



## Effects of contact with treatment users on mental illness stigma: Evidence from university roommate assignments

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### ARTICLE INFO

#### Article history:

Available online 1 June 2012

#### Keywords:

USA  
Stigma  
Social contact  
Adolescents  
Mental health

### ABSTRACT

Mental illness stigma refers to negative stereotypes and prejudices about people with mental illness, and is a widespread phenomenon with damaging social, psychological, and economic consequences. Despite considerable policy attention, mental illness stigma does not appear to have declined significantly in recent years. Interpersonal contact with persons with mental illness has been identified as a promising approach to reducing mental illness stigma. This study investigates the effect of contact with mental health treatment users on stigma using an observational research design that is free of self-selection bias. The research design is based on the quasi-experiment in which university students are assigned to live together as roommates. Survey data were collected from first-year undergraduates at two large universities in the United States ( $N = 1605$ ). Multivariable regressions were used to estimate the effect of assignment to a roommate with a history of mental health treatment on a brief measure of stigmatizing attitudes. Contact with a treatment user caused a modest *increase* in stigma (standardized effect size = 0.15,  $p = 0.03$ ). This effect was present among students without a prior treatment history of their own, but not among those with a prior history. The findings indicate that naturalistic contact alone does not necessarily yield a reduction in mental illness stigma. This may help explain why stigma has not declined in societies such as the United States even as treatment use has risen substantially. The findings also highlight the importance of isolating the specific components, beyond contact per se, that are necessary to reduce stigma in contact-based interventions.

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### Introduction

Mental illness stigma refers to negative stereotypes and prejudices about people with mental illness, and is a widespread phenomenon with damaging social, psychological, and economic consequences (Corrigan, 2004; Phelan, Link, Stueve, & Pescosolido, 2000). Stigma is associated with negative views about help-seeking and a lower use of mental health services (Penn et al., 2005; Van Voorhees et al., 2005), and may contribute to underfunding of mental health services and programs (Saraceno et al., 2007). For all of these reasons there have been significant policy and research efforts to improve attitudes in many countries, including the United States (Sartorius, 2002; U.S. Department of Health and Human Services, 1999). Despite this attention, however, public stigma about mental illness did not decline significantly between 1996 and 2006 in national surveys in the United States (Pescosolido et al., 2010).

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Interpersonal contact with persons with mental illness has been identified as one of the most promising approaches to reducing stigma (Corrigan & Penn, 1999). This proposition is supported by a large number of studies that have found significant associations between various indicators of stigma and interpersonal contact with mentally ill persons and treatment users (Corrigan, Morris, Michaels, Rafacz, & Rusch, under review; Couture & Penn, 2003; Holzinger, Dietrich, Heitmann, & Angermeyer, 2008). Previous studies also suggest that reductions in stigma are more likely when the interpersonal contact is a deliberate choice (Couture & Penn, 2003; Kolodziej & Johnson, 1996), the quality of contact is high (Couture & Penn, 2006; Pettigrew & Tropp, 2006), and the contact experience only moderately challenges existing stereotypes (Reinher, Corrigan, Leonhard, Lundin, & Kubiak, 2004).

The previous studies of interpersonal contact are based on two types of study designs: 1) naturalistic, non-experimental studies measuring the correlation between stigma and contact, controlling for potential confounding variables; and, 2) experimental studies that manipulate the amount and type of contact and then compare

stigma outcomes across groups. In the naturalistic studies, persons who self-select into contact with persons with mental illness may have lower stigma, or larger decreases in stigma, due to factors that are difficult to control for statistically, such as a greater openness to different experiences. Experimental studies, on the other hand, can avoid this type of confounding by randomly assigning participants to contact conditions; however, these studies typically involve a limited duration and intensity of contact, such as presentations or testimonials by a person with a mental illness.

The present study adds a new type of evidence to this literature. The effect of interpersonal contact on stigma is estimated among first-year college roommates who are assigned to each other. In contrast to previous naturalistic, non-experimental studies, this research design avoids potential confounding due to self-selection into contact. Also, in contrast to most experimental studies, the design involves sustained, close contact; college roommates share a small living space over a period of approximately seven months, and are therefore likely to develop friendships and have frequent one-on-one interactions.

A priori it is unclear what effect this type of contact with mental health services users should be expected to have on stigma. Although contact-based interventions have shown promise, as noted above, these approaches typically involve a purposeful and thoughtful disclosure of mental illness, including some form of education or guidance. The present study, in contrast, evaluates naturalistic contact, without any structured intervention regarding how mental illness or use of services is presented. Thus, the present study complements previous evidence by addressing a somewhat different angle both in terms of research design and substantive question.

## Method

### Sample selection and recruitment

The sample consisted of first-year students who began college in fall 2009 at two large universities in the United States. At both universities first-year students were required to live in campus housing, except in unusual circumstances. Students who did not request specific roommates were assigned to their roommates.

All first-year students with assigned roommates were recruited for the study, with the exception of students who were still under 18 years old as of the follow-up survey (0.9% of the initial sample). The students were invited to complete two brief online surveys: a baseline survey in August 2009 (1–3 weeks before students arrived at college) and a follow-up survey in March–April 2010 (2–4 weeks before the end of the academic year). The survey data were linked to administrative data on housing preferences, room assignments, and academic and demographic characteristics.

For both the baseline and follow-up surveys, students were recruited with an introductory letter including a \$10 bill, followed by up to four email invitations to those who had yet to respond, spaced by 3–5 days each. All communications included a web link to the survey and a unique, randomly assigned log-in code for each student. The recruitment messages also informed students that they were entered into a sweepstakes for cash prizes regardless of participation. Informed consent was obtained at the beginning of the online survey. All aspects of data collection were approved by Institutional Review Boards at both universities.

The primary analytic sample consisted of students with complete data necessary for the statistical analyses. These were students who completed both baseline and follow-up surveys and whose roommate(s) also completed the baseline survey. The potential for bias due to differential survey non-response was investigated, as described in the technical Appendix.

## Measures

The primary outcome was a brief measure of general stigmatizing attitudes toward mental health treatment. This was measured in both baseline and follow-up surveys with an item asking, “Please indicate whether you agree or disagree with the following statement: *I think less of someone who has received mental health treatment.*” The answer choices were on a Likert scale (strongly agree, agree, somewhat agree, somewhat disagree, disagree, and strongly disagree), which was coded as a 0–5 linear score. This measure was adapted from an item on the widely used Discrimination-Devaluation Scale (Link, 1987; Link, Cullen, Struening, Shrout, & Dohrenwend, 1989). The adapted item has been used in a national analysis of stigma and help-seeking among university students (Eisenberg, Downs, Golberstein, & Zivin, 2009). In that analysis, the item had a significant negative correlation ( $r = -0.58, p < 0.001$ ) with the sum of other items adapted from the Discrimination-Devaluation Scale, and was a significant negative predictor of treatment use (odds-ratio = 0.65,  $p < 0.001$ ).

The key predictor variable was the treatment history of assigned roommates. This variable was constructed based on roommates' responses to three survey questions about prior treatment and diagnoses, which were taken from the Healthy Minds Study, a national survey study of mental health and service utilization among university students (Eisenberg, Hunt, Speer, & Zivin, 2011). Specifically, these questions asked about lifetime diagnoses of mental disorders by a health professional, use of psychiatric medication in the past six months, and use of counseling or therapy in the past six months. The primary measure of roommate's treatment history was a composite variable equal to one if the roommate had any previous diagnosis or treatment use, and zero if not. The three components of this variable were also examined separately in additional analyses. For students with multiple roommates, the mean value of roommates was used.

The key covariates in the analysis are preferences expressed in students' housing applications, which were used by the housing administrators to match roommates. The primary variables used for matching roommates included preferences about room type (double, triple, or quad), same-sex versus mixed-sex hallway, and smoker status. These variables were completely controlled for, so any remaining variation in roommate characteristics should be random and thus uncorrelated with stigma or any factor that could affect stigma, as detailed in the Appendix.

### Statistical analysis

In the primary analysis, a linear regression model was estimated as in this equation:

$$\text{Stigma}_{(t+1)} = \beta_0 + \beta_1 \text{Prefs}_t + \beta_2 \text{RMtxHistory}_t + \beta_3 \text{Stigma}_t + \beta_4 X_t + \varepsilon_{t+1} \quad (1)$$

The subscript  $t$  denotes a measurement in the baseline survey, and  $t + 1$  denotes a measurement in the follow-up survey. *Prefs* refers to a vector of housing preferences and other variables used to make roommate assignments (as detailed in the Appendix), and  $X$  is a vector of individual covariates including gender, age (exact to the day), race/ethnicity (white, Black, Asian, Hispanic/Latino, mixed race, or other), and parents' highest education level (less than a college degree, college degree, or graduate degree). These covariates were included because prior studies have found them to correlate significantly with mental health and help-seeking behavior in college populations (Blanco et al., 2008; Eisenberg, Golberstein, & Gollust, 2007). The key coefficient is  $\beta_2$ , which

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