Are New Zealand psychology students more susceptible to essentialist explanations for mental illness? Neuroessentialism and mental illness stigma in psychology and non-psychology students

Hannah Zimmerman[1], Benjamin C. Riordan[2], Taylor Winter[3]; Adam Bartonicek[1], and Damian Scarf[1]

[1]Department of Psychology, University of Otago, Dunedin, New Zealand.
[2]Central Clinical School, University of Sydney, Australia.
[3]School of Psychology, Victoria University of Wellington, New Zealand.

A neuroessentialist perspective holds that mental illness is the result of brain dysfunction. Unfortunately, essentialist beliefs promote the view that people with a mental illness are fundamentally different to people without a mental illness. This identification of difference, in turn, increases mental illness stigma. The primary aim of the current study was to compare the impact of biological (i.e., essentialist) and psychosocial explanations on mental illness stigma in students completing their Bachelor Degree in Psychology and non-psychology majors. Participants were 294 students, 170 of whom were completing a Bachelor Degree in Psychology. Consistent with previous work, our results revealed biological explanations led to higher essentialist beliefs and mental illness stigma for both psychology and non-psychology students.

Keywords: *Essentialism, Mental illness, Stigma.*

Introduction

Neuroessentialism is the belief that our brains define us (Roskies, 2002). When applied to mental illness, a neuroessentialist perspective holds that mental illness is the result of brain dysfunction (Schultz, 2018). This perspective gripped psychiatry in the mid-80s, best illustrated by the title of Nancy C. Andreasen's (1984) book, *The Broken Brain: The Biological Revolution in Psychiatry*. Beyond trying to explain mental illness using a biological model, Andreasen (1984) held that a biological explanation would allow the mentally ill to be viewed "…as human beings who deserve as much sensitivity and love as people who suffer from cancer, muscular dystrophy, or heart disease" (p. 2). The basis for this argument is a theory of attribution in which biological explanations place mental illness out of an individual's control, diminishing blame and eliciting empathy (Harrington, 2019; Weiner, 1993).

Unfortunately, despite an increase in the public endorsement of biological explanations of mental illness, tolerance towards individuals with mental illness does not appear to have had a concomitant increase (Pescosolido et al., 2010; Schnittker, 2008; Schomerus et al., 2012). For example, Pescosolido et al. (2010) compared answers to the 1996 and 2006 American General Social Surveys. Participants read vignettes about people experiencing a mental illness (e.g., depression) and were asked the degree to which they endorse the underlying cause as being biological (e.g., due to a "chemical imbalance in the brain") or social (e.g., due to "the normal ups and downs of life"). There was a 13% *increase* in a neurobiological conception of depression (54% to 67%) and a 9% decrease in attributing periods of depression to the ups and downs of life (75% to 67%). Despite these changes, there was no change in measures of prejudice, such as how willing participants would be to work with or socialise with a person with mental illness. Similar findings have been observed in Germany (Angermeyer, Matschinger, & Schomerus, 2013), Australia (Reavley & Jorm, 2012), England and Scotland (Mehta, Kassam, Leese, Butler, & Thornicroft, 2009).

In addition to these large-scale national surveys, several smaller studies have demonstrated that there are a multitude of stereotypes and prejudices people hold toward those with a mental illness (Bennett, Thirlaway, & Murray, 2008; Corrigan & Bink, 2016; Kenny, Bizumic, & Griffiths, 2018). For example, common stereotypes include unpredictability, dangerousness, and incompetence, which, in turn, lead people to be cautious or completely avoid people with a mental illness. Corrigan and Bink (2016) refer to these stereotypes and prejudices as 'public stigma', reflecting the fact that they represent the views held by most people in the general population toward a specific group. Stigma, however, can also operate with respect to the self (i.e., people with a mental illness internalising public stereotypes) and at a structural level. For example, an individual with mental illness may internalise the stereotype that people like them are incompetent, making it difficult for them to build the efficacy and confidence required to gain employment. In

contrast to public- and self-stigma, structural stigma operates at the level of the law, restricting opportunities for those with a mental illness (Corrigan, Markowitz, & Watson, 2004). For example, until recently, people who are taking medication for their mental illness could not be accepted into the New Zealand Police Officer training programme (Ryan, 2017).

An important question is why prejudice against people with mental illness has remained high? The answer is relatively straight forward. While a neuroessentialist perspective may decrease blame, a neuroessentialist perspective is by definition essentialist (Dar-Nimrod & Heine, 2011; Haslam & Kvaale, 2015; Proctor & Keil, 2006). Haslam and Kvaale (2015) define essentialism as "…the belief that a fixed, hidden, and identity determining cause… generates the observed properties of a category" (p. 400). When applied to mental illness, essentialist beliefs promote the view that people with a mental illness are fundamentally different to people without a mental illness (Haslam & Kvaale, 2015). The negative impacts of essentialist beliefs are numerous (Haslam & Kvaale, 2015). For example, people with mental illness who attribute their condition to a biological cause (e.g., brain dysfunction) are more pessimistic about potential recovery (Lebowitz, 2014). Even clinical psychologists are not immune to the negative effects of biological explanations. For example, Lebowitz and Ahn (2014) presented clinicians with a series of vignettes describing a patient with a mental illness (e.g., schizophrenia) and attributing the illness to either a biological (e.g., larger-than-normal ventricles in the brain) or psychosocial cause (e.g., a highly emotional and extremely stressful home during childhood). Clinicians' feelings of empathy (e.g., feelings of compassion) were significantly *lower* following the biological, relative to psychosocial, explanations (Lebowitz & Ahn, 2014).

Mental Illness Stigma in New Zealand

The research conducted on mental illness stigma in New Zealand is relatively dated. For example, Green, McCormick, Walkey, and Taylor (1987) compared undergraduate students judgements of a "mental patient" and an "average man" between 1978 and 1984. Students held several stereotypes about the "mental patient", judging them as more unpredictable, tense, and dangerous than the "average man". Similarly, Patten (1992) collected data from a representative sample of people within New Zealand and found that people associate mental illness with unpredictability and violence. Following these early descriptive studies, Read and Law (1999) and Read and Harré (2001) investigated whether the endorsement of biological explanations of mental illness is associated with harmful stereotypes. These studies revealed two important insights. First, similar to Patten's (1992) findings with a general population sample, a large proportion of psychology students viewed people with a mental illness as unpredictable (Read & Harré, 2001: 75%; Read & Law, 1999: 77%) and dangerous (Read & Harré, 2001: 41%; Read & Law, 1999: 47%). Second, across both studies, biological explanations of mental illness were associated with prejudice toward people with a mental illness. For example, participants rated themselves as less likely to become romantically involved with a person if they had spent time in a psychiatric hospital.

In an attempt to shift students' views, Read and Law (1999) presented undergraduate psychology students with two lectures that emphasized the role of psychosocial factors in mental illness (e.g., early abuse, low socio-economic status, etc.), challenged some of the common stereotypes people hold about those with mental illness, and highlighted the effectiveness of cognitive-behavioural treatments. Following the lectures, there were significant reductions in the endorsement of stereotypes such as unpredictability and dangerous. In a follow-up study, Walker and Read (2002) presented undergraduate mathematics students with a 5-minute video tape of a person describing some of their symptoms to a doctor, with the doctor providing a biological, psychosocial, or biological and psychosocial explanation of the illness. The titles of each of the three videos emphasized their biological ('A Brain Disorder with Genetic Predisposition'), psychosocial ('The Long Term Effects of Trauma'), or biological and psychosocial focus ('Biological and Environment Factors'). In contrast to Read and Law (1999), Walker and Read (2002) found little evidence that the videos significantly shifted students views of people with a mental illness.

Present Study

Building on the work of Read and Law (1999) and Walker and Read (2002), the current study directly compares the impact of biological and psychosocial explanations on mental illness stigma in undergraduate psychology and non-psychology majors.

METHOD

Participants

Participants were 294 students at the University of Otago (239 females, Mean age = 22.19, Standard Deviation = 5.05), 170 of whom were completing a Bachelor Degree in Psychology. Participants were relatively evenly spread across various years of study (Year 1: n = 33, Year 2: n = 70, Year 3: n = 93, Year 4: n = 63, Year 5: n = 10, not currently studying: n = 25). The majority of participants were New Zealand European (n = 169, 57.5%), followed by Asian (n = 60, 20.4%), Māori (n = 27, 9.2%), European (n = 19, 6.5%), Pacific Islander (n = 3, 1%), Middle Eastern (n = 3, 1%), and other (n = 13, 4.4%). With respect to experience with depression, 38.1% (n = 112) had experienced depression themselves, 48% (n = 141) had someone in their family with depression, 75.5% (n = 222) had a friend with depression, 67.3% (n = 198) have known someone, who is not a friend, with depression, and 13.6% (n = 40) had a job that involves contact with people with depression. Only 4.8% (n = 14) reported no previous contact with someone with depression. With respect to experience with schizophrenia, 0.3% (n = 1) had experienced schizophrenia themselves, 7.1% (n = 21) had someone in their family with schizophrenia, 5.4% (n = 16) had a friend with schizophrenia, 18.7% (n = 55) have known someone, who is not a friend, with schizophrenia, and 7.5% (n = 22) had a job that involves contact with people with schizophrenia. The majority of participants reported no previous contact with someone with schizophrenia,

72.8% (*n* = 214). Participants were recruited through an experiment-participation pool and received either course credit or $15 as compensation. There were no pre-determined criteria that participants had to meet in order to participate in the experiment. The current study was reviewed and approved by the University of Otago Human Ethics Committee.

Procedure

Vignettes. Participants were required to read four vignettes taken from Lebowitz and Ahn (2014), which described fictitious individuals seeking treatment for a disorder. Vignette 1 depicted an individual experiencing schizophrenia with a biological causal explanation (SB). Vignette 2 depicted an individual experiencing schizophrenia with a psychosocial explanation (SP). Vignette 3 depicted an individual experiencing depression with a biological explanation (DB). Finally, Vignette 4 depicted an individual experiencing depression with a psychosocial explanation (DP). The order that the vignettes appeared in, and the gender of the individuals depicted in the vignettes, was counterbalanced across participants.

Stigma. After reading each vignette, participants were required to complete a series of questions assessing various forms of stigma (Bennett et al., 2008). Eight questions measured associative stigma (e.g., "If my partner had a sibling with Jane's problems it would make me more wary of having children with them", SB Cronbach's α = .723, SP Cronbach's α = .726, DB Cronbach's α = .735, DP Cronbach's α = .723), eight questions measured perceived dangerousness (e.g., "There is no reason why Jane should not be trusted around vulnerable people, such as children", SB Cronbach's α = .710, SP Cronbach's α = .721, DB Cronbach's α = .656, DP Cronbach's α = .588), eight questions measured social distance (e.g., "I wouldn't mind if a friend invited Jane along on a holiday we had booked together", SB Cronbach's α = .863, SP Cronbach's α = .881, DB Cronbach's α = .835, DP Cronbach's α = .805) and five questions measured prognostic pessimism (e.g., "I don't think Jane could ever be completely 'cured', although she could probably find ways to manage her symptoms", SB Cronbach's α = .555, SP Cronbach's α = .594, DB Cronbach's α = .472, DP Cronbach's α = .430). Each scale was scored on a 1 (strongly disagree) to 5 (strongly agree) Likert scale.

Psychological Essentialism. We employed a single-item measure of essentialism (i.e., "I believe there is something about [name] that makes them fundamentally different from most people"). This item was derived from Link and Phelan's (2001, 2013) and Kvaale, Gottdiener, and, Haslam's (2013) work on the stigma process. Participants responded either agree or disagree to the single item essentialism scale.

RESULTS

Responses on the essentialism measure (agree, disagree) were submitted to a Log-Linear Analysis (LLA) with Vignette (SB, SP, DB, and DP) and Major (Psychology, Other) as factors. Responses on the essentialism scale did not differ as a function of Major, $G^2(3) = .0$, $p = 1$, but did differ as a function of Vignette, $G^2(3) = 99.96$, $p < .001$. Agreement that the individual in the vignette was fundamentally different from other people was highest for the Schizophrenia – Biological (SB) vignette (Psychology = 76%, Other = 74%), followed by the Schizophrenia – Psychosocial (SP) vignette (Psychology = 67%, Other = 68%), then the Depression – Biological (DB) (Psychology = 52%, Other = 49%), and Depression – Psychosocial (DP) vignettes (Psychology = 41%, Other = 36%).

Table 1. Factor loadings and significance levels for the four stigma subfactors.

Subfactor	Item	Loading	Std Error	z-score	p-value
Dangerousness	Item 4	1.00			
	Item 10	-0.53	0.12	-4.48	<.01
	Item 12	-1.03	0.14	-7.41	<.01
	Item 17	-0.86	0.13	-6.86	<.01
	Item 20	1.12	0.05	20.64	<.01
	Item 24	0.26	0.05	5.13	<.01
	Item 28	-0.40	0.11	-3.81	<.01
	Item 31	0.82	0.06	14.05	<.01
Associative Stigma	Item 3	1.00			
	Item 5	2.68	0.33	8.13	<.01
	Item 7	-2.60	0.41	-6.29	<.01
	Item 13	1.90	0.30	6.46	<.01
	Item 19	2.52	0.36	7.08	<.01
	Item 22	-0.23	0.15	-1.59	0.11
	Item 29	-1.51	0.28	-5.46	<.01
	Item 33	-2.30	0.38	-6.06	<.01
Prognostic Pessimism	Item 2	1.00			
	Item 8	-3.47	0.60	-5.83	<.01
	Item 23	-3.38	0.61	-5.56	<.01
	Item 25	0.46	0.16	2.79	0.01
	Item 27	-1.24	0.20	-6.06	<.01
Social Distance	Item 1	1.00			
	Item 6	-1.45	0.10	-14.68	<.01
	Item 11	-1.25	0.09	-14.35	<.01
	Item 14	-1.52	0.10	-15.59	<.01
	Item 16	1.33	0.08	17.11	<.01
	Item 18	1.14	0.09	13.10	<.01
	Item 30	-1.23	0.08	-15.37	<.01
	Item 34	1.02	0.06	16.25	<.01

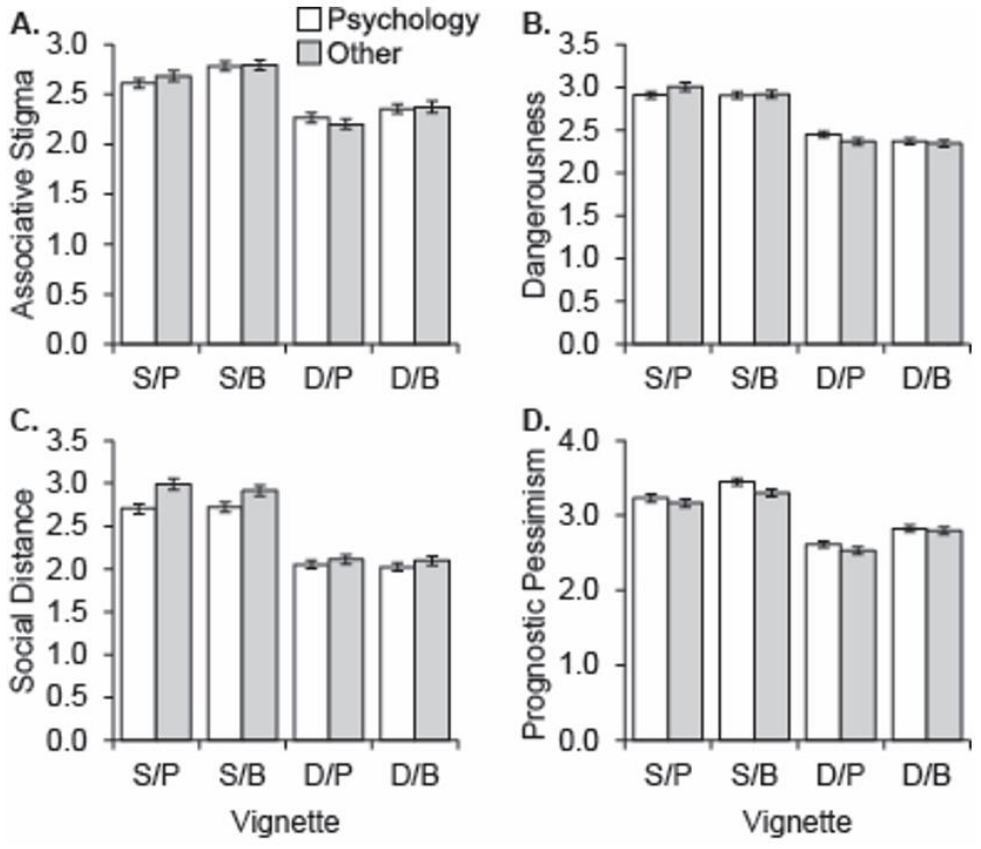

Figure 1. Mean responses to the associative stigma (A), perceived dangerousness (B), desire for social distance (C), and prognostic pessimism (D) measures. Error bars represent ±1 standard error of the mean.

The factor structure of the stigma scale was tested using a Confirmatory Factor Analysis (CFA) using a maximum likelihood estimator and clustered by participant to account for repeated measures (i.e., the four vignettes). Each item was loaded onto one of four subfactors which, in turn, were loaded onto an overall stigma factor. Fit was determined using Root Mean Square Error Approximation (RMSEA) and Comparative Fit Index (CFI). The resulting robust RMSEA of 0.068 suggested good fit (where less than 0.1 is typically good fit). A CFI of 0.75, however, is lower than what is typical considered good fit (0.9). Further investigation indicated that this was due to item 22 not significantly loading onto the associative stigma subfactor. For this reason, item 22 was removed from our main analysis. One item in the prognostic pessimism subfactor, and three items in the dangerousness subfactor also yielded low factor loadings (Table 1). These items were, however, significant and were therefore included in their respective subfactor. Means were calculated for each form of stigma and submitted to separate repeated measures ANOVAs with Illness (Schizophrenia, Depression) and Explanation (Biological, Psychosocial) as within-participant factors and Major (Psychology, Other) as a between-participant factor.

For associative stigma, there were main effects of Illness, $F(1, 292) = 217.905$, $p < .001$, *partial* $\eta^2 = .427$, and Explanation, $F(1, 292) = 36.966$, $p < .001$, *partial* $\eta^2 = .112$, but not Major, $F(1, 292) = .027$, $p = .870$, *partial* $\eta^2 = .000$. The main effect of illness reflects higher levels of associative stigma for schizophrenia relative to depression (Figure 1a). Further, the main effect of explanation reflects higher levels of associative stigma for the biological, relative to psychosocial, explanation (Figure 1a). No interactions were significant, all *ps* > .113.

For perceived dangerousness, there were main effects of Illness, $F(1, 292) = 362.011$, $p < .001$, *partial* $\eta^2 = .554$, and Explanation, $F(1, 292) = 7.674$, $p = .006$, *partial* $\eta^2 = .026$, but not Major, $F(1, 292) = .000$, $p = .998$, *partial* $\eta^2 = .000$. These main effects were qualified by a significant Illness by Explanation by Major interaction, $F(1, 292) = 4.061$, $p = .045$, *partial* $\eta^2 = .014$. To investigate the interaction effect we conducted separate repeated measures ANOVAs for each explanation, with Illness and Major as factors. For the biological explanation, there was a main effect of Illness, $F(1, 292) = 284.050$, $p < .001$, *partial* $\eta^2 = .493$, with higher levels of perceived dangerousness for schizophrenia relative to depression (Figure 1b). There was no main effect of Major, $F(1, 292) = .016$, $p = .900$, *partial* $\eta^2 = .000$, or Illness by Major interaction, $F(1, 292) = .339$, $p = .561$, *partial* $\eta^2 = .001$. For the psychosocial explanation, there was a main effect of Illness, $F(1, 292) = 243.541$, $p < .001$, *partial* $\eta^2 = .455$, no main effect of Major, $F(1, 292) = .018$, $p = .893$, *partial* $\eta^2 = .000$, qualified by an Illness by Major interaction, $F(1, 292) = 6.689$, $p = .010$, *partial* $\eta^2 = .022$. The

interaction was driven by psychology majors reporting slightly higher levels of perceived dangerousness following the DP vignette, and slightly lower levels following the SP vignette, relative to non-psychology majors (Figure 1b). No other interactions were significant, all *ps* > .058.

For social distance, there were main effects of Illness, $F(1, 292) = 505.284$, $p < .001$, *partial* $\eta^2 = .634$, and Major, $F(1, 292) = 5.094$, $p = .025$, *partial* $\eta^2 = .017$, but not Explanation, $F(1, 292) = 1.838$, $p = .176$, *partial* $\eta^2 = .006$. In addition, there was a significant Illness by Major interaction, $F(1, 292) = 6.416$, $p = .012$, *partial* $\eta^2 = .021$. To investigate the interaction effect we conducted separate repeated measures ANOVAs for each illness, with Explanation and Major as factors. For schizophrenia, there was no main effect of Explanation, $F(1, 292) = 1.095$, $p = .296$, *partial* $\eta^2 = .004$, a main effect of Major, $F(1, 292) = 8.219$, $p = .004$, *partial* $\eta^2 = .027$, but no Explanation by Major interaction, $F(1, 292) = 3.078$, $p = .080$, *partial* $\eta^2 = .010$. For depression, there was no main effect of Explanation, $F(1, 292) = .802$, $p = .371$, *partial* $\eta^2 = .003$, or Major, $F(1, 292) = .978$, $p = .324$, *partial* $\eta^2 = .003$, and no Explanation by Major interaction, $F(1, 292) = .124$, $p = .725$, *partial* $\eta^2 = .000$. Thus, the main effect of major for schizophrenia, but not depression, reflected a higher desire for social distance by non-psychology majors (Figure 1c). No other interactions were significant, all *ps* > .127.

For prognostic pessimism, there were main effects of Illness, $F(1, 292) = 343.771$, $p < .001$, *partial* $\eta^2 = .541$, and Explanation, $F(1, 292) = 81.392$, $p < .001$, *partial* $\eta^2 = .218$, but not Major, $F(1, 292) = 2.321$, $p = .129$, *partial* $\eta^2 = .008$. The main effect of illness reflects higher levels of prognostic pessimism for schizophrenia relative to depression (Figure 1d). Further, the main effect of explanation reflects higher levels of prognostic pessimism for the biological, relative to psychosocial, explanation (Figure 1d). No interactions were significant, all *ps* > .105.

DISCUSSION

Biological explanations of mental illness led to higher essentialist beliefs for both psychology and non-psychology students. Similarly, psychology and non-psychology students tended to report higher levels of stigma following the biological explanations. Specifically, for associative stigma and prognostic pessimism there was no difference between psychology and non-psychology students, nor any significant interaction effects, with students displaying higher levels of stigma for schizophrenia, relative to depression, and following a biological, relative to psychosocial, explanation. For potential dangerousness, non-psychology students' ratings were slightly higher than psychology students for the Schizophrenia – Psychosocial vignette. Similarly, for social distance, non-psychology students reported a higher desire for social distance following the Schizophrenia – Biological and Schizophrenia – Psychosocial vignettes. Thus, overall, psychology students display comparable (associative stigma and prognostic pessimism) or slightly lower (potential dangerousness and social distance) levels of stigma than non-psychology students.

The most consistent finding of the current study, and the one associated with large effect sizes, was that participants held more stigma for individuals with schizophrenia than individuals with depression. This finding is not unusual; schizophrenia has repeatedly been associated with more negative attitudes relative to other mental illnesses (Angermeyer & Matschinger, 2003; Wood, Birtel, Alsawy, Pyle, & Morrison, 2014). There are likely a number of reasons for this. First, even when paired with a psychosocial explanation, students had relatively high essentialist beliefs about people with schizophrenia. In addition, negative portrayals of schizophrenia in the media are relatively common (Gilmore & Hughes, 2019; Ross, Morgan, Jorm, & Reavley, 2019). For example, longitudinal studies conducted in the United States (McGinty, Kennedy-Hendricks, Choksy, & Barry, 2016), Japan (Kunitoh & Suzuki, 2015), the United Kingdom (Anderson, Robinson, Krooupa, & Henderson, 2020; Clement & Foster, 2008) and Canada (Whitley & Berry, 2013), demonstrate that individuals with schizophrenia continue to be portrayed as violent, dangerous and unpredictable in the news media. Moreover, fictional portrayals of people with schizophrenia, or people displaying symptoms of schizophrenia (e.g., psychosis), are typically negative (Domino, 1983; Owen, 2012; Perciful & Meyer, 2017; Scarf et al., 2020).

With respect to the explanation provided for each illness, a biological explanation increased associative stigma and prognostic pessimism, but had no impact on perceived dangerousness or desire for social distance. One explanation for this is that the impact of media portrayals of schizophrenia overshadows any impact of the explanation manipulation on perceived dangerousness or desire for social distance. Also, the biological explanation is not causally connected to the outcome. That is, irrespective of schizophrenia's biological or psychosocial basis, people with schizophrenia may be viewed as dangerous and thus increase desire for social distance. In contrast, the biological explanation can be causally connected to both associative stigma and prognostic pessimism. For example, associative stigma is linked to genetic understandings of causation and, when provided with a biological explanation, people may have assumed that the illness will be passed onto offspring (Bennett et al., 2008; Hinshaw, 2005). On a somewhat similar note, the biological explanation can be causally linked to prognostic pessimism, with this connection mediated by essentialist beliefs (e.g., the belief the illness is fixed).

The current study has several limitations. First, we focused solely on depression and schizophrenia. We focused on these two illnesses due to the fact they are widely known and are commonly used in studies investigating causal beliefs and stigma (Schomerus & Angermeyer, 2017). In the future, however, it would be interesting to include less serious illnesses or illnesses that are less familiar to the public. Second, we employed a single-item measure of essentialism (Phelan, 2005). Although this item is consistent with the terminology used by Link and Phelan (2001, 2013) and Kvaale et al. (2013), single-item scales generally lack the explanatory power of multi-item measures (Gosling, Rentfrow, & Swann, 2003; Riordan et al., 2020).

Conclusion

The current study demonstrates that biological and psychosocial explanations lead to comparable levels of essentialism in both psychology and non-psychology students. Moreover, with respect to prejudice, completing a psychology major is associated with comparable or slightly lower levels of stigma than that observed in non-psychology students. This latter finding is a positive reflection of the undergraduate teaching of psychology in New Zealand.

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Corresponding Author
Damian Scarf,
95a Union Place East, Goddard Laboratory Building,
Department of Psychology, University of Otago,
Dunedin, New Zealand.
E-mail: damian@psy.otago.ac.nz.
Ph: +6434797636.

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