using other media formats, including videos clips, given that many campaigns include television ads and web-based clips. Researchers could also expand the range of outcomes to include social distance measures. As noted above, experimental designs that include multiple posttests would be useful for establishing the temporal order of changes in perceived and personal stigma in response to anti-stigma messages, findings that would help illuminate the mediational processes that we explored. Researchers could also examine more fully the differential malleability of perceived and personal stigma.

We also see ways to improve the content of the messages. Researchers could standardize the therapy statement in the messages to more clearly determine the relative effectiveness of the focal part of the messages (biological origins, social origins, and competence). A standardized and specific therapy statement would also eliminate any ambiguity regarding the meaning of the non-specified “therapy” in the competence message. Also, as noted above, researchers could expand or change the content of the competence message to focus on accomplishments in family and friendship roles and compare the effectiveness of those types of message with education and career competence messages. Finally, researchers could combine messages to determine if multiple messages create benefits beyond a single message or if the less effective informational messages counteract the benefits of the competence message.

Appendix

Depression conditions, with text used in the biological origins, psycho-social origins, and competence conditions bracketed:

Public Service Message #2

Depression is a disorder that affects how individuals feel, think, and behave. People who have depression often have a depressed mood, feelings of worthlessness or guilt, irritability, agitation, slowed thinking and/or indecisiveness. They may also experience a change in sleep patterns, a change in appetite, fatigue, and a loss of interest in normal activities. **[Biological origins condition:** Depression is caused, in part, by genetics and problems with certain naturally occurring brain chemicals. With proper drug therapy, however, symptoms can decline dramatically. / **Psycho-social origins condition:** Depression is caused, in part, by stressful life circumstances and personal trauma. With proper cognitive behavioral therapy, however, symptoms can decline dramatically. / **Competence condition:** With proper therapy, however, symptoms can decline dramatically. People with depression can function at a high level, obtain advanced degrees, and work in high status occupations (e.g., as managers, authors, scientists, attorneys, political leaders).]

Schizophrenia conditions, with text used in the biological origins, psycho-social origins, and competence conditions bracketed:

Schizophrenia is a group of disorders in which people interpret reality abnormally. People who have schizophrenia often believe some things that are not true (delusions) and hear, see, or smell things that are not there (hallucinations). They may also have trouble understanding information and using it to make decisions, which can make executing everyday tasks difficult. **[Biological origins condition:** Schizophrenia is caused, in part, by genetics and problems with certain naturally occurring brain chemicals. With proper drug therapy, however, symptoms can decline dramatically. / **Psycho-social origins condition:** Schizophrenia is caused, in part, by stressful life circumstances and personal trauma. With proper cognitive behavioral therapy, however, symptoms can decline dramatically. / **Competence condition:** With proper therapy, however, symptoms can decline dramatically. People with schizophrenia can function at a high level, obtain advanced degrees, and work in high status occupations (e.g., as managers, authors, scientists, attorneys, political leaders).]

In the biological origins and psycho-social origins conditions, the following question was presented on the same screen as the message:

According to this message, what are the causes of depression/schizophrenia? Write your answer in the box below.

In the competence conditions, the following question was presented on the same screen as the message:

According to this message, what kinds of things can people with depression/schizophrenia do? Write your answer in the box below.

On the next screen, a “memory question” was presented:

Memory Question

Depression conditions:

According to this prior message, what are some symptoms of depression? Please select all that apply from the list below:

- Loss of appetite
- Feelings of worthlessness
- Excited mood
- Black and white thinking

Schizophrenia conditions:

According to this prior message, what are some symptoms of schizophrenia? Please select all that apply from the list below:

- Delusions
- Hallucinations
- Increased heart rate
- Increased mental acuity

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssresearch.2021.102543>.

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