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Abstract

Research suggests that biological explanations of mental illness include the promotion of the effectiveness of medication, and that such explanations lead to greater attributions of responsibility and potentially greater stigmatizing emotional and behavioral reactions. This study examined whether college students' attitudes toward a fellow student with mental illness are affected by whether the latter is described as having benefitted previously from medication. Results suggest that the promotion of psychiatric medications as helpful may increase stigmatizing attitudes by peers against fellow students with mental illness.

Keywords

About one in five adult individuals will meet criteria for a mental illness in any given year (Kessler & Wang, [17]), and college-age adults are equally or more vulnerable. Research suggests that as many as one in three adults aged 18–29 meets criteria for a mood, anxiety, or substance use disorder (Blanco et al., [3]; Eisenberg, Hunt & Speer, [12]; Zivin, Eisenberg, Gollust, & Golberstein, [49]). However, most adults of all ages, including young adults, never seek treatment and those that do often delay doing so (Blanco et al., 2008; Eisenberg et al., 2012; Wang et al., [45], [44]; Wu, Pilowsky, Shlenger, & Hasin, [48]). Among the reasons for not seeking treatment for mental illness include a desire to avoid the stigma associated with having a mental illness or seeking mental health treatment (Eisenberg, Downs, Golberstein, & Zivin, [11]; Substance Abuse and Mental Health Services Administration (SAMHSA), [40]; Tucker et al., [41]), and this holds true for college students who usually have relatively easy access to mental health treatment (Loya, Reddy, & Hinshaw, [26]; Zivin et al., [49]).

Sources of stigma and attributions

Stigma toward mental illness has been studied extensively, and numerous themes of research have emerged. For example, researchers have examined determinants of stigmatizing attitudes as a function of both the personal characteristics of people holding those attitudes and also of the clinical characteristics of the person or people that are the subject of the stigma (Pryor & Bos, [35]). Also, researchers have examined the cognitive (e.g., thoughts and attitudes), emotional (i.e., feelings) and behavioral (e.g., discriminatory behaviors) aspects of stigma (Corrigan & Shapiro, [8]). Attribution theory (e.g., Weiner, [46]) posits that the thoughts that an observer has about the cause of another person's behavior influence emotional and behavioral responses toward that person (cf. Corrigan, Markowitz, Watson, Rowan, & Kubiak, [6]). For example, an important and frequent attribution about mental illness concerns control and responsibility. Studies have found that people tend to attribute more controllability to mental illness than to medical illness (Weiner, Perry, & Magnusson, [47]). Attributions of responsibility, which is sometimes attributed as personal weakness (e.g., Ben-Porath, [2]; Karp, [15]), have been found to be associated with negative emotional reactions (such as fear and anger) and discriminatory behavioral reactions (such as avoidance or unwillingness to hire someone; Corrigan et al., [7]; Law, Rostill-Brookes, & Goodman, [21]; Link, Struening, Neese-Todd, Asmussen, & Phelan, [24]).

In a seminal piece, Corrigan ([4]) distinguished public stigma and self-stigma. The former entails commonly endorsed beliefs, emotional reactions, and common behaviors directed toward people with mental illness. Others have distinguished a third category of stigma, personal stigma, which is the personal endorsement of public stigma ideas (e.g., Eisenberg et al., [11]; Pedersen & Paves, [30]). When a person develops a mental illness, public or personal stigma becomes directed at oneself and becomes self-stigma, which is the application of public attitudes, emotions, and behaviors toward oneself. Self-stigma likewise entails emotional, cognitive, and behavioral aspects, including blaming oneself for the illness, a sense of shame, damage to self-esteem, and engaging in self-defeating behaviors (e.g., not applying for certain jobs). Corrigan ([4]) suggested that stigma, thereby, interferes with treatment seeking because the person attempts to avoid self-stigma by, among other things,

denying the illness or by refusing to acknowledge it through disclosure to a health professional. Research has supported this idea. Endorsement of stigmatizing attitudes has been associated with less treatment seeking (Eisenberg et al., [11]), negative attitudes toward seeking treatment (Komiya, Good, & Sherrod, [18]; Vogel, Wade, & Haake, [43]), greater shame when seeking treatment (Verhaeghe, Bracke, & Christiaens, [42]), and less treatment adherence (Livingston & Boyd, [25]; Mojtabai et al., [28]).

Efforts to reduce stigma

Given the proposed causal association between attributions of cause and emotional and behavioral responses (e.g., Corrigan et al., [7]), public education campaigns seeking to reduce stigma have asserted biological causes of mental illness. It was predicted that asserting biological causes would reduce attributions of responsibility, which would in turn reduce negative emotional reactions and discriminatory behavior toward people with mental illness. Campaigns have been launched by both public and private agencies, including the National Alliance on Mental Illness ([29]) in the United States and the Canadian Mental Health Association (e.g., "Brain Illnesses," n.d.).

However, the effect of these campaigns has been mixed and potentially even counterproductive. Pescosolido and colleagues ([32]) analyzed responses to the biennial General Social Survey conducted in the United States. Consistent with educational efforts, they found that the public indeed endorsed more biological causes of mental illness in 2006 than in 1996. However, they also found that the change was not associated with reduced stigma. While biological explanations are associated with decreased beliefs that people are to blame for their mental illness (e.g., Kvaale, Haslam, & Gottdiener, [19]; Lebowitz, Pyun, & Ahn, [22]), they also have been shown to be associated with greater endorsement that the person cannot recover (Kvaale et al., [19]; Lebowitz et al., [22]; Phelan, Yang, & Cruz-Rojas, [33]), an increased desire for social distance (Rusch, Todd, Bodenhausen, & Corrigan, [37]; Speerforck, Schomerus, Pruess, & Angermeyer, [38]), increased perceptions of dangerousness (Kvaale et al., [19]; Read, Haslam, Sayce, & Davies, [36]), and increased fear (Read et al., [36]; Speerforck et al., [38]). With regard to self-stigma, endorsing a biological explanation for their illness has been shown to increase prognostic pessimism among people with mental illness (Kemp, Lickel, & Deacon, [16]; Lam & Salkovskis, [20]).

In summary, research shows that attributions about the cause of mental illness influence emotional reactions and behavioral dispositions toward people with mental illness. Although efforts to implicate biological causes of mental illness seem to be successfully reducing attributions of controllability, they do not appear to be successful at reducing other stigmatizing reactions and may actually be enhancing them in some ways.

Current study

The present study examined college students' cognitive, emotional, and behavioral reactions to a fellow student ("Target Student") with a history of mental illness that is starting to re-emerge. In particular, we were interested in whether implying that this student benefitted from using a medication would influence reactions. In addition to varying the type of mental illness being experienced (schizophrenia vs. major depressive disorder), half of the vignettes noted that the Target

Student had taken medications and then stopped, whereas, the other half did not mention a previous benefit from medications.

Three hypotheses were examined. First, based on the expectation that schizophrenia would be more likely to be perceived as being caused by biological factors than would major depressive disorder, it was predicted that participants would attribute more responsibility to the Target Student described as being depressed. Second, based on attribution research, it was predicted that participants would endorse more negative emotional reactions and more stigmatizing behavioral dispositions toward the Target Student with depression. Finally, it was predicted that participants would attribute more responsibility, endorse more negative emotional reactions, and endorse more stigmatizing behavioral dispositions when the vignette included a statement that the Target Student had taken a medication for the illness but then stopped.

Method

Participants

Participants included 496 undergraduate students attending a private Midwestern university enrolled in a general psychology course. Ages ranged from 18 to 23 years ($M = 18.9$, $SD = 1.01$). Most participants self-identified as female (72%) and one fourth identified as male (28%). Most identified as Caucasian (77%), followed by African American (6%), Hispanic/Latino (6%), "Other" (5%), Native American (3%), and Asian American (2%). Participants were asked to indicate whether they had ever sought or were currently seeking mental health treatment and whether they knew anyone with a mental illness. They were then categorized into three groups: 136 (27.4%) indicated that they had sought treatment, 217 (43.8%) indicated that they had never sought treatment but knew someone with a mental illness, and 143 (28.8%) indicated that they had never sought treatment and that they did not know anyone with a mental illness.

Materials

Vignettes

In a 2 × 2 factorial design, participants read one of four vignettes describing a male college student diagnosed with mental illness last year, which was his first year at college. Half of the vignettes stated that the Target Student experienced "an episode of severe depression" (major depressive disorder or MDD) and the other half "an episode of schizophrenia." All vignettes stated that the Target Student was required to leave school but returned after a few months when symptoms improved. Half of the vignettes stated that the Target Student was given prescription medication that he subsequently stopped taking after symptoms improved, but there was no mention of medication in the other vignettes. Note that the vignette that mentioned medication did not specifically attribute improvement to that medication. The vignettes ended by saying that the same symptoms were resurfacing "in the last few months," during the Target Student's sophomore year.

Stigma questionnaire

After reading the vignette, participants completed a questionnaire evaluating the three aspects of stigmatizing reactions toward the Target Student. Based on Corrigan and colleagues ([7]), the questionnaire measured participants' (a) attributions about the cause of the Target Student current state, (b) their emotional reactions to him, and (c) their behavioral dispositions toward him.

Attributions of cause were measured using the Responsibility Scale, which consisted of four items (e.g., "I would think that his present condition is his own fault"). The two emotional reactions scales were the Lack of Sympathy Scale, which contained four items (e.g., "I would feel sorry for him"), and the Anger Scale, which contained five items (e.g., "I would be mad at him"). Actual behaviors toward the student could not be measured, so the questionnaire asked about participants' agreement with various potential behaviors toward the student. The Unwilling to Help Scale consisted of five items (e.g., "I would be unwilling to help him"), the Coercion into Treatment Scale consisted of five items (e.g., "Society should force him to seek treatment"), and the Social Distance Scale consisted of six items (e.g., "I would not want to be around him by myself").

Participants responded to items using a 6-point Likert scale ranging from 1 to 6 (1 indicating nil agreement with the expressed attitude, emotion, or potential behavior; 6 indicating high or complete agreement with the attitude, emotion, or potential behavior). Scale scores were created by taking the average of the items, with higher scores indicated greater stigma. All six scales had good internal consistencies, with Cronbach's alpha ranging from .82 to .90.

Procedure
The study was completed via computer in a designated research room in groups ranging from 3 to 12. Participants were randomly assigned to one of the four vignettes (schizophrenia or depression; mention of benefit from medications or no mention of medications). After completing the demographic information, participants read the vignette and then completed the questionnaire. After debriefing, they were given proof of their participation to earn course credit.

Results
Preliminary statistical analyses were conducted to check for normality, linearity, and univariate and multivariate outliers. When unacceptable levels of skewness were uncovered, scores were analyzed after logarithmic transformation. However, for ease of comparison, the means and standard deviations reported in tables are untransformed scores. For all multivariate analyses, if preliminary analyses revealed that the assumption of homogeneity of variance-covariance was violated, alpha was set at .025 to determine significance.

Correlations between scales
The descriptive statistics for the stigma scales are shown in Table 1. Correlations between the scales (see Table 1) indicate that attributing greater responsibility to the Target Student was associated with more negative emotions (anger and lack of sympathy) and more negative behavioral dispositions (increased desire for social distance, less willingness to help, and more willingness to coerce into treatment).

Table 1. Correlations between stigma scales and scale means and SDs

Stigma scale	2	3	4	5	6	M (SD)
1. Responsibility	.39**	.48**	.16**	.17**	.17**	2.24 (1.08)
2. Lack of sympathy	—	.35**	.37**	.01	.19**	2.03 (0.96)
3. Anger		—	.21**	.23**	.31**	1.82 (0.95)
4. Unwilling to help			—	.11*	.41**	1.78 (0.91)

					—	.36**	3.85 (1.35)

5. Coercion into treatment					—	.36**	3.85 (1.35)
6. Social distance						—	2.71 (1.06)

1 *p < 05. **p < 01.

Gender and familiarity covariates

To test for possible confounding variables, multivariate Analysis of Variance (ANOVA) was conducted using gender and previous treatment experience as independent variables and the six scales as the dependent variables. Table 2 displays scores for male and female participants. Multivariate analysis revealed a main effect for gender, Wilks' λ =.94, F(6,490) = 5.70, p <.001. Subsequent univariate t-tests contrasting male and female participants showed that males obtained significantly higher scores (indicating more stigma) on the attribution scale and the two emotional reaction scales, but not on any of the behavioral disposition scales. Multivariate analysis also revealed a main effect of familiarity with mental illness, Wilks' λ =.92, F(6,490) = 3.51, p <.001. Subsequent univariate analyses showed that those with greater familiarity with mental illness endorsed lower scores (less stigma) on the three behavioral disposition scales, indicating greater willingness to help the Target Student, less agreement that he should be forced into treatment, and less desire for social distance. Post-hoc analyses also showed that participants who indicated that they knew someone with mental illness but had never sought treatment themselves obtained significantly higher scores on the Lack of Sympathy Scale than other participants (see Table 2). In light of these results, subsequent multivariate statistical analyses used participants' gender and familiarity with mental illness as covariates.

Table 2. Differences in stigma scale scores based on participant gender and familiarity with mental illness

| Scale | Gender | | | Familiarity with mental illness | | | |
| | Male | Female | | Sought treatment | Know someone | Don't know anybody | |
	M (SD)	M (SD)	t-test	M (SD)	M (SD)	M (SD)	F-value
Responsibility	2.55 (1.13)	2.12 (1.04)	3.99***	2.20 (1.02)	2.30 (1.18)	2.19 (0.99)	1.02
Lack of sympathy	2.27 (0.98)	1.94 (0.94)	3.41**	1.89 (0.81)	2.17 (1.08)	1.95 (0.88)	4.16*
Anger	2.05 (1.02)	1.74 (0.91)	3.36**	1.68 (0.86)	1.87 (1.05)	1.88 (0.85)	2.06
Unwilling to help	2.03 (0.94)	1.68 (0.88)	3.92 ***	1.65 (0.86)	1.75 (0.87)	1.94 (1.00)	3.55*
Coercion into treatment	4.01 (1.27)	3.79 (1.38)	1.65	3.74 (1.57)	3.76 (1.28)	4.10 (1.22)	3.46*
Social distance	2.87 (1.04)	2.64 (1.06)	2.15	2.45 (1.10)	2.61 (0.98)	3.10 (1.03)	15.62***

2 *Note*. Higher scores indicate greater endorsement of stigmatizing attitudes, feelings, and behaviors.

3 *p <.05. **p <.01. ***p <.001.

Mental illness type, medications, and stigma

A 2 × 2 multivariate ANOVA, controlling for gender and familiarity with mental illness, was conducted in order to assess the effects of mental illness type (MDD versus schizophrenia) and medication use (Took Medication then Stopped versus No Mention of Medication) on stigmatizing attitudes. The results are summarized in Table 3. There was a main effect of mental illness type (Wilks' λ =.79, $F(6,490) = 21.36$, $p <.001$, $n^2 =.21$), a main effect for medication use (Wilks' λ =.81, $F(6,490) = 19.64$, $p <.001$, $n^2 =.19$), and an interaction effect (Wilks' λ =.97, $F(6,490) = 2.58$, $p =.018$, $n^2 =.03$). Subsequent univariate analyses were conducted, again controlling for gender and familiarity with mental illness.

Table 3. Stigma scores by diagnosis and medication use

Scale	Diagnosis	Took medication then stopped M (SD)	No mention of medication M (SD)	Row total [M (SD)]
Responsibility	Depression	2.81 (1.26)	2.04 (0.85)	[2.42 (1.13)]
Schizophrenia	2.50 (1.04)	1.57 (0.66)	[2.06 (1.00)]	
Column total [M (SD)]	[2.64 (1.16)]	[1.82 (0.81)]		
Lack of sympathy	Depression	2.37 (1.08)	1.98 (0.96)	[2.18 (1.03)]
Schizophrenia	2.01 (0.90)	1.74 (0.80)	[1.88 (0.85)]	
Column total [M (SD)]	[2.17 (0.99)]	[1.88 (0.89)]		
Anger	Depression	1.95 (1.11)	1.73 (0.89)	[1.84 (1.00)]
Schizophrenia	1.96 (0.98)	1.64 (0.73)	[1.81 (0.89)]	
Column total [M (SD)]	[1.95 (1.04)]	[1.69 (0.81)]		
Unwilling to help	Depression	1.80 (0.90)	1.48 (0.81)	[1.64 (0.87)]
Schizophrenia	1.89 (0.91)	1.96 (0.96)	[1.92 (0.93)]	
Column total [M (SD)]	[1.85 (0.91)]	[1.71 (0.91)]		
Coercion into treatment	Depression	3.77 (1.32)	3.04 (1.37)	[3.40 (1.39)]
Schizophrenia	4.47 (1.04)	4.12 (1.24)	[4.31 (1.15)]	
Column total [M (SD)]	[4.14 (1.23)]	[3.55 (1.41)]		
Social distance	Depression	2.64 (1.08)	2.37 (0.99)	[2.50 (1.04)]
Schizophrenia	2.78 (1.14)	3.08 (0.88)	[2.92 (1.04)]	
Column total [M (SD)]	[2.71 (1.11)]	[2.70 (1.00)]		

Mental illness

Participants endorsed significantly higher scores on the Responsibility Scale ($F = 21.19$, $p < .001$) and the Lack of Sympathy Scale ($F = 13.59$, $p < .001$) for the Target Student described as having MDD, whereas, they endorsed significantly higher scores on the Unwilling to Help Scale ($F = 10.84$, $p = .001$), the Coercion into Treatment Scale ($F = 61.32$, $p < .001$), and the Social Distance Scale ($F = 18.77$, $p < .001$) for the Target Student described as having schizophrenia. There was no effect of mental illness type with regard to participants' endorsement of the Anger Scale score ($F = 1.11$, ns).

Medication

Compared to the scores for the Target Student not described as having taken medications, participants endorsed significantly higher scores for the Target Student described as having taken medication and then stopping on the Responsibility Scale ($F = 85.92$, $p < .001$), the Lack of Sympathy Scale ($F = 12.45$, $p < .001$), the Anger Scale ($F = 8.22$, $p = .004$), and the Coercion into Treatment Scale ($F = 22.08$, $p < .001$). There were no differences on the two behavioral disposition scales, Unwilling to Help Scale ($F = 1.23$, ns) and the Social Distance Scale ($F = 1.16$, ns).

Illness by medication interaction

There was an interaction effect between the illness type and whether or not the Target Student was described as having taken medication on two of the behavioral disposition scales, the Unwilling to Help Scale ($F = 5.31$, $p = .02$) and the Social Distance Scale ($F = 8.06$, $p = .004$). The interactions for the two scales are illustrated in Figures 1 and 2. For the vignette describing the Target Student with MDD, there was greater willingness to help and less desire for social distance if there was no mention of him taking and then stopping medication. In contrast, for the vignette describing the Target Student with schizophrenia, taking medications and stopping did not influence willingness to help scores but did influence desire for social distance scores. To be specific, participants indicated greater desire for social distance from the Target Student diagnosed with schizophrenia if there was no mention of medication.
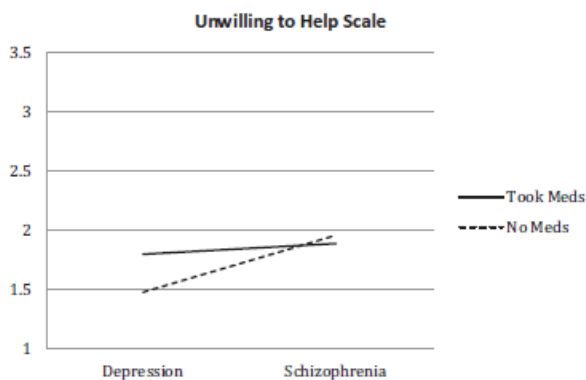

Figure 1. Illness type and medication use effect on unwilling to help scale
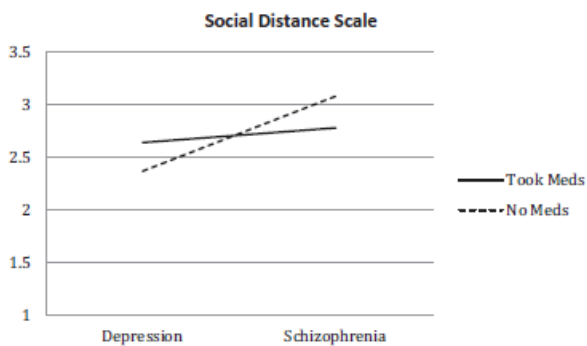
Figure 2. Illness type and medication use effect on social distance scale

Discussion

The study examined stigmatizing reactions of college students toward a hypothetical fellow student with a mental illness. As predicted by the attribution model (cf. Corrigan, Watson, Warpinski, & Gracia, [9]), attributions of responsibility were positively associated with negative emotional reactions and with stigmatizing behavioral dispositions. Results showed that male respondents endorsed generally more stigmatizing attitudes than female respondents. Male respondents attributed more responsibility to the student with mental illness, acknowledged less sympathy and more anger toward him, and expressed less willingness to help him, a finding that is generally consistent with prior research (e.g., Feeg, Prager, Moylan, Smith, & Cullinan, [13]; Mojtabai et al., [28]). This is likely in part due to the Target Student being male, as prior research has shown that men with mental illness are viewed as being more dangerous than women and, as a result, are less socially tolerated (Phelan & Basow, [34]).

Respondents who were personally familiar with mental illness, either because they had sought treatment for mental illness at some point in the past or knew someone with mental illness, generally endorsed less stigmatizing behavioral dispositions, which is also consistent with the existing literature (Couture & Penn, [10]; Lee & Seo, [23]; Mojtabai, [27]; Stuber, Rocha, Christian, & Link, [39]). To be specific, they indicated more willingness to help and less desire for social distance compared to people who had no personal familiarity with mental illness. It should be noted that a relatively large number of participants in our sample (28.8%) indicated that they did not know anyone with a mental illness. This group also endorsed the greatest desire for social distance, which is consistent with previous research (Lee & Seo, [23]). While the result was expected, given the increasing awareness and discussion of mental illness noted in the recent literature (e.g., Corrigan, Kosyluk, Fokuo, & Park, [5]), this lack of contact with people with mental illness is not likely to be representative of the general population. Interestingly, the participants who expressed the least sympathy toward the student with mental illness entailed the group that knew someone with mental illness but had never sought treatment themselves.

As found in previous research (e.g., Stuber et al., [39]), stigmatizing attitudes depended on the illness described in the vignette. As predicted, the vignette character described as having "severe depression" was rated by respondents as both being more responsible and less sympathetic. In contrast, when the student described in the vignette was experiencing reemerging symptoms of schizophrenia, respondents indicated a reduced willingness to help, a greater desire to coerce him into treatment, and a greater desire for social distance. In other words, respondents seemed to indicate that the

hypothetical person with schizophrenia, while less responsible and more sympathetic presumably because of a belief in the biological cause of the disorder, is nonetheless more dangerous, should be avoided, and should be coerced to take medications. Indeed, the desire for social distance was exacerbated when there was no indication that the person with schizophrenia had ever taken medications.

Effect of a stopped medication

We hypothesized that college students would react more negatively to a fellow student who was experiencing a reemergence of mental illness if that student was described as having stopped taking prescribed medications than if there were no mention of medications. The hypothesis was based on public education messaging over the last two decades that has promoted the idea that mental illness is caused by biology. Note that the vignette did not directly attribute the person's recovery to medication (The vignette stated, "he was given a prescription of antidepressant/antipsychotic medication and was doing much better after a few months.") Nonetheless, respondents endorsed more stigmatizing attitudes toward the person described as taking and subsequently discontinuing medication. Specifically, the vignette character who discontinued use of medication was viewed as being more responsible for his illness, was accorded less sympathy and more anger, and was more likely to garner a greater desire, on the part of respondents, to coerce him into treatment. Consistent with research on the implications of increased acceptance of a biological basis for mental illness (e.g., Pescosolido et al., [32]), these results can be interpreted to indicate that college students endorse the idea that recovery or improvement is within reach of anyone with mental illness who is willing to take medications, although further research is needed to support that interpretation.

Finally, the results suggest that people with depression might be particularly vulnerable to this effect. When the vignette described a student with increasing symptoms of depression who seemingly benefitted from medication in the past and then stopped taking them, respondents were even more likely to react with a desire for increased social distance and a decreased willingness to help. For schizophrenia, there was enhanced desire for social distance when there was no mention of previous medication. Given much greater rates for MDD (American Psychiatric Association, [1]), such stigmatizing attitudes will likely have a more widespread impact.

Limitations and implications

There are several limitations of the current study. First, the simplicity of the vignette structure is both a strength and a weakness of this study. While it allows for the identification of the trends seen in this study, the lack of detail contained in the vignettes prevents specificity of analysis. Further research is needed to specify more precisely how respondents were interpreting these vignettes, which were purposefully vague in this study. As such, this study can serve as a pilot study in a larger line of research exploring mental illness type, psychiatric medications, and stigma. In future studies, vignette structures should assess if including additional details (e.g., provider opinion of medication discontinuation, reason for not taking medication, presence of lack of medication side effects) moderates the strength of stigmatizing reactions. Other directions for future research include explicitly evaluating participants' attitudes toward medications and replication of results with vignette students with different demographic characteristics.

Despite these limitations, there are several potentially important implications of this study. The results suggest college-aged men endorse higher levels of stigma, and campaigns designed to reduce mental health stigma might benefit from increased focus on men. In addition, the findings regarding familiarity with mental illness correlating with decreased stigma suggest that increased visibility and normalization of mental health struggles will likely lead to decreased stigma in college student populations. Generally, the results seem consistent with research showing biological attributions of mental illness have not led to decreased stigma (Pescosolido, [31]), a finding that has potentially important implications for the discussion of mental illness across settings. Finally, it may be helpful for those working with college students to know that patients with depression in particular may face a special burden of expectation—and associated stigma—if they do not take medications, which have been promoted as helpful for several decades. This is especially relevant given that medications do not help all people with depression and, indeed, have been shown to be less effective than psychotherapy in the treatment of depression in adults (Huhn et al., [14]).

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