

Does Individual Stigma Predict Mental Health Funding Attitudes? Toward an Understanding of Resource Allocation and Social Climate

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ABSTRACT

Background: The uneven progression of mental health funding in the United States, and the way that the funding climate seems to be influenced by local and regional differences, raises the issue of what factors, including stigma, may impact mental health funding decisions. Criticisms that mental health stigma research is too individually-focused have led researchers to consider how broader, macro-level forms of stigma — such as structural stigma — intersect with micro-level forms of individual stigma. While some studies suggest that macro and micro stigma levels are distinct processes, other studies suggest a more synergistic relationship between structural and individual stigma.

Method: Participants in the current study ($N=951$; national, convenience sample of the U.S.) completed a hypothetical mental health resource allocation task (a measure of structural discrimination). We then compared participants' allocation of resources to mental health to participants' endorsement of negative stereotypes, beliefs about recovery and treatment, negative attributions, intended social distancing, microaggressions, and help-seeking (measures of individual stigma).

Results: Negative stereotyping, help-seeking self-stigma, and intended social distancing behaviors were weakly but significantly negatively correlated with allocating funds to mental health programs. More specifically, attributions of blame and anger were positively correlated to funding for vocational rehabilitation; attributions of

dangerousness and fear were negatively correlated to funding for supported housing and court supervision and outpatient commitment; and attributions of anger were negatively correlated to funding for inpatient commitment and hospitalization.

Conclusions: Individual stigma and sociodemographic factors appear to only partially explain structural stigma decisions. Future research should assess broader social and contextual factors, in addition to other beliefs and worldviews (e.g., allocation preference questionnaire, economic beliefs).

Public mental health stigma comprises stereotypes, prejudice, and discrimination toward persons with mental illness (1). Stigma includes processes related to labeling, the attachment of negative stereotypes to labels, emotional responses on the part of the stigmatizers, and resultant status loss among labeled persons (2). Despite concurrent scientific advances in understanding mental health and implementing stigma reduction programs, research consistently finds that stigma remains prevalent throughout the world (3). Public stigma is often conceptualized as taking two different forms: individual and structural (4). Although research has helped to shed light on the mechanisms that lead to individual stigma, the factors that contribute to structural stigma, such as public policy decisions related to funding for mental health treatment, are less clear (5). It is plausible, however, that the same stereotypes and negative emotional reactions that are associated with stigma on an individual level might contribute to mental health funding decisions (6).

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INTRODUCTION

Individual-level stigma includes stereotypes, prejudice, and behavioral forms of discrimination. Another form of individual stigma, help-seeking self-stigma, comprises attitudes and feelings related to receiving personal psychological services. The reasons for this type of stigma include perceptions that a person who seeks psychological treatment is undesirable or socially unacceptable. Individual stigma is consistently associated with being male (7), being Asian (8), having had less contact with persons who have mental illness (9), and holding conservative or right-wing political attitudes (10). Structural-level stigma, by contrast, includes societal-level conditions, norms, major institutions' policies, and laws that constrain and restrict the opportunities and wellbeing of persons living with mental illness (11). Structural stigma is exemplified by state laws that restrict the civil rights of persons with mental illness in areas like voting, serving jury duty, and parenting (11); by persons with mental illness having less access to primary health care (12); and by there being less federal research funding for mental health compared to other health care research (2). Structural stigma may also be represented by the fact that mental health care is not covered by insurance companies to the same extent as other medical care (i.e., parity), and that governments may not prioritize mental health funding (13).

Individual preferences related to mental health funding can ultimately lead to structural discrimination by influencing how policy makers distribute finances within the health care system (5). However, little is known about how individual factors (including personal stigma endorsement) are related to attitudes toward structural decisions. Overall, criticisms that mental health stigma research is too individually focused (2, 4, 14) have led researchers to consider how broader, macro-level forms of stigma — such as structural stigma — intersect with micro-level forms of individual stigma. Clarifications of these relationships can guide the development of anti-stigma programs and inform communities whether interventions targeting individual stigma can be expected to have cross-over effects on structural stigma (5).

RECENT HISTORY OF MENTAL HEALTH FUNDING IN THE UNITED STATES

In the U.S., states collectively cut public funding for mental health services by \$4.35 billion between 2009 and 2012 (15). However, the federal government is projected to spend an additional \$920 billion for state Medicaid programs and Children's Health Insurance Programs as a result of the

Affordable Care Act (ACA) from 2016 through 2025 (16). Current projections indicate that roughly \$70-\$80 billion of this spending will go to mental health services (17).

Mental health funding and laws that require that mental health treatment receive “parity” with other health conditions are known to vary by state. The most stringent parity laws and the most generous mental health funding are found in traditionally “liberal” states such as New York, Illinois, Connecticut, Rhode Island, Massachusetts, and Maryland (18-21). The least generous funding and least demanding parity laws are primarily found in the Southern and Midwestern states (21). Connecticut's law has grown increasingly detailed since the 2012 massacre in Sandy Hook, during which 20 children and six adults were shot and killed by a young man who was portrayed by the media as having serious mental illness (22). Connecticut's movement toward a mental health law highlights the impact that tragic events and broader, stigmatizing social contexts — such as the perceived link between gun violence and mental illness (23) — may have on mental health funding. One of the bills that added to the state's parity law was titled “An Act Concerning Gun Violence Prevention and Children's Safety” (24). To this end, some authors have further posited that where resources are directed may in turn reinforce individual stigma (4).

RESEARCH ON THE CORRELATES OF STRUCTURAL STIGMA: MENTAL HEALTH FUNDING

The uneven progression of the mental health funding climate in the U.S. in recent years, and the way that it seems to be influenced by local and regional differences raises the issue of what factors, including stigma, may impact mental health funding decisions. Previous studies have indicated that the public is more willing to accept cutbacks for mental health care than for other medical conditions (25-28). Moreover, when money is allocated to mental health, studies reveal that the public is more willing to support only certain types of mental health program funding (28). What are the mechanisms underlying these decisions? Some research has attempted to elucidate these mechanisms by exploring what factors impact community members' willingness to fund mental health services.

ATTITUDES TOWARD GENERAL MENTAL HEALTH FUNDING AND PARITY

Researchers have found that attitudes toward general mental health funding — which we classify as including attitudes toward parity, government regulations, and donations — are impacted by a number of variables. Angermeyer and

Matschinger (29) found that the acceptance of insurance and medical regulations that would disadvantage persons with schizophrenia (i.e., structural stigma) depended most strongly on attribution of responsibility for this illness. These authors' regression analyses further indicated that perceptions of dangerousness and unpredictability, negative attitudes about recovery and, to a lesser extent, prior contact with mental illness, contributed to structural stigma; sociodemographics alone in this study (i.e., age, gender, education, location) explained less than 5% of the variance in structural stigma. Corrigan et al. (30) have also found that attitudes toward donating to a mental health nonprofit were negatively correlated with attributing responsibility to a vignette character for his mental illness (schizophrenia), while attitudes toward donating were positively correlated with feelings of pity.

Most recently, Angermeyer et al. (5) used a longitudinal approach to study individual and structural stigma. These authors found that endorsements of social distance from persons with mental illness remained relatively stable over a ten-year period among a sample of German residents, while the proportion of respondents who *opposed* cutting money from depression treatment more than tripled from 6% to 21%. Interestingly, support for schizophrenia funding did not significantly change over this period (9% to 8%). Overall, these findings were interpreted as evidence that individual and structural stigma may be independent processes; however, it should be noted that the lack of support in changing funding for schizophrenia could suggest the opposite interpretation. Moreover, these authors placed these findings within a context of Germans perceiving there to be an "epidemic of depression," thus pointing to the potential relationship between contextual factors and structural stigma. Other recent studies (31) have found that individual stigma (i.e., social distance and perceptions of dangerousness) is directly related to lower support for mental health insurance parity *and* government spending on mental health. Barry and McGinty's (32) regression analyses further revealed that other consistent predictors of structural stigma were political affiliation (Republican), less previous contact, and less formal education. Living in the Midwest also predicted less government funding for mental health treatment, but not parity, in this study.

ATTITUDES TOWARD FUNDING REHABILITATION SERVICES

Research has also begun to address the nuances of funding attitudes, specifically in terms of rehabilitation and mandated treatment services. Corrigan et al. (29) have found that eliciting fear about persons with mental illness can affect attitudes toward allocation of mental health funds to rehabilitation

services (i.e., vocational and psychosocial rehabilitation services). These authors found a non-significant trend for individuals who viewed a presentation about mental illness and violence to be less likely to support funding for rehabilitation services, suggesting that attitudes or emotional responses can affect allocation decisions. Another study by Corrigan et al. (31), however, found no significant associations between individual stigma (i.e., attributions) and allocation preferences to rehabilitation services.

ATTITUDES TOWARD FUNDING MANDATED TREATMENT

Individuals who viewed the aforementioned presentation on mental illness and violence in Corrigan et al. (29) were also significantly more likely to endorse coercing persons with mental illness into treatment and setting up treatment in segregated areas. In another study, Corrigan and colleagues (31) asked participants to respond to statements regarding a vignette of a person, Harry, who was living with schizophrenia. Participants who responded with attributions of pity (i.e., "I would have sympathy for Harry") and fear (i.e., "Harry would terrify me") were more likely to allocate resources to mandated treatment (i.e., involuntary hospitalization and outpatient commitment). Attitudes toward treatment coercion (i.e., "If I were in charge of Harry's treatment, I would require him to take his medication"), segregation ("I think it would be best for Harry's community if he were put away in a psychiatric hospital"), along with beliefs about treatment efficacy, also positively correlated with support for allocation of funds to mandated treatment.

ATTITUDES TOWARD FUNDING: SUMMARY

While some studies suggest that macro and micro stigma levels are distinct processes (5), other studies suggest a more synergistic process between structural and individual stigma (30, 32), whereby certain aspects of individual stigma may either positively or inversely impact allocation decisions (6, 29, 31). Angermeyer et al.'s (5) research question captures the essence of these "distinct" and "synergistic" theories: "*Are attitudes regarding structural discrimination just an expression of the same attitudes that lead to individual discrimination, representing the other side of the same coin, or are they profoundly different?*" (p. 61). Certainly, socio-demographics influence attitudes toward funding, but individual stigma also appears to be an important predictor variable. To this end, less is known about other aspects of individual stigma, such as subtle forms of stigma (e.g., microaggressions), personal help-seeking stigma, and social distancing behaviors. Moreover, no study to date has specifically assessed the impact of individual stigma toward

persons with depression on structural stigma. It is plausible that these other aspects of stigma influence attitudes toward mental health funding: Endorsements of subtle stigma may underlie how persons conceptualize their allocation decisions (e.g., framed as helping individuals who are unable to care for themselves), and social distancing may be directly related to attitudes toward funding mandated treatment, since mandated treatments generally occur in isolated and secure settings. It is less clear how help-seeking stigma relates to attitudes toward mental health funding. On the one hand, more help-seeking stigma may spur persons to support funds to stigmatized services, in order to engage more people (including themselves) in treatment. On the other hand, less help-seeking stigma may also spur persons to support mental health funding, since services are already seen as relatively accepted (and services are seen, generally, as lacking funding).

CURRENT STUDY

A review of the known correlates of structural stigma, as well as an examination of the broader social context, leads to the overarching research question of this current study: *how much influence do individual and social-level characteristics have, including the endorsement of explicit individual stigma, in predicting mental health funding decisions?* No study to date has broached this complex question by examining social and personal characteristics, in conjunction with various levels of endorsed individual stigma. We add to this research pursuit by evaluating socio-demographic variables, including consistent predictors of individual stigma; incorporating multiple measures of individual stigma; recruiting a sample of diverse residents from the U.S. (convenience sample); and utilizing a measure of resource allocation that taps into nuanced mental health funding decisions.

In terms of parity (general mental health funding), we hypothesize that there will be differences between participants' funding allocations, whereby mental health receives less funding than other healthcare or social services. Broadly, we hypothesize that endorsements of individual stigma will be related to structural stigma. This includes negative stereotypes, beliefs about treatment efficacy and recovery, negative attributions, social distance, microaggressions, and help-seeking endorsements. Given the stronger societal stigma toward schizophrenia (3), we hypothesize that individual stigma toward depression will be less related to structural stigma. Specifically, we predict that individual forms of stigma will have a cumulative effect, whereby more endorsements of various individual stigmas will predict less funding. In particular, given Corrigan and colleagues' find-

ings (29, 31), negative stereotypes and attributions, along with beliefs in recovery and treatment efficacy, will predict funding to involuntary and mandated services. Given the mixed findings regarding individual stigma and attitudes toward funding rehabilitation services, hypotheses in this regard are exploratory and results may guide future research. Overall, we also hypothesize that common sociodemographic predictors of stigma will contribute to these models as well.

METHOD¹

Participants were recruited from three online survey platforms between January 2015 and March 2015: Qualtrics Panel (Qualtrics) ($n = 518$), Amazon Mechanical Turk (MTurk) ($n = 233$), and a university student pool ($n = 200$).² These platforms have been shown to be reliable and valid methods for assessing public attitudes (32-36). Participants were compensated with \$2.00 in the Qualtrics and MTurk pools, and students received research credit for a course. Participants were excluded if they failed an attention check, no responses were registered, their Internet Protocol (IP) address was identical to another participant or outside of the U.S., if there was an obvious response pattern, or if the survey was completed in under five minutes (total exclusion $N = 168$; $M = 30.5$ min).³ Overall, 951 respondents were included in analyses. Individuals were diverse in age (range of 18-82, $M = 38.6$, $SD = 16.3$), race/ethnicity (9.5% Black/African American, 6.4% Asian American or Pacific Islander, 14.6% Hispanic/Latino [a], 2.2% Bi/Multiracial, 65.6% White/European American), U.S. geographic region (19.3% Midwest, 38.3% Northeast, 24.8% South, 17.5% West), and prior contact with mental illness (16.6% personally diagnosed, 36.5% with family member diagnosed, 31% with a close friend diagnosed). Most respondents identified as politically moderate (46.4%), followed by liberal (32%) and conservative (21.4%); 33.9% of the sample reported

¹As reported elsewhere (37), the student sample was significantly younger, more likely to be female, less formally educated, and more racially/ethnically diverse than the Qualtrics and MTurk samples. The MTurk sample was also significantly younger than the Qualtrics sample

²Qualtrics Panel is an online surveying mechanism that partners with numerous other surveying panels to disseminate; Amazon Mechanical Turk (MTurk) is an online surveying platform where people sign-up to take surveys for compensation.

³Three attention checks were included in the survey to prevent inattentive or random responding. These included questions that asked the user to compute and submit a simple sum, gave instructions as to what option to answer, or had clear answers (i.e., for the question "Have you ever had a fatal heart attack while watching TV?" the correct response was 'never'). To be excluded, a participant had to fail only one of the three checks. Other obvious responding was determined by illogical patterns of responses on the majority of one's responses (e.g., consistently answering the same number on several reverse-coded scales). Overall, participants were also excluded if no responses were registered, their Internet Protocol (IP) address was identical to another participant or outside of the U.S., if the survey was completed in under five minutes, or if there was an aforementioned obvious response pattern ($N = 168$; $M = 30.5$ min)

some college education or vocational training, while 18.9% reported at least a high school degree or its equivalent. Females made up the majority of our sample (57.2%).

DESIGN AND MATERIALS

The same survey was completed online by all samples and was approved by the City University of New York institutional review board. Participants included in these analyses gave informed consent and were ensured that responses would be anonymous. All participants completed the survey in the same order (the structural stigma measure preceded individual stigma measures).

MEASURE OF STRUCTURAL STIGMA

As reported elsewhere (36), the Resource Allocation Test (RAT) (31) is a measure of public attitudes toward structural stigma, comprised of two sections. In Part 1, participants act in the role of a legislator and are prompted to assign \$100 million to eight different human service programs (see Table 1). In Part 2, participants act in the role of a state mental health director and are prompted to assign money to individual mental health programs, using only their previously assigned monies to mental health services. For this study, several variables were of particular interest: the amount of money assigned to mental health services relative to all other services, and the percentage of monies assigned to each individual mental health service program (i.e., [one's individual program allocation divided by one's total mental health allocation]*100). Therefore, percentages were relative to one's total allocation. The individual programs included *vocational rehabilitation*, *supported community housing*, *inpatient commitment and hospitalization*, and *court supervision and outpatient commitment*. The former two programs can be considered rehabilitation programs, while the latter two programs can be considered mandated or otherwise coercive services. As previously reported in a pilot study (31), some participants had difficulty understanding the task and could not complete it accurately; as such, steps were taken to ensure most respondents followed directions (e.g., we included a continuously updating sum box on our online survey, which let participants know how much money they had allocated overall, and also had respondents copy their MH allocation monies into a separate text box for Step 2). In all, participants were excluded from RAT analyses if they did not accurately allocate all \$100 million dollars (71 excluded, $n = 880$) or the correct amount of their mental health monies (231 excluded, $n = 720$).⁴ *Chi-square tests*

⁴"231 excluded" includes participants who did not allocate their mental health monies correctly and participants who did not allocate any mental health money ($n = 29$)

Table 1. Resource Allocation Test Means (in millions) and Standard Deviations (SD)

| Human Service Program | Mean (million) | SD |
|--|----------------|-------|
| Women, Infants, and Children Program | 16.48 | 10.34 |
| Organ Transplantation Act | 9.67 | 6.98 |
| AZT Subsidies | 8.92 | 6.55 |
| Family Planning | 9.22 | 7.02 |
| Healthy Kids Program | 13.17 | 8.75 |
| Medicaid and Medical Assistance Programs | 18.09 | 12.37 |
| Independent Living Program | 8.90 | 6.24 |
| Mental Health Programs | 15.56 | 9.99 |
| <i>Inpatient Commitment and Hospitalization</i> | 4.80 | 4.20 |
| <i>Supported Community Housing</i> | 3.67 | 2.64 |
| <i>Court Supervision and Outpatient Commitment</i> | 3.31 | 2.48 |
| <i>Vocational Rehabilitation</i> | 3.93 | 2.96 |

Note. "AZT Subsidies" was further described as a "drug used to treat HIV and delay AIDS." Individual MH programs are in italics. All programs may not equal exact allocation amounts, due to rounding. Total human service programs $N = 880$ and total individual MH programs allocation $N = 720$.

for independence confirmed that excluded respondents did not significantly differ from included respondents by gender, political attitudes, education, or region. However, excluded respondents differed on race/ethnicity — they were more likely to be Hispanic/Latino(a), $(6, 938) = 14.41$, $p = .025$, $\phi = .124$.

MEASURES OF INDIVIDUAL STIGMA⁵

We used the Attitudes about Mental Illness and Its Treatment Scale (AMIS) (37) to assess negative stereotypes toward persons with mental health problems and also beliefs about treatment efficacy and recovery. AMIS comprises two subscales: AMIS 1 (3-items about negative stereotypes; = .83) and AMIS 2 (4-items regarding recovery; = .73). AMIS 1 includes items such as, "I believe a person with mental illness is unpredictable," while AMIS 2 includes items such as, "I believe a person with mental illness can eventually recover" (reverse coded). AMIS items were rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree).

Negative attributions were assessed via Corrigan et al.'s (38) Attribution Questionnaire (AQ-9). The original AQ-9, which was utilized in this study, consists of nine items reflecting attributions toward a brief vignette about Harry, a man described as having symptoms of schizophrenia (= .81). This measure taps into nine factors of stigma, based on prior path analyses: responsibility, pity, anger, dangerousness, fear, avoidance, coercion, segregation, and help. Items

⁵Some items within individual stigma scales were reverse coded, so that higher mean scores on all scales were indicative of more stigmatizing attitudes.

include, “Harry is to blame for his illness” (responsibility), “I would feel unsafe around Harry” (dangerousness), and “How likely is it that you would help Harry?” (help; reverse coded). For this study, we adapted this measure to also include a separate vignette and set of items about “Walter,” a man with DSM-5 symptoms of major depressive disorder ($= .82$). Items for the AQ-9 scales were rated on a 9-point scale (e.g., 1 = not at all, 9 = very much).

Social distance was assessed via the Reported and Intended Behavior Scale (RIBS; $= .87$) (39). The RIBS includes questions related to future interactions with persons who have mental health problems, such as, “In the future, I would be willing to work with someone with a mental health problem.” This 4-item measure is rated on a 5-point scale (1 = agree strongly, 5 = disagree strongly).

The 14-item Mental Illness Microaggressions Scale — Perpetrator Version (MIMS-P; $= .89$) (40) was employed to measure endorsed, subtle stigma toward persons with mental illness, in contrast to more traditional measures of overt discrimination. Items include, “If someone I’m close to told me that they had a mental illness diagnosis, I would try to talk more slowly so that they wouldn’t get confused,” “If someone I’m close to told me that they had a mental illness diagnosis, I would help by telling them when they’re showing signs of their illness,” and “If someone I’m close to told me that they had a mental illness diagnosis, I would look out for specific symptoms and behaviors.” In addition to the total scale (14 items), the MIMS-P is comprised of three respective subscales: Assumption of Inferiority (5 items, $= .82$), Patronization (5 items, $= .82$), and Fear of Mental Illness (4 items, $= .74$). Items were rated on a 4-point scale (1 = strongly disagree, 4 = strongly agree).

Lastly, the Perceptions of Stigmatization by Others for Seeking Help Scale (PSOSH; 5-items, $= .94$) and the Self-Stigma of Seeking Help Scale (SSOSH; 10-items, $= .90$) were employed to assess perceived stigma from others for seeking help and threats to one’s self-evaluation for seeking help, respectively (42, 43) 41, 42. PSOSH items ask respondents if others in their life (e.g., peers, friends, family) would react negatively or “think bad things” about them if they sought counseling. A sample SSOSH item is, “It would make me feel inferior to ask a therapist for help.” Both scales used a similar 5-point Likert scale.

SOCIODEMOGRAPHICS

We controlled for sociodemographic correlates of stigma that could account for differences in stigmatizing (these were assessed after the stigma measures were presented). Among these variables included a 20-item measure of right-

wing authoritarianism (RWA), which is a more nuanced measure of right-wing political attitudes (43) and has been shown to be a consistent predictor of individual stigma [10]; age, in years; gender (0 = female, 1 = male); personal and parental education (1 = no schooling completed to 11 = doctoral degree); U.S. region (reference: Midwest); previous mental health contact⁶ (close friend, family member, or self: variable dichotomized as 0 = no contact, 1 = any form of contact) (44); race/ethnicity (1 = White and 0 = other races/ethnicities). The 11-item Social Desirability Scale (SDS; $= .75$) (45) was also employed — e.g., “I have never deliberately said something that hurt someone’s feelings” — to gauge the level at which participants put themselves in an overly positive or unrealistic light. Higher SDS mean scores were indicative of more socially desirable responding.

DATA ANALYSES

Consistent with prior studies of a similar nature and size (32, 36), an alpha level of 0.05 was used for all statistical tests. More specifically, our sample size had a power of 0.80 to detect differences at an alpha of 0.05 for an effect size of at least 0.25. In addition to reported descriptive statistics (frequency distributions and percentages), bivariate correlations were computed between among structural and individual stigma variables. Simultaneous regressions were then utilized with structural stigma as a dependent variable and individual stigma as the primary predictors (along with sociodemographics). All data analyses were carried out with IBM SPSS version 23. Mean imputation was used, so as not to exclude participants for missing several responses on a scale. The highest percentage of mean imputed responses for any scale was 3.8% (MIMS-P).

RESULTS⁷

Participants allocated approximately 16% of their money to mental health (MH) ($M = \$15.56$ million [out of \$100 million], $SD = 9.99$) (Table 1). *Mental Health Programs* received the third most funding out of the eight human service programs, behind *Women, Infants, and Children Programs* and *Medicaid and Medical Assistance Programs*.

⁶ 53% of the sample had “contact” by this definition, consistent with previous work [35,48]

⁷ In terms of sample differences, MTurk respondents were least likely to stigmatize on individual stigma measures (not reported in tables; reported in a previous study [40]). Qualtrics respondents scored significantly higher on scales related to attributions and microaggressions; however, effect sizes for these differences were small. One explanation for these sample differences is the large degree of RWA found in the Qualtrics group, $F(2, 947) = 35.32, p < .001$, as well as self-reported conservatives, $F(2, 941) = 34.57, p < .001$ —consistent with prior findings that political attitudes are the most robust individual predictor of individual stigma [12]. Specific sample differences in our hypothesis testing are noted below.

This is partially contrary to our hypothesis — while MH services received less funding than two other healthcare or social service programs, it still received more funding than five other such programs, hardly indicative of a lack of parity overall. These results were consistent across our three samples.

In terms of initial relationships between individual and structural stigma, our bivariate correlations revealed several small, but significant relationships (Table 2). Endorsement of negative stereotypes (AMIS 1) was negatively related to total allocation of monies to mental health programs; research participants who held such stereotypes were slightly less likely to allocate money, in general. Unsurprisingly, less intention to help was also negatively correlated with total mental health funding. Self-stigma of seeking help (SSOSH) was negatively correlated to total allocation and to housing allocation. Beliefs about treatment efficacy and recovery (AMIS 2) were not related to any allocation. The MTurk and student samples showed significant and non-significant trends, respectively, with more positive views toward recovery correlating with more allocation of general mental health funds, consistent with Corrigan and colleagues (35). Also in the student sample, AMIS 1 was positively correlated with vocation funding ($r = .16, p < .05$) and negatively correlated with housing funding ($r = -.18, p < .05$). The MTurk sample also showed significant correlations between SSOSH and vocation funding ($r = .15, p < .05$); the student sample showed a significant correlation between perceptions of stigma for seeking help (PSOSH) and general funding ($r = .19, p < .05$)

In terms of negative attributions, there were some consistent patterns between attributions toward both vignettes and structural stigma. Anger and responsibility ($p < .08$ for schizophrenia) toward Harry (i.e., vignette of a man described as having symptoms of schizophrenia) and Walter (i.e., vignette of a man described as having symptoms of major depression) seemed to drive a higher percentage of funding to vocational rehabilitation. On the other hand, anger was negatively correlated to percentages of inpatient commitment and hospitalization funding for both vignettes, and attributions of fear were negatively correlated to this funding for the depression vignette. Additionally, more attributions of danger correlated with less funding to supported community housing for both vignettes; though only fear toward Harry, a person with symptoms of schizophrenia, was related to housing allocation. Results were similar across samples for attributions, though MTurk respondents had more significant, negative correlations to general mental health funding,

Table 2. Bivariate Correlations Between Individual Stigma and Structural Stigma

| Scale (subscale) | RAT Total | Vocational | Housing | Court | Inpatient |
|----------------------|-----------|------------|---------|-------|-----------|
| AMIS | | | | | |
| AMIS1 | -.08* | .04 | -.07 | .01 | .01 |
| AMIS2 | -.04 | .02 | -.02 | -.04 | .04 |
| AQ-SZ | | | | | |
| Responsibility (SZ) | -.04 | .07 | -.002 | -.01 | -.05 |
| Pity (SZ) | .003 | -.01 | -.004 | .07 | -.04 |
| Anger (SZ) | .01 | .13*** | -.04 | -.01 | -.08* |
| Danger (SZ) | .03 | .05 | -.12*** | .04 | .02 |
| Fear (SZ) | -.01 | .07 | -.10** | .06 | -.02 |
| Help (SZ) | -.07* | .01 | -.08* | .03 | .03 |
| Coercion (SZ) | .01 | .06 | -.05 | .01 | -.02 |
| Segregation (SZ) | -.02 | .04 | -.02 | .02 | -.04 |
| Avoidance (SZ) | -.07* | .04 | -.05 | .07 | -.05 |
| AQ-MDD | | | | | |
| Responsibility (MDD) | -.07* | .07* | -.08* | .03 | -.03 |
| Pity (MDD) | .04 | -.04 | -.02 | .09* | -.01 |
| Anger (MDD) | -.02 | .09* | -.01 | .03 | -.10** |
| Danger (MDD) | -.01 | .03 | -.07* | .10** | -.04 |
| Fear (MDD) | -.03 | .04 | -.02 | .11** | -.11** |
| Help (MDD) | -.09** | .02 | -.07 | .03 | .02 |
| Coercion (MDD) | .04 | .03 | -.04 | .05 | -.04 |
| Segregation (MDD) | -.01 | .03 | -.02 | .03 | -.03 |
| Avoidance (MDD) | -.08* | .05 | -.03 | .07 | -.08* |
| RIBS | -.11*** | -.01 | -.06 | .02 | .05 |
| MIMS-P Total | | | | | |
| MIMS-P Inability | -.02 | .02 | -.05 | .01 | .02 |
| MIMS-P | -.04 | .03 | -.04 | -.02 | .02 |
| Patronization | | | | | |
| MIMS-P Fear | .02 | .001 | -.07* | .06 | .01 |
| SSOSH | -.11*** | .05 | -.10** | .01 | .03 |
| PSOSH | .001 | .02 | -.02 | -.04 | .03 |

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. AMIS1 = the negative stereotype subscale and AMIS2 = the recovery attitudes subscale of the Attitudes Toward Mental Illness and Its Treatment Scale; the AQ-SZ = the Attribution Questionnaire of the schizophrenia vignette; the AQ-MDD = the major depressive disorder vignette; RIBS = Reported and Intended Behavior Scale; MIMS-P = Mental Illness Microaggressions Scale-Perpetrator Version; MIMS-P Inability = the Assumption of Inferiority Subscale; MIMS-P Patronization = the Patronization subscale; MIMS-P Fear = the Fear of Mental Illness subscale. PSOSH = Perceptions of Stigmatization by Others for Seeking Help, SSOSH = Self-Stigma of Seeking Help. Higher mean scores on all individual scales were indicative of more stigma. N's ranged from 948 to 951 for individual scales. RAT Total = Resource Allocation Test total amount for MH programs; Vocational = percentage of money given to vocational rehabilitation; Housing = percentage of money given to supported housing; Court = percentage of money given to court supervision and outpatient commitment; Inpatient = percentage of money given to inpatient commitment and hospitalization. Total human service programs $N = 880$ and total individual MH programs allocation $N = 720$.

including for responsibility, fear, and segregation.

Fearful microaggressions were also negatively correlated with housing allocation. Overall, avoidance — both in terms of attributions and also via a measure of intended social distance (RIBS) — was negatively correlated with

total mental health funding. Results were consistent across samples, though students also showed a significant correlation between RIBS and housing funding ($r = -.21, p < .01$), and MTurk respondents showed a significant correlation between the microaggressions mean scale and mental health funding ($r = -.17, p < .05$). Negative attributions toward depression were positively correlated to percentages of court supervision and outpatient commitment, specifically via attributions of pity, danger, and fear. In terms of diagnostic differences, few differences were found, though there were somewhat stronger relationships for attributions of pity and responsibility toward a vignette with depression to forms of structural stigma. Overall, these results support our hypothesis that individual levels of stigma are related – albeit, modestly – to structural levels of stigma.

Next, to elucidate the impact of individual stigma on structural stigma, we computed several linear regressions, controlling for sociodemographics. In a previous study (40), sociodemographics only explained a small amount of the variance in these structural stigma variables (i.e., 2% for total allocation, 1% for vocational rehabilitation, 1% for court supervision and outpatient commitment), and resulted in non-significant models for supported housing and inpatient commitment allocations. For the current study’s analyses, we individually added each of the individual stigma variables that were significant in the aforementioned correlations, in addition to a U.S. region variable, to these same five resource allocation models in order to assess changes in variance and whether these individual variables remained significant predictors in any model. Most individual stigma variables remained significant when placed in these models, however the variance explained still remained small ($\leq 3\%$). Inpatient models became significant with the addition of these variables (variance $\leq 2\%$), but none of the supported housing models became significant with any individual stigma variable. Region was not a significant predictor in any model.

Lastly, all of the aforementioned significant individual stigma variables in our correlations were cumulatively added as predictors for the previous four significant models (i.e., excluding supported housing modeling). Since there was little theory to guide our selection of terms for these cumulative models, a stepwise regression method was used to determine inclusion of individual stigma variables and forced entry was used for sociodemographics in our models. For total MH allocation, RIBS and SSOSH were included, and 3% of the variance was explained (Table 3). Similar to a previous study (40), only previous contact and gender (female) predicted more allocation. For vocational

rehabilitation funding, 3% of the variance was explained (Table 4). Race/Ethnicity (White), gender (female), and attributions of anger toward the schizophrenia vignette predicted a higher percentage of vocational allocation. For court supervision and outpatient commitment, two depression attribution variables were included, and 3% of the variance was explained (Table 5). Younger age and fear of Walter in the depression vignette predicted this allocation; pity for Walter tended toward significance. Lastly for inpatient commitment and hospitalization, three depression attribution variables were included, and 2% of the variance was explained (Table 6). Race/Ethnicity (non-White) and gender (male) predicted a higher percentage of this allocation; less fear of Walter in the depression vignette trended toward significance.

In terms of sample differences, the MTurk sample explained the most variance for mental health funding; the Qualtrics sample explained the most variance in vocational and court funding; and the student sample explained the most variance in housing funding. Overall, the addition of individual stigma variables hardly resulted in more variance explained in structural stigma – contrary to our

Table 3. Regression of Individual Stigma and Sociodemographics on RAT MH Programs Allocation Total

| | RIBS | SSOSH | Contact | Gender |
|----------------------------------|--------------|--------------|--------------|---------------|
| Structural Stigma | B(p) | B(p) | B(p) | B(p) |
| RAT Mental Health Programs Total | -.047 (.219) | -.063 (.092) | .109 (.002)* | -.079 (.022)* |

Note. $F(11, 856) = 3.24, p < .001$, Adjusted R-squared = .028. * $p < .05$, ** $p < .001$. Standardized coefficients (B) and p-values are reported. Individual stigma variables as per the stepwise method are included, in addition to significant sociodemographic variables. RIBS = Reported and Intended Behavior Scale; SSOSH = Self-Stigma of Seeking Help Scale; Contact = prior interpersonal contact with mental illness; Gender coded as 0=female, 1=male. Other non-significant variables included in this model: Region, Right-Wing Authoritarianism, Race/Ethnicity, Education, Parents’ Education, Age, Social Desirability.

Table 4. Regression of Individual Stigma and Sociodemographics on Vocational Rehabilitation

| | AQ-Z Anger | Race/Ethnicity | Gender |
|---------------------------|---------------|----------------|---------------|
| Structural Stigma | B(p) | B(p) | B(p) |
| Vocational Rehabilitation | .140 (.001)** | .120 (.004)* | -.081 (.034)* |

Note. $F(10, 701) = 3.03, p = .001$, Adjusted R-squared = .028. * $p < .05$, ** $p < .001$. Standardized coefficients (B) and p-values are reported. Individual stigma variables as per the stepwise method are included, in addition to significant sociodemographic variables. AQ-Z Anger = anger attribution toward schizophrenia vignette; Race/Ethnicity coded as 1=White, 0= other races/ethnicities; Contact = prior interpersonal contact with mental illness; Gender coded as 0=female, 1=male. Other non-significant variables included in this model: Region, Right-Wing Authoritarianism, Contact, Education, Parents’ Education, Age, Social Desirability.

Table 5. Regression of Individual Stigma and Sociodemographics on Court Supervision and Outpatient Commitment

| | AQ-MDD Fear | AQ-MDD Pity | Age |
|---|--------------|-------------|---------------|
| Structural Stigma | B (p) | B (p) | B (p) |
| Court Supervision and Outpatient Commitment | .113 (.004)* | .061 (.104) | -.086 (.049)* |

Note. F (11, 700) = 2.90, p = .001, Adjusted R-squared = .028. *p < .05, **p < .001. Standardized coefficients (B) and p-values are reported. Individual stigma variables as per the stepwise method are included, in addition to significant sociodemographic variables. AQ-MDD Fear = fear attribution toward depression vignette; AQ-MDD Pity = pity attribution toward depression vignette; Age = continuous age variable. Other non-significant variables included in this model: Region, Right-Wing Authoritarianism, Contact, Race/Ethnicity, Gender, Education, Parents' Education, Social Desirability.

hypotheses. In partial support of our hypotheses, negative attributions predicted allocation to mandated and involuntary services – albeit weakly.

DISCUSSION

Mental health funding has waxed and waned over the years. The reasons for these changes are complex and not easily pinpointed. How do these decisions relate to social context and social climate? How might these decisions relate to individual attitudes and characteristics? Findings indicated that, when faced with a decision to fund various “human service programs,” participants in the current study distributed more than a fair share of their funds to mental health programs. Similar to a recent study (5), we also found that participants allocated relatively few funds to AIDS treatment. While structural stigma towards AIDS treatment may be one explanation for this finding, a more plausible explanation may be that, in the eyes of the public, this syndrome has become less terrifying due to medical advancements. The “Rule of Rescue” (46) holds that this type of perception is one of the most significant determinants in how people choose to allocate resources.

Given our relatively positive findings in terms of total allocation, an opposite process may be occurring here in relation to this rule, whereby the public believes MH services are in need of significant funds.

Broadly, endorsing negative stereotypes, being less likely to offer help to someone with a MH problem, having self-stigma for help-seeking, and intending to socially distance from persons with mental illness in the future were the only variables correlated with support for less MH funding overall (i.e., structural stigma). An advantage of this study was the evaluation of participants’ MH allocation to specific MH programs. While there may be a general public consensus that MH funding is important, persons may differ as to *where* the funding should go. Notably, a higher percentage of money, on average, was allocated to inpatient commitment and hospitalization in this study. It has been suggested that attributions of fear are correlated with mandated treatment services (29, 31). We found both consistent and contradictory support for these previous findings. Interestingly, holding *less* anger toward persons with mental illness contributed to more inpatient funding. However, *less* fear and *less* avoidance intentions (both toward the depression vignette) also correlated with more inpatient funding. Since our findings do not suggest that stigmatizing attributions are necessarily driving this relationship, it may be that the opposite of anger, perhaps kinder regard, is leading to more funding in this area. Research has shown that the public displays generally positive attitudes toward compulsory treatment, such as inpatient stays and hospitalization (47). Alternatively, persons who are angry may believe that inpatient funding is too costly and/or that persons with mental illness are not deserving of it. To this end, our finding that attributions of fear (toward persons with depression) were related to more funding for court supervision and outpatient commitment may further suggest that participants believe this type of programming to be a more worthwhile or less restrictive treatment alternative – at least for persons who have depression.

Table 6. Regression of Individual Stigma and Sociodemographics on Inpatient Commitment and Hospitalization

| | AQ-MDD Fear | AQ-MDD Anger | AQ-MDD Avoidance | Race/Ethnicity | Gender |
|--|--------------|--------------|------------------|----------------|--------------|
| Structural Stigma | B (p) | B (p) | B (p) | B (p) | B (p) |
| Inpatient Commitment and Hospitalization | -.085 (.145) | -.056 (.296) | -.023 (.674) | -.084 (.046)* | .102 (.008)* |

Note. F (12, 699) = 2.23, p = .009, Adjusted R-squared = .020. *p < .05, **p < .001. Standardized coefficients (B) and p-values are reported. Individual stigma variables as per the stepwise method are included, in addition to significant sociodemographic variables. AQ-MDD Fear = fear attribution toward depression vignette; AQ-MDD Anger = anger attribution toward depression vignette; AQ-MDD Avoidance = avoidance attribution toward depression vignette; Gender coded as 0=female, 1=male. Other non-significant variables included in this model: Region, Right-Wing Authoritarianism, Contact, Education, Parents' Education, Age, Social Desirability.

Consistent with Corrigan et al.'s (31) findings, we found that pity was correlated with support for mandated treatment (court supervision and outpatient commitment). This is consistent with authoritarian notions and "parental concerns" about persons with mental illness (31). Moreover, our finding that perceptions of dangerousness correlate with less supported housing funding makes intuitive sense from the perspective of those who fear people with mental illness living in the community, and is related to previous research (30). Lastly, we found that attributions of responsibility and anger positively correlated with funding for vocational rehabilitation. Our responsibility finding is somewhat inconsistent with previous research in which responsibility was *negatively* with a decision to donate money to MH (31). However, our finding makes conceptual sense overall (48) – research participants who believed persons were at fault for developing their mental illness, and were ostensibly angered whilst holding this belief, were likely to allocate more resources to facilitate "responsibility" and contribution to society. This finding also fits with evolutionary theories of stigma development in which stigma is seen as the result of beliefs that a person or group is non-reciprocating and dependent on the community, and thus hindering overall group effectiveness (49).

In terms of the total impact of individual stigma and sociodemographics on structural stigma, we found that these variables did not contribute a substantial amount to explaining structural stigma. Prior MH contact was a reliable predictor of structural stigma (i.e., total allocation), even after controlling for other variables, consistent with prior research (30, 32). While the overall variance explained by sociodemographics was consistent with Angermeyer and Matschinger's (30) findings, our variance explained when adding individual stigma variables to our models was much less than that of other studies (30, 31). One explanation for this discrepancy is that previous studies have employed dichotomous or categorical dependent variables for structural stigma, which allowed researchers to hone in more directly on participants' allocation decisions and thus limit variability among responses (32).

Our study must also be viewed in light of other limitations. For example, the validity of the structural stigma task used in our study may have been hindered by the number of participants excluded due to their apparent difficulty following the task directions. Moreover, our sample of U.S. residents was a convenience sample and not nationally representative. To this end, there were some differences between our samples on stigma endorsement, which may be indicative of regional and socio-demographic

differences by sample, and also smaller sample sizes for MTurk and students. Lastly, it should be reiterated that program-specific allocations only included persons who had first allocated money to general MH services. Thus, our individual program findings may be confounded by a selection bias, as individuals who chose to allocate no money to MH services were excluded from these analyses. Overall, the current study possessed weaknesses in terms of our continuous allocation variables and separate but related tasks, but possessed strengths in terms of elucidating the types of programs that persons who allocate money to general MH funding would support.

In sum, our study demonstrated that individual stigma may only play a small role in explaining structural stigma. However, we did show that some aspects of individual stigma can have inverse relationships to MH funding (e.g., responsibility), and that such aspects may differ based on disorder presentation. Thus, these findings may guide future anti-stigma campaigns and public health messages regarding mental health attributions. While many anti-stigma campaigns already integrate components related to correcting myths about dangerousness, unpredictability, and responsibility, our results suggest that campaigns should also focus on concurrent affective reactions, such as anger toward persons with mental illness. One presentation approach can be found via the work of Angermeyer and Matschinger (51). These authors have demonstrated that the more an individual with mental illness is depicted as being in need for help, the less the public reacts with anger. Such anti-stigma messages may be complemented with education about how mental health funding is distributed and what the outcomes are for persons who receive it, particularly for individuals whose anger stems more from fiscal concerns.

Overall, we added to the research base by surveying a large sample of the U.S. and by employing both general and diagnosis-specific stigma measures in relation to structural stigma. Despite our findings, and limitations of this study notwithstanding, it is paramount to consider broader social and contextual factors that contribute to MH funding climates. Our review of recent mental health funding in the U.S. reveals the discrepancies that exist across both time and space. Going forward, future research should assess broader social and contextual factors and employ relevant measurements for this goal. For example, prior studies (31) have employed measures related to public attitudes about human services (e.g., that service should go first to people who can pay for them or that selection for services should be based solely on chance), and also

business and economic views about the redistribution of healthcare funds (6, 52). To this end, future research may also wish to present hypotheses with path models and mediators, in order to more accurately gauge causal factors. More broadly, it should be noted that structural stigma is a multidimensional concept, and this study only tapped into an attitudinal component of it. Future researchers should continue to evaluate national and state MH funding patterns, including public policies, legislation, and actual discriminatory practices that affect what services persons with mental health concerns have access to.

CONTRIBUTION

JSD completed the data analyses. All three authors contributed to conception and design, interpretation of data, drafting and critical revision, and final approval.

Sources of Grant Support:

This research was partially supported by a Qualtrics Behavioral Research Grant - <http://www.qualtrics.com/innovation-exchange/research-grant>
Conflict of Interest on behalf of all authors, the corresponding author states that there is no conflict of interest.

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