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Abstract

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Abstract

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Keywords: psychiatric stigma; continuum beliefs; schizophrenia

On Continuum Beliefs and Psychiatric Stigma: Similarity to a Person
with Schizophrenia Can Feel Too Close for Comfort

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1. Introduction

Individuals with psychiatric problems are commonly rejected, avoided, devalued, and discriminated against (see Hinshaw and Stier, 2008, for a review). People with psychiatric problems are seen as incompetent (Sadler et al., 2012), dangerous/violent (Phelan et al., 2000; Wahl, 1995), child-like (Corrigan et al., 2001), and weak (Olmstead and Durham, 1976). Public stigma of mental illness has been remarkably persistent over time. That is, despite increased awareness of mental illness in most cultures, there is some evidence that the problem of public stigma has remained stable or even intensified (Schomerus et al., 2012). This pervasive public stigma limits the lives of individuals with mental illness in diverse ways. Public stigma reduces their ability to establish social connection (Sayce, 2000), secure employment (Bordieri and Drehmer, 1986), pursue educational opportunities (Van Brakel, 2006), and obtain housing (Page, 1977). Psychiatric stigma is a serious social problem and it is increasingly seen as an important target of policy aimed at improving mental health care (Hogan, 2003; World Health Organization, 2001).

Outgroup categorization of individuals with psychiatric problems fuels public stigma (Link and Phelan, 2001). That is, stigma is enabled to the extent that the public (the ingroup; “us”) appraises individuals with psychiatric problems (the outgroup; “them”) as occupying a distinct social category with rigid boundaries. Indeed, there is ample empirical evidence that stronger belief in categorical differences between individuals with and without mental illness predicts increased stigma (e.g., Thibodeau, 2017; Thibodeau et al., 2018). Similarly, strong belief in the biomedical origins of mental illness, which may underscore the “otherness” of individuals with psychiatric problems, also predicts critical dimensions of public stigma (see Haslam and Kvaale, 2015, for a review).

There are alternative ways of thinking about the nature of psychiatric problems. Continuum beliefs reflect the idea that psychopathology and normality are separate points on a fluid continuum. This view maintains that individuals with psychiatric problems are not categorically different from others. Rather, continuum beliefs emphasize fundamental similarities between psychopathology and the ordinary distress to which everybody is vulnerable. A sizeable body of correlational research indicates that stronger continuum belief predicts decreased stigma (Angermeyer et al., 2015; Makowski et al., 2016; Schlier et al., 2016; Schomerus et al., 2013; Thibodeau, 2017; Thibodeau et al., 2018; Wiesjahn et al., 2014; Wiesjahn et al., 2016)

These correlational findings have stimulated considerable interest in the possibility of developing stigma reduction programming that centers on continuum belief. That is, can we intervene to increase the public's embrace of continuum belief? If so, will weakened public stigma follow? Several studies have now evaluated these provocative questions. The small literature that has emerged is subject to important limitations including weak manipulations delivered mostly online and small intervention effects on key outcomes. Nevertheless, the evidence gathered to date suggests that continuum belief intervention may decrease important parameters of public stigma, including social distance (Schomerus et al., 2016; Thibodeau et al., 2018), blame (Schomerus et al., 2016), and incompetence/unpredictability (Wiesjahn et al., 2016). Moreover, in one study, continuum belief intervention led to increased appraisals of the recovery prospects of individuals with schizophrenia (Corrigan et al., 2017).

The content of the continuum manipulations carried out to date merits some scrutiny. Two main approaches to intervention have been utilized. In one approach, participants read a short summary of academic research, written using journal-style prose (Wiesjahn et al., 2016) or

written to simulate a popular news article (Schomerus et al., 2016), attesting to similarities between individuals with mental illness and “normal” people. In a second approach, participants are introduced to a specific (but fictitious) individual and invited to see symptoms of his disorder as occurring commonly, albeit in attenuated form, in the “normal” population (Corrigan et al., 2017; Thibodeau, 2017). A common thread running across all these studies is that the interventions have permitted participants to maintain considerable psychological distance from individuals with mental illness described in the manipulation texts. That is, by executing only abstract comparisons between people with mental illness and “normal” people in a generic sense, participants can avoid considering the personal implications of a continuum view and they can decline potentially uncomfortable reflection on similarities between themselves and people with mental illness. What would happen if an intervention shrunk this psychological distance by compelling participants to see stark similarities between themselves and an individual with mental illness?

We can envision two possible outcomes of this different kind of continuum intervention. One possibility is that seeing individuals with mental illness as similar to one’s self would amplify the stigma reduction effect of continuum intervention. Participants may more readily confer ingroup status to individuals seen as uniquely similar to themselves (Gaertner et al., 1993), thus facilitating a more vigorous rejection of outgroup status that helps to fuel the stigma of mental illness. We see a second possibility as more likely, however. We contend that a belief in the “otherness” of individuals with psychiatric problems is useful in that it affords safe psychological distance from mental illness. Continuum belief intervention that compels participants to see stark similarities between an individual with mental illness and themselves may force an uncomfortable confrontation with their own simmering sense of vulnerability.

Weakened perceptions of “otherness” could then lead to increased appraisals of threat, feelings of fear/anxiety, and ultimately, defensive rejection of the continuum intervention. Consider, for example, Wahl’s (1995) account of reading *The Quiet Room*, a memoir that describes co-author Lori Schiller’s first episode of psychosis at age 17 (Schiller and Bennett, 1994). In reflecting on parallels between Schiller and his own similarly aged daughter, Wahl reportedly searched “for evidence that [his] daughter was very different from (and thus less vulnerable than)” Schiller (pp. 125-126). Motives to see people with mental illness as fundamentally different are very powerful. Thus, a type of continuum intervention that explicitly weakens these appraisals of “otherness” by compelling psychological closeness to an individual with mental illness may undermine the beneficial effects on stigma heretofore documented in the empirical literature. The purpose of the present research was to bring to bear empirical evidence on these competing hypotheses.

In this study, participants listened to an audio-recorded interview between a professor at their college and a target person who they were told has schizophrenia. This individual was described as having a large number of specific characteristics in common with participants, thus underscoring appraisals of stark similarity and encouraging feelings of psychological closeness. That is, the target person was described as a recent alumnus of their college; similar in age; matched for sex; possessing a youthful appearance, confirmed via presentation of a photograph that was displayed concurrent with playback of the interview; and having a first name common among the current generation of college students. Moreover, several elements of the interview were designed to reinforce appraisals of similarity or to render the manipulation more psychologically compelling. These include a manner of speech employed by many college students; outward manifestations of normality, absent verbal behavior that might indicate

psychosis; and speech targeted directly at listeners.

The experimental manipulation was carried out via a combination of statements from the target person and follow-up reading. In the control condition, the target person did not verbally broach issues of similarities to, or differences from, “normal” people. A follow-up bogus research article was agnostic with respect to the continuum/categorical distinction. In the continuum condition, the target person made statements that reinforced similarities to “normal” people (e.g., “I’m not that different than you!”). The follow-up article attested to a continuum view of schizophrenia, thereby weakening a sense of “otherness” even further. In the categorical condition, the target person made statements that reinforced differences from “normal” people (e.g., “I’m totally different than you!”). The follow-up article attested to a categorical view of schizophrenia, thereby enabling some psychological distance from the target person. The categorical condition was included to (1) facilitate consistency with the published literature on continuum intervention; (2) conceptually oppose the continuum condition, which permitted us to evaluate implications of the full spectrum of “otherness;” and (3) rule out the possibility that continuum effects that may emerge are attributable to a nonspecific effect of (any) intervention. Our study allowed us to generate conclusions regarding schizophrenia, but perhaps not other disorders that may differ with respect to key parameters of public stigma.

Hypotheses were as follows. Given a continuum intervention that encourages participants’ contemplation of stark similarities with a target person with schizophrenia:

- (1) No beneficial effect of the continuum intervention, compared to the control and categorical interventions, on psychiatric stigma was expected. We utilized two measures of stigma: social distance and stereotyped attitudes.
- (2) The continuum intervention, compared to the control and categorical interventions,

should lead to an inflated sense of anxiety/fear and threat. We utilized three measures of momentary affect: the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), a commonly used self-report measure of stigma-related emotion (Schomerus et al., 2013), and a lexical decision task (e.g., MacLeod and Matthews, 1991) to measure implicit feelings of threat not fully available to participants' conscious awareness.

2. Method

2.1 Participants

One hundred thirty-five undergraduates (103 women, 31 men, one participant declined to indicate biological sex; 83.6% White; 8.3% psychology majors, 28.8% nursing majors, 62.9% other; 43.0% reported having a family member with mental illness; M age = 18.7, SD = 1.2) were recruited using a participant management application (Sona Systems, Ltd., Tallinn, Estonia). They participated for course credit. The first author allocated participants to the control (n = 43), continuum (n = 46), or categorical (n = 46) or groups using computer-generated random sequences that yielded blocks fixed at size 3.

2.2 Measures

2.2.1. Measures of psychiatric stigma. We administered two self-report measures of psychiatric stigma. The Social Distance Scale (SDS; Link et al., 1987) includes seven items that measured participants' willingness to engage, at varying degrees of closeness (e.g., co-worker, neighbor) with the target person. Responses were recorded on four-point scales (1 = definitely willing, 4 = definitely unwilling).

A six-item semantic differential tool (Olmsted and Durham, 1976) was administered to measure stereotyped attitudes. Respondents rated both the target person and "Average Person"

on seven-point scales anchored by bipolar adjectives (e.g., safe-dangerous, valuable-worthless). Difference scores for all six items were then computed by subtracting ratings for “Average Person” from ratings for the target person. The six items were then averaged to form an overall index of stereotyped attitudes. We also executed separate analyses of two items, safe-dangerous and predictable-unpredictable, given their special relevance to schizophrenia stigma.

2.2.2 Measures of momentary affect. We administered a lexical decision task to measure the momentary accessibility of threat-related constructs. Using E-Prime stimulus presentation software (Psychology Software Tools, Inc.; Sharpsburg, PA), a series of 60 stimuli – words or non-words – were sequentially presented in random order via an Acer XF240H computer display (1920 x 1080 pixels, 144 Hz refresh rate). Participants were required to indicate, as quickly as possible using the *e* and *i* keys of the keyboard, whether the stimuli were words or non-words. E-Prime recorded the speed (in ms) with which participants logged their responses to each of the 60 stimuli. Responses keys were counterbalanced such that half of the participants pressed the *e* key for words and *i* key for non-words and the other half executed the opposite configuration. Stimuli were grouped into four categories consisting of (1) 12 anxiety words (e.g., afraid, nervous, anxious); (2) 12 death words (e.g., bury, grave, dying), responses to which are sensitive to feelings of threat (Schimmel et al., 2007) (3) 12 neutral words (e.g., bottle, cabin, magnet); and (4) 24 phonetically plausible non-words (e.g., aknow, jalfig, yaskog). The four categories were matched with respect to stimulus length (i.e., number of letters); the three word categories were also matched with respect to word frequency, as per the English Lexicon Project database (Balota et al., 2007).

We administered two self-report measures of momentary affect. The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) includes 10 positive (e.g., enthusiastic,

alert, inspired) and 10 negative (e.g., distressed, irritable, hostile) items that captured participants' current affective state. Responses were recorded on five-point scales (1 = very slightly or not at all, 5 = extremely). Two separate administrations of the PANAS were carried out: one prior to and one subsequent to the experimental manipulation.

A 10-item measure of emotional reactions (Schomerus et al., 2013) to the target person featured in the interview was also administered subsequent to the experimental manipulation. Consistent with previous work, items were grouped into fear (e.g., "I feel insecure"), anger (e.g., "I feel annoyed"), and prosocial (e.g., "I feel the need to help") categories. Responses were recorded on five-point scales (1 = strongly disagree, 5 = strongly agree).

2.2.3. Manipulation check. To evaluate participants' responsiveness to the experimental manipulation, we administered a four-item scale that measured participants' endorsement of continuum (e.g., "Anybody could develop schizophrenia under the right circumstances") and categorical (e.g., "Symptoms of schizophrenia represent clear departures from the way normal people function") views of schizophrenia (see Thibodeau, 2017). Responses were recorded on four-point scales (1 = strongly disagree, 4 = strongly agree).

2.3 Procedure

First, participants provided informed consent to complete the study, which was approved by the local institutional review board. Second, they completed the pre-manipulation PANAS and two scales unrelated to the current study and thus not discussed here. Third, the experimenter delivered instructions pertaining to the experimental manipulation. That is, the experimenter explained that participants would momentarily listen to a short section of an audio-recorded conversation between a campus professor who studies psychiatric problems and a 25 year-old college alumnus who struggles with schizophrenia. Participants then listened to one of three

versions of a scripted, audio-recorded conversation between the first-author and either a young woman (“Jessica,” for female participants) or a young man (“Justin,” for male participants) recruited to enact the role of a person with schizophrenia. Both were seasoned actors in the college’s drama club. The first author was prominent in the audio-recorded conversation but was not involved in data collection.

In all three conditions, the ostensible person with schizophrenia opened with a detailed description of personal struggles with several psychotic symptoms including paranoid delusions, delusions of reference, auditory hallucinations, and disorganized speech (duration = 1 min). In the control condition, playback of the audio-recording terminated upon completion of this description. In the continuum condition, the ostensible person with schizophrenia explained that psychiatric professionals have consistently told her/him that schizophrenia is fundamentally similar to the occasional experiences of normal people under stress (duration = 1 min). In the categorical condition, the ostensible person with schizophrenia explained that psychiatric professionals have consistently told her/him that schizophrenia represents a stark departure from normal functioning (duration = 1 min). All scripts are available upon request from the first author. Playback of the recordings was accompanied by presentation of a photograph of “Jessica” or “Justin” that gave the impression of candid capture mid-conversation.

Next, participants were given a bogus but authentic looking scientific article intended to bolster the information delivered in the audio-recordings (see Thibodeau et al., 2018). The first page of the article included highlighted material that participants’ were asked to carefully read; namely, the title and a short section reminiscent of an abstract called “Highlights,” which contained bulleted information on schizophrenia. Participants read one of three versions of the bogus article. In the control condition, participants read an article titled “Schizophrenia: Theory

and research evidence,” which described only symptoms of schizophrenia. In the continuum condition, participants read an article titled “Schizophrenia lies on a continuum: Theory and research evidence,” which described symptoms of schizophrenia and summarized evidence attesting to a continuum view of schizophrenia. In the categorical condition, participants read an article titled “Schizophrenia is a distinct category: Theory and research evidence,” which described symptoms of schizophrenia and summarized evidence attesting to a categorical view of schizophrenia.

Participants then completed the lexical decision task, the post-manipulation PANAS, the manipulation check, and the self-report measures of social distance, emotional reactions, and semantic differential stereotyped attitudes, in that order. After debriefing, participants were thanked for their participation and dismissed.

3. Results

3.1 Correlational Analyses

Consistent with previous research, participants’ endorsement of continuum and categorical beliefs predicted self-report variables capturing psychiatric stigma and momentary affect (see Table 1). Greater endorsement of continuum beliefs predicted less desire for social distance, less prosocial emotion, and weaker embrace of stereotyped attitudes, including stereotypes related to both dangerousness and unpredictability. In contrast, greater endorsement of categorical beliefs predicted marginally greater desire for social distance; marginally greater prosocial emotion; stronger embrace of stereotyped attitudes, including stereotypes related to both dangerousness and unpredictability; and marginally higher positive affect at the post-manipulation, relative to the pre-manipulation, measurement.

3.2 Preliminary Experimental Analyses

We first sought to determine whether our randomization procedure yielded experimental groups that were balanced with respect to demographic and other key variables. There were no group differences for any demographic variables: age, $F(2,132) = 0.85, p = 0.430$; sex, $\chi^2(2) = 0.18, p = 0.915$; ethnicity (proportion of White versus non-White participants), $\chi^2(2) = 0.99, p = 0.610$; college major (proportion of psychology versus nursing versus other majors), $\chi^2(4) = 3.02, p = 0.555$. There were also no group differences in the proportion of participants who reported having family members with mental illness, $\chi^2(2) = 0.50, p = 0.778$.

Table 2 displays all effects of the experimental manipulation. Manipulation check data indicated that the experimental manipulation was effective. Subsequent to the manipulation, groups differed in their endorsement of continuum beliefs, $F(2,132) = 39.43, p < 0.001, \eta_p^2 = 0.37$, and categorical beliefs, $F(2,132) = 38.73, p < 0.001, \eta_p^2 = 0.37$, in the expected directions.

Effectiveness of the experimental manipulation notwithstanding, fourteen participants (10.4%; $n = 2$ control, $n = 5$ categorical, $n = 7$ continuum) were unable, at debriefing, to identify the group to which they had been assigned. These participants were excluded from all subsequent analyses, though the results are unchanged when all participants are included.

3.3 Effects of the Experimental Manipulation on Psychiatric Stigma

As expected, there was no evidence that the experimental manipulation affected psychiatric stigma (see Table 2): social distance, $F(2,118) = 0.11, p = 0.894, \eta_p^2 = 0.00$; overall stereotyped attitudes, $F(2,118) = 0.24, p = 0.788, \eta_p^2 = 0.00$; dangerousness stereotype, $F(2,117) = 0.11, p = 0.896, \eta_p^2 = 0.00$; unpredictability stereotype, $F(2,118) = 0.58, p = 0.563, \eta_p^2 = 0.01$.

3.4 Effects of the Experimental Manipulation on Momentary Affect

We followed published procedures for scoring and analyzing lexical decision data (e.g., Granqvist et al., 2018). Trials were deleted if they yielded participant responses that were (1)

incorrect, (2) too fast, defined as under 300 ms, or (3) too slow, defined as over 1500 ms. To control for nonspecific individual differences in overall reaction times (RTs), mean RTs to neutral trials were included as covariates in the models examining RTs to anxiety and death-related words.

As expected, for RTs to anxiety words, the omnibus effect of the experimental manipulation was significant, $F(2,117) = 3.42, p = 0.036, \eta_p^2 = 0.06$. Follow-up contrasts indicated that the continuum group exhibited faster RTs than both the control, $F(1,117) = 5.73, p = 0.018, \eta_p^2 = 0.05$, and categorical groups, $F(1,117) = 4.61, p = 0.034, \eta_p^2 = 0.04$.

For RTs to death-related words, the omnibus effect of the experimental manipulation was not significant, $F(2,117) = 0.01, p = 0.986, \eta_p^2 = 0.00$.

There was a near-significant omnibus effect of the experimental manipulation on self-reported fear, $F(2,118) = 3.01, p = 0.053, \eta_p^2 = 0.05$. Follow-up contrasts indicated that the continuum group reported significantly greater fear than the control group, $F(1,118) = 5.73, p = 0.018, \eta_p^2 = 0.05$, and marginally greater fear than the categorical group, $F(1,118) = 2.86, p = 0.093, \eta_p^2 = 0.02$. Omnibus effects involving self-reported anger and prosocial emotion were not significant ($ps > 0.29$).

PANAS positive and negative affect scores were subjected to separate mixed analyses of variance, with group entered as a between-subjects factor and time (pre vs. post) entered as a within-subjects factor. For positive affect, there was a near-significant main effect of time, $F(1,118) = 3.85, p = 0.052, \eta_p^2 = 0.03$, such that positive affect tended to decrease from the pre-manipulation to the post-manipulation measurement. Both effects involving the group variable were not significant: main effect, $F(2,118) = 0.89, p = 0.415, \eta_p^2 = 0.02$; group x time interaction, $F(2,118) = 0.28, p = 0.753, \eta_p^2 = 0.01$.

For negative affect, all effects failed to achieve statistical significance: main effect of time, $F(1,118) = 0.26, p = 0.608, \eta_p^2 = 0.00$; main effect of group, $F(2,118) = 0.46, p = 0.632, \eta_p^2 = 0.01$; group x time interaction, $F(2,118) = 1.12, p = 0.329, \eta_p^2 = 0.02$.

4. Discussion

The current study examined the effects of a novel kind of continuum intervention on measures of psychiatric stigma and momentary affect. Most continuum interventions employed to date have permitted participants to maintain some psychological distance from individuals with mental illness. In contrast, because our intervention brought participants psychologically closer to a target person with schizophrenia, we expected participants to exhibit an inflated sense of threat or anxiety that could undermine the effectiveness of the intervention. Results supported these predictions. We obtained no evidence that our continuum intervention affected psychiatric stigma. Moreover, the continuum group exhibited an amplified sense of threat; that is, greater self-reported fear and faster responses to anxiety-related words in a lexical decision task. In the lexical decision task, the continuum intervention's effects were limited to the priming of lexical concepts related to anxiety/threat; no priming of lexical concepts related to death was documented.

These findings suggest that scholarship on continuum intervention should take heed of its potential to amplify a sense of threat or personal vulnerability to mental illness, an outcome that could have a myriad of consequences about which we can only speculate. Some people may defensively reject the intervention, dismissing it as a way of managing an inflated sense of threat (see Liberman and Chaiken, 1992). People may find it difficult to attend to the intervention because of a focus on one's own distress (see Compton, 2000). Perhaps it is even possible that, for some people, the intervention could lead to increased stigma. That is, feelings of increased

psychological closeness could prompt strong motives to search for characteristics that reestablish difference and thus a sense of safety (see Wahl, 1995, pp. 125-126). Moreover, Gergel (2014) argued that appraisals of similarity to people with mental illness could lead to increased perceptions of their laziness, blameworthiness, or weakness. In other words, if two people are fundamentally alike but only one has mental illness, it may be all too easy to invoke a flawed character to help explain the affected person's plight. In the absence of constitutional or categorical difference, appraisals of a weak will may jump to the fore. Of course, all of this is highly speculative, but we believe that future work on continuum belief should take up these important and provocative questions.

On the other hand, it is worth repeating that all of the beneficial effects of continuum intervention on psychiatric stigma heretofore documented are rather small (Corrigan et al., 2017; Schomerus et al., 2016; Thibodeau et al., 2018; Wiesjahn et al., 2016). Moreover, null effects were established here and elsewhere (Thibodeau, 2017). The extant evidence does little to support the prospects of designing stigma reduction programming with continuum belief at its center, though it may usefully assume a position at the periphery of interventions targeted elsewhere. Perhaps stigma reduction efforts would benefit from a redoubled focus on tried-and-true interventions with well-documented efficacy. The documented stigma reduction effects of knowledge/familiarity (Kitchener and Jorm, 2002) or contact (Couture and Penn, 2003) are examples. Fresh innovation with respect to contact-related stigma reduction could especially yield fruit. Along these lines, we should note that although extended contact has documented efficacy in reducing outgroup hostility (e.g., Wright et al., 1997), very little is known about its effects in the psychiatric domain (but see West and Turner, 2014).

We would also hasten to add that although our results do not support a stigma reduction

effect of continuum intervention, we are not arguing in favor of its conceptual opposite. That is, interventions that inflate appraisals of the “otherness” of individuals with psychiatric problems (e.g., “brain disease” conceptions of mental illness), are damaging in important ways (Haslam and Kvaale, 2015).

Our correlational results largely mirrored published findings. That is, categorical beliefs predicted increased psychiatric stigma, whereas continuum beliefs predicted decreased psychiatric stigma. The divergence between the correlational and experimental findings (Thibodeau, 2017) is interesting. Evidence gathered to date suggests that continuum beliefs that people spontaneously arrive at on their own are related to decreased stigma, whereas attempts to manipulate these beliefs can be fraught with inflated appraisals of threat, anxiety, and perhaps defensiveness. We also uncovered an intriguing negative correlation between continuum beliefs and prosocial emotion (see also Thibodeau et al., 2018). It is possible that continuum beliefs strip people’s problems of the medical legitimacy that ordinarily justifies expressions of care and compassion. Interestingly, other research has found a positive correlation between continuum beliefs and prosocial emotion (Angermeyer et al., 2015; Schomerus et al., 2013). Possible reasons for this discrepancy await empirical attention.

There are abundant avenues for future research on continuum belief. First, are there ways to capitalize on the promise of continuum intervention while at the same time minimizing the sense of threat that it stimulates? Sherman and Cohen (2002) reported that people are more receptive to threatening information when their self-worth is reinforced. Other ways of reducing feelings of threat associated with ingroup categorization of individuals with mental illness could valuably inform scholarship on continuum belief. As one example, telling participants that “healthy people can experience [psychotic] symptoms” (Wiesjahn et al., 2016) compels

participants to resituate “normal” into the territory of “abnormal.” What would be the consequences of instead asking participants to resituate “abnormal” into the territory of “normal,” perhaps by highlighting goals (e.g., work, relationships) that individuals with mental illness share with “normal” individuals? Could such an alternative approach reap the benefits of continuum intervention while also minimizing feelings of threat? Second, moderators of the relationship between continuum intervention and psychiatric stigma are ripe for exploration. Is continuum intervention more or less effective among people familiar or unfamiliar with mental illness? With or without histories of mental illness themselves? Among people high or low in traits that predict psychiatric stigma, such as belief in a just world? (Rüsch et al., 2010). Third, it is not clear whether the present findings would generalize to other psychiatric problems that are more common or perceived to be less serious. It is especially interesting to wonder how prevalence and severity might interact to predict threat responses. Which more strongly elicits feelings of threat – perceived vulnerability to less serious but more prevalent disorders (e.g., depression, anxiety) or more serious but less prevalent disorders (e.g., schizophrenia)? Fourth, future research might explicitly measure participants’ appraisals of their similarity to a target person with mental illness and evaluate the extent to which it predicts threat-related affect. Alternatively, variation in the degree of participants’ similarity to a target person with mental illness could be experimentally manipulated. Finally, it may be useful to directly compare the novel kind of continuum intervention we employed – which compels greater psychological closeness to an individual with mental illness – to the more conventional interventions heretofore employed in the published research literature (Corrigan et al., 2017; Schomerus et al., 2016; Thibodeau, 2017; Thibodeau et al., 2018; Wiesjahn et al., 2016).

The current study had several strengths. First, our manipulation check data indicated that

our intervention was unusually potent, particularly compared to the mostly online continuum interventions carried out to date. These results argue strongly in favor of persuasive, laboratory-based interventions that can offer strong tests of hypotheses surrounding continuum intervention effects. Second, we administered both explicit and implicit measures of psychiatric stigma and momentary affect. Scholarship on psychiatric stigma continues to over-rely on self-report measurement that is subject to well-known limitations. Use of implicit (e.g., Peris et al., 2008; Teachman et al., 2006) and concrete behavioral measures (e.g., Mehta and Farina, 1997; Thibodeau et al., 2018) is needed to achieve a more complete understanding of psychiatric stigma processes that manifest in the laboratory.

The study was also subject to some weaknesses. First, our sample included an unusually small number of men. Second, we did not evaluate the time course of the inflated threat exhibited by the continuum group subsequent to the manipulation. As such, it is not clear how long these feelings of threat persist, though this knowledge would be useful in evaluating the overall impact of continuum intervention. Of course, the measurement of only short-term responses to stigma-related interventions is problematic across the wide spectrum of psychiatric stigma research (Yamaguchi et al., 2013). Third, our strictly undergraduate sample limits the generalizability of the present results. Fourth, it is very likely that the increased accessibility of lexical concepts related to threat/anxiety in the continuum group reflects the momentary experience of these feelings. We have embraced the interpretation that these feelings arise from an appraisal of psychological closeness to an individual with schizophrenia, but we should acknowledge that other interpretations are possible. Our findings could alternatively reflect vicarious feelings of threat borne of empathic concern for the individual with schizophrenia featured in the interview. Finally, our hypothesis of null intervention effects on our stigma variables is unusual and

potentially problematic. On the other hand, we should point out that our findings offered consistent evidence in favor of the null hypothesis. Indeed, effect sizes (η_p^2) for social distance, overall stereotyped attitudes, the dangerousness stereotype, and the unpredictability stereotype were .00, .00, .00, and .01, respectively.

In sum, the current study demonstrated that a different kind of continuum intervention that compels psychological closeness to an individual with schizophrenia yields no beneficial effect on psychiatric stigma and inflates appraisals of threat and feelings of fear/anxiety. The present findings should valuably inform efforts to design stigma reduction programming centered on the manipulation of continuum beliefs.

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Declaration of Conflicting Interests

We have no conflicts of interest in the conduct or reporting of this research.

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Table 1

Bivariate Correlations between Continuum Beliefs, Categorical Beliefs, and Self-Report

Variables (Psychiatric Stigma and Momentary Affect)

	Continuum Beliefs	Categorical Beliefs
Psychiatric Stigma		
Social Distance	-0.22*	0.16 [†]
Stereotyped Attitudes		
Overall	-0.22**	0.25**
Safe-Dangerous	-0.19*	0.18*
Predictable-Unpredictable	-0.21*	0.21*
Momentary Affect		
Fear	-0.14	-0.02
Anger	-0.04	0.07
Prosocial Emotion	-0.27**	0.15 [†]
Pre-Post Change in PANAS Positive Affect	0.06	0.16 [†]
Pre-Post Change in PANAS Negative Affect	0.02	-0.09

Note. $n = 135$. The bivariate correlation between continuum beliefs and categorical beliefs was $r = -0.61, p < 0.001$.

** $p < 0.01$, * $p < 0.05$, [†] $p < 0.10$

Table 2

Effects of the Experimental Manipulation (Control, Continuum, Categorical) on the Manipulation Check, Psychiatric Stigma, and Momentary Affect

	Control Manipulation	Continuum Manipulation	Categorical Manipulation
	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>
Manipulation Check			
Continuum Beliefs	2.7 (0.09)	3.3 (0.08)	2.2 (0.09)
Categorical Beliefs	2.6 (0.08)	2.2 (0.09)	3.2 (0.10)
Psychiatric Stigma			
Social Distance	2.0 (0.08)	2.1 (0.08)	2.0 (0.08)
Stereotyped Attitudes			
Overall	0.5 (0.10)	0.4 (0.06)	0.5 (0.10)
Safe-Dangerous	0.9 (0.23)	0.8 (0.13)	0.8 (0.17)
Predictable-Unpredictable	1.7 (0.25)	1.4 (0.19)	1.7 (0.23)
Momentary Affect			
RTs to Anxiety Words	523.0 (6.78)	499.6 (7.00)	520.6 (6.79)
RTs to Death Words	562.7 (7.72)	564.4 (7.98)	562.7 (7.73)
Fear	1.6 (0.10)	1.9 (0.13)	1.7 (0.11)
Anger	1.5 (0.09)	1.7 (0.10)	1.6 (0.08)
Prosocial Emotion	3.5 (0.11)	3.4 (0.13)	3.5 (0.10)
PANAS Positive Affect			
Pre-Manipulation	3.4 (0.09)	3.2 (0.13)	3.2 (0.13)
Post-Manipulation	3.3 (0.14)	3.0 (0.13)	3.1 (0.14)
PANAS Negative Affect			
Pre-Manipulation	1.6 (0.09)	1.6 (0.08)	1.8 (0.13)
Post-Manipulation	1.6 (0.09)	1.6 (0.11)	1.6 (0.10)

Note. Means (SEs) reflect the original measurement scales. Manipulation check (1 = definitely disagree, 4 = definitely agree). Social distance (1 = definitely willing, 4 = definitely unwilling). Stereotyped attitudes (-6 = maximum stereotyped attitudes for “Average Person” versus target person, +6 = maximum stereotyped attitudes for target person versus “Average Person”). RTs reflect reaction times (in ms) in the lexical decision task; means are adjusted by the covariate (RTs to neutral words). Fear, anger, and prosocial emotion (1 = strongly disagree, 5 = strongly agree). PANAS (1 = very slightly or not at all, 5 = extremely).