Exploring the Association between Discrimination and Stress in Individuals with Serious Mental Illness

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Abstract

Stress plays a significant role in the development and relapse of psychological disorders. Although numerous forms of stressors have been identified as contributors to psychological disorders, one relatively understudied stressor is the discrimination experienced by individuals with mental illness. This study aimed to examine the association between perceived stress and discrimination within this vulnerable population. Adults from the Chicago community diagnosed with schizophrenia or schizoaffective disorder (n = 30), major depression or bipolar disorder (n = 20), and healthy controls (n = 31) were recruited. Discrimination and stress were measured using the Everyday Discrimination Scale and the Perceived Stress Scale. Results of one-way ANOVAs showed significant group differences in perceived discrimination and stress. Patients diagnosed with schizophrenia reported the highest levels of discrimination, which could not be explained by race, symptoms of paranoia, or household income. A moderate positive relationship between discrimination and stress was also observed, which was slightly stronger for females and non-white individuals. A multiple regression model revealed that diagnosis and discrimination were both significant predictors of stress, whereas race and sex were not. Understanding this connection between discrimination and stress is crucial for improving support systems and interventions for minority groups experiencing severe mental illness and discrimination.

Exploring the Association between Discrimination and Stress in Individuals with Serious Mental Illness

It is widely accepted that elevated stress plays a pivotal role in the development of psychological disorders. According to the stress-diathesis model (Ingram & Luxton, 2005), individuals' vulnerability to mental illness, or diathesis, interacts with stress to impact the development of psychological disorders. Studies indicate that patients with schizophrenia and bipolar disorders tend to exhibit lower resilience and higher stress levels compared to healthy controls (Deng et al., 2018). Moreover, stressful events in both childhood and adulthood may trigger the onset of psychological disorders (Davis et al., 2017; Duman & Monteggia, 2006; Hammen, 2005; Horan et al., 2005; Kim et al., 2007; Monroe et al., 2019; Post & Leverich, 2006; Walker & Diforio, 1997). For example, childhood maltreatment and abuse are related to increased risk of developing major depression, exacerbated symptoms, and recurrence of depressions in adults (Humphreys et al., 2020; Harkness et al., 2017). Another study demonstrated that children in stressed families report more symptoms of posttraumatic stress syndrome (Skandsen et al., 2023). Ruan and his colleagues (2021) found that adults who experienced severe illness, financial loss, or negative relationships with family members and friends tended to develop symptoms of depression. Proudfoot et al. (2012) found that young adults diagnosed with bipolar disorder identified general stress and stressful life events as triggers for depressive symptoms. Further, adolescents who experience severe stress leading to a deficit in the prefrontal cortex have a higher likelihood of transitioning to psychosis (Gomes et al., 2017).

Although numerous sources of stress have been identified as contributors to

psychological disorders, one relatively understudied area is discriminatory stress experienced by vulnerable individuals with mental illness. There is a considerable body of literature indicating that individuals with mental illness may experience increased discrimination compared to the healthy population, which can have harmful effects on their social, clinical, and emotional well-being (Corrigan & Rao, 2012; Dubreucq et al., 2021; Knaak et al., 2017). Some studies have found that discrimination can lead to increased negative emotions such as distress, a decline in overall mental health (Paradies, 2006; Williams, 2018; Williams & Mohammed, 2009), and a diagnosis of a mental disorder (Lei et al., 2021). Further compounding the stress of exposure to discrimination is the fact that such beliefs can become internalized, increasing individuals' stress levels through self-stigma (Corrigan and Watson, 2002). Corrigan et al. (2011) also found that self-stigma is associated with reductions in self-esteem and self-worth, resulting in diminished hope of achieving goals and heightened distress.

Furthermore, a correlation between perceived discrimination and heightened stress levels in the general population has been indicated in other studies (Pascoe & Richman, 2009; Sawyer et al., 2012). However, this association has not been examined among individuals with mental illnesses. The perceived discrimination and stigma related to mental illness and other factors (e.g., race) can make this vulnerable population more stressed and marginalized in society (Ahad et al., 2023). This underscores the need for further exploration and in-depth study to improve our understanding of these interactions within the population of patients with psychological disorders. This study aims to explore the association between perceived stress and discrimination within this vulnerable population.

The Current Study

To address this question and contribute to filling the existing research gap, we measured perceived discrimination and stress and examined their association in a sample of patients with schizophrenia, bipolar disorder, and major depressive disorder, as well as a sample of psychiatrically healthy comparison subjects.

I hypothesized that patients with schizophrenia and mood disorders, including bipolar and major depressive disorder, will demonstrate significantly elevated levels of perceived discrimination and stress compared to healthy controls. Such observations would align with the results of other research groups showing that individuals with mental illnesses report high levels of stress (Deng et al., 2018), and that such stress may result from the experience of discrimination as has been shown in the general population (Williams, 2018).

Additionally, we examined the degree to which this association varies as a function of racial and gender identity. Studies indicate that a stronger correlation between stress and discrimination is found in women compared to men (Borrell et al., 2006). Minority groups, including Black (Lewis et al., 2015), Hispanic (Andrade et al., 2021), and Asian (Miller et al., 2011) Americans, are more likely to experience discrimination and have elevated stress levels. Accordingly, we hypothesize that race and gender will moderate the observed association. Female patients from minority groups, including Black, Hispanic, and Asian Americans, are expected to show the strongest association between these two variables.

Methods

Participants

The final sample included 30 individuals who were diagnosed with schizophrenia or

schizoaffective disorder (SZ), 20 who were diagnosed with a mood disorder (MD) such as major depression (n = 14) or bipolar disorder (n = 6), and 31 psychiatrically healthy control (HC) participants who were confirmed to have no current psychiatric disorder. Diagnosis and symptom rating interviews were conducted by trained and calibrated raters using the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM–5; American Psychiatric Association, 2013) and the Brief Psychiatric Rating Scale (BPRS, described below). The three groups were matched on sex (X^2 = 3.47, p = .176), age (F = 0.79, p = .458), and race (X^2 = 4.17, p = .124), but significantly different from one another with respect to perceived stress (F = 9.57, p < .001), discrimination (F = 7.60, p < .001), and household income (X^2 = 10.75, p = .029), which was separated into three categories: Low (less than or equal to $30,000 - $59,000), Middle ($60,000 - $119,000), and High (equal to or greater than $120,000 - $149,000) (Koop, 2022). Due to a relatively small sample size, participants' race was broadly defined as *white* and *non-white*, with the latter group including individuals who were Black, Asian, American Indian/Alaska Native, and individuals identifying with more than one race. The breakdown of racial demographics and other complete demographic information is shown in Table 1.

Table 1

Demographic Characteristics of the Participants

	Total (N=81)	Healthy Control (N=31)	Mood Disorders (N=20)	Schizophrenia (N=30)	P
Sex					0.176
Female	39 (48.1%)	19 (61.3%)	8 (40.0%)	12 (40.0%)	
Male	42 (51.9%)	12 (38.7%)	12 (60.0%)	18 (60.0%)	
Age (years)					
Mean (SD)	36.6 (11.2)	34.9 (11.4)	36.6 (12.5)	38.5 (10.2)	0.458
Median [Min, Max]	33.0 [19.0, 60.0]	33.0 [23.0, 58.0]	33.0 [19.0, 58.0]	35.0 [23.0, 60.0]	
Race					
American Indian/Alaska Native	3 (3.7%)	0 (0%)	1 (5.0%)	2 (6.7%)	0.124
Asian	8 (9.9%)	5 (16.1%)	1 (5.0%)	2 (6.7%)	
Black	33 (40.7%)	9 (29.0%)	9 (45.0%)	15 (50.0%)	
More than one race	8 (9.9%)	2 (6.5%)	2 (10.0%)	4 (13.3%)	
White	29 (35.8%)	15 (48.4%)	7 (35.0%)	7 (23.3%)	
Household Income					0.029
high	10 (12.3%)	6 (19.4%)	1 (5.0%)	3 (10.0%)	
middle	8 (9.9%)	3 (9.7%)	5 (25.0%)	0 (0%)	
low	63 (77.8%)	22 (71.0%)	14 (70.0%)	27 (90.0%)	
Perceived Stress					<.001
Mean (SD)	14.3 (7.42)	10.2 (6.63)	15.9 (6.05)	17.5 (7.23)	
Median [Min, Max]	14.0 [1.00, 33.0]	8.00 [1.00, 28.0]	15.5 [6.00, 27.0]	17.5 [4.00, 33.0]	
Discrimination					<.001
Mean (SD)	21.7 (10.5)	17.3 (7.16)	20.7 (8.81)	26.9 (12.2)	
Median [Min, Max]	20.0 [10.0, 60.0]	16.0 [10.0, 35.0]	21.0 [10.0, 44.0]	26.5 [10.0, 60.0]	

Measures

Stress. Self-reported stress was assessed using the Perceived Stress Scale with 10 items (PSS-10; Cohen et al., 1983). Items on the PSS-10 included prompts such as, “In the last month, how often have you felt nervous and stressed?” Respondents rated their experiences on a 5-point scale (1 = Never; 5 = Very often). Summed scores range from 0 to 40, with a higher score indicating a higher level of perceived stress. A score in the range of 0-13 represents low perceived stress, 14-26 represents a moderate level of perceived stress, and 27-40 indicates a high level of stress (Cohen & Williamson., 1988).

Discrimination. Discrimination was measured using the expanded Everyday Discrimination Scale with 10 items (EDS; Williams et al., 2008). Items on the EDS included prompts such as, “You are treated with less courtesy than other people are.” Participants rated

their experiences on a 5-point scale (1 = *Never*; 5 = *Almost everyday*). Their responses were summed such that scores range from 10 to 60, with a higher score indicating a stronger perception of discrimination.

Paranoia. Finally, paranoia was assessed among patients with mood disorders and schizophrenia using the suspiciousness item from the BPRS, which is a clinical interview to measure psychiatric symptoms (Hofmann et al., 2022). The range of scores on this item is from 1 to 7, with a higher score indicating a more severe symptom of paranoia (Schöttle et al., 2023). In the present sample, only MD and SZ patients (i.e., not HC) were administered the BPRS.

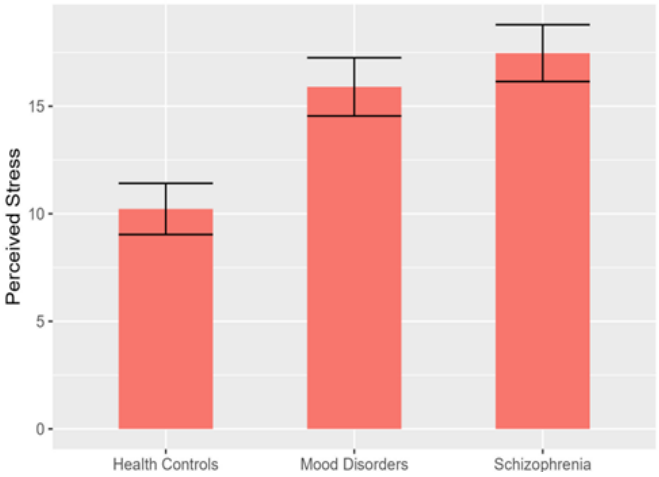
Results

Group Differences in Perceived Stress and Everyday Discrimination

The average perceived stress by diagnosis group can be found in Figure 1A. A one-way ANOVA revealed a significant effect of diagnosis on perceived stress ($F(2, 78) = 9.57$, $p < .001$), in which healthy controls reported significantly lower stress levels ($M = 10.23$, $SD = 6.63$) compared to patients diagnosed with mood disorders ($M = 15.90$, $SD = 6.05$, $p = .011$) and schizophrenia ($M = 17.47$, $SD = 7.23$, $p < .001$). The mood disorders and schizophrenia groups did not significantly differ in perceived stress ($p = .70$).

Figure 1A

Perceived Stress Across Diagnosis Groups



In a similar fashion, we also found a significant effect of diagnosis on perceived discrimination with a one-way ANOVA ($F(2, 76) = 7.17$, $p = .001$). The average perceived discrimination by group is shown in Figure 1B. Follow-up post-hoc comparisons revealed that SZ patients reported the highest discrimination ($M = 26.90$, $SD = 12.24$), which was significantly greater than HC who reported the least amount of discrimination ($M = 17.29$, $SD = 7.16$, $p = .003$). MD patients reported intermediate levels of discrimination ($M = 20.70$, $SD = 8.81$) that was not significantly different than HC ($p = .361$), and SZ patients ($p = .162$).

Figure 1B

Perceived Discrimination Across Diagnosis Groups

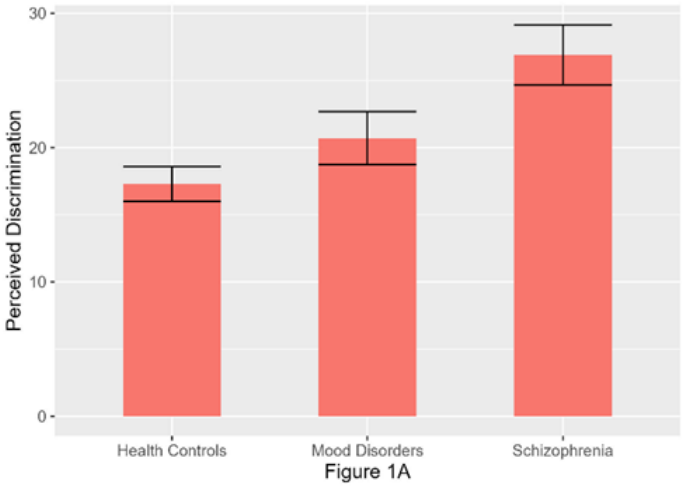


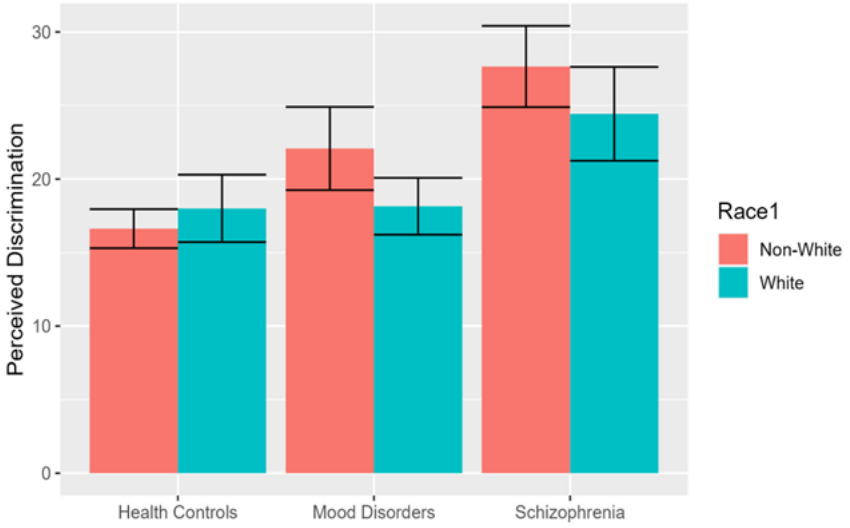
Figure 1A

One possible reason that SZ patients reported more perceived discrimination than HC

is because there are nominally more individuals from racial minority groups among SZ patients compared to HC, who are more likely to experience racial discrimination, among them. To test this hypothesis, we conducted a two-way ANOVA (race x diagnosis) to examine the effect of race and diagnosis on perceived discrimination. We found that race was not a significant predictor of discrimination ($F(1, 75) = 0.36$, $p = .553$). Moreover, as shown in Figure 2, we found that both white and non-white SZ patients reported higher levels of discrimination.

Figure 2

Perceived Discrimination Across Racial and Diagnosis Groups

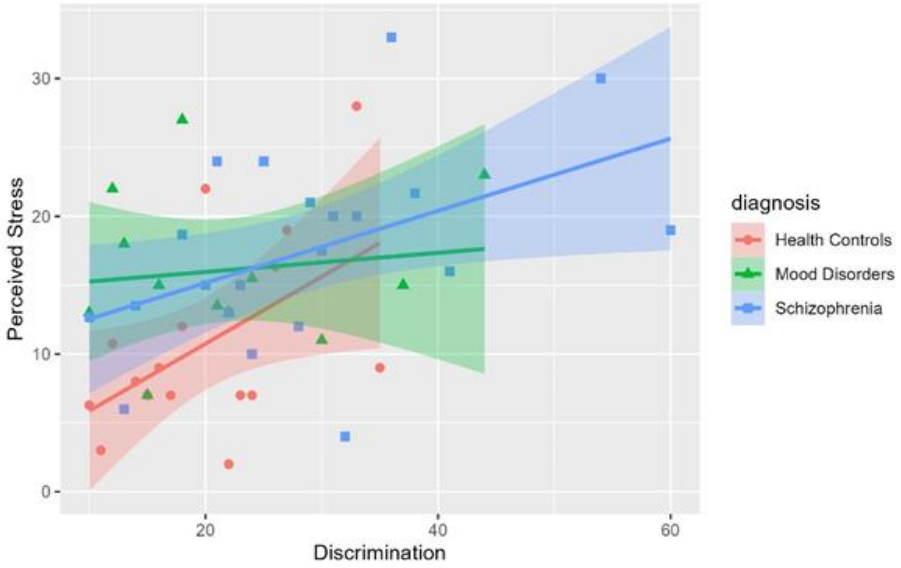


Correlation Between Discrimination and Perceived Stress

A Pearson correlation test was conducted to determine the relationship between discrimination and stress (see Figure 3A). We observed a moderate positive association between discrimination and perceived stress for SZ patients ($r(28) = 0.43$, $p = .017$) and HC ($r(29) = 0.49$, $p = .005$). The correlation for SZ patients and HC was not significantly different ($p = .787$). There was no significant relationship between perceived stress and discrimination among MD patients ($r(17) = 0.05$, $p = .838$).

Figure 3A

Perceived Stress Related to Discrimination Across Diagnosis Groups



As we expected that the association between stress and discrimination differs by sex and race, we also tested the correlation between these two variables by sex and racial groups. There was a moderate positive relationship between discrimination and stress for female, ($r(37) = 0.51$, $p < .001$) and male participants ($r(40) = 0.45$, $p = .003$), which were not significantly different from one another ($p = .741$). This is shown in Figure 3B. A positive relationship was also found for white ($r(27) = 0.46$, $p = .012$) and non-white participants ($r(50) = 0.50$, $p < .001$), which were also not significantly different from one another ($p = .834$; see Figure 3C).

Figure 3B

Perceived Stress Related to Discrimination Across Sex Groups

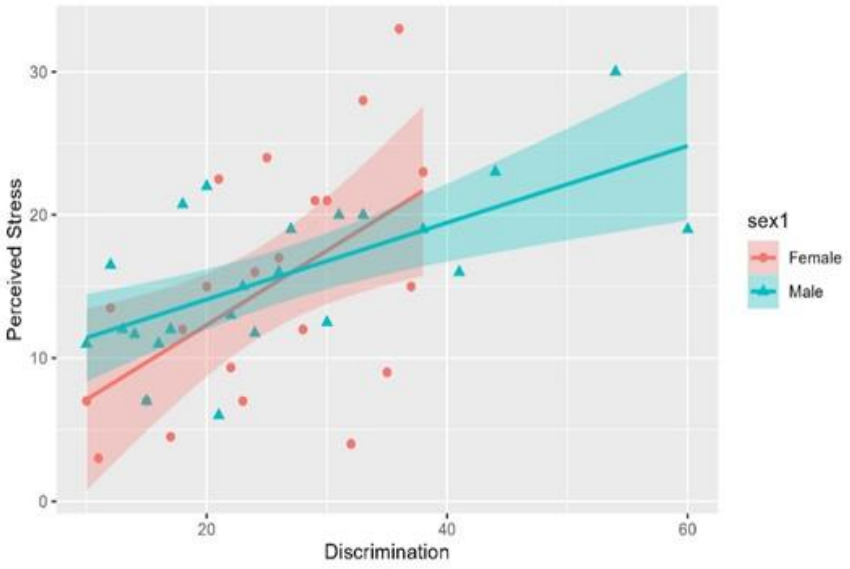
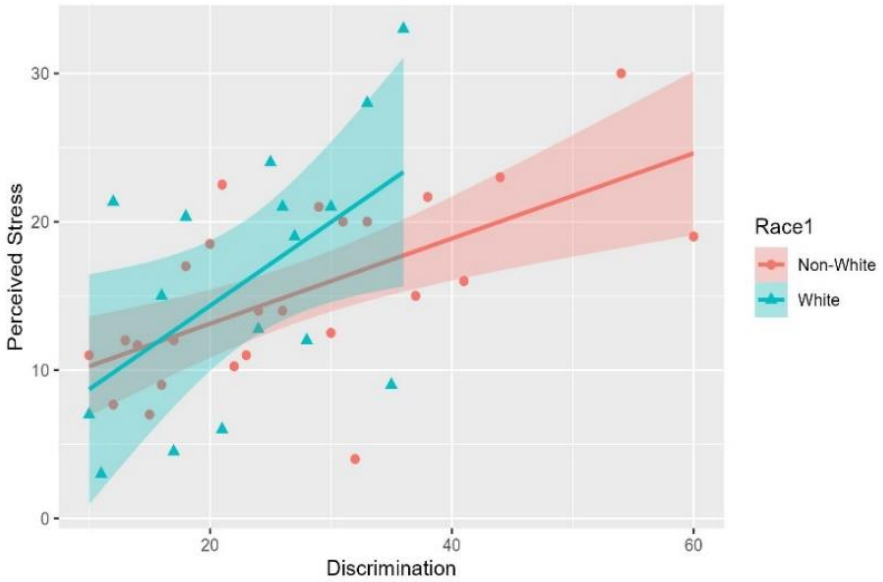


Figure 3C

Perceived Stress Related to Discrimination Across Racial Groups



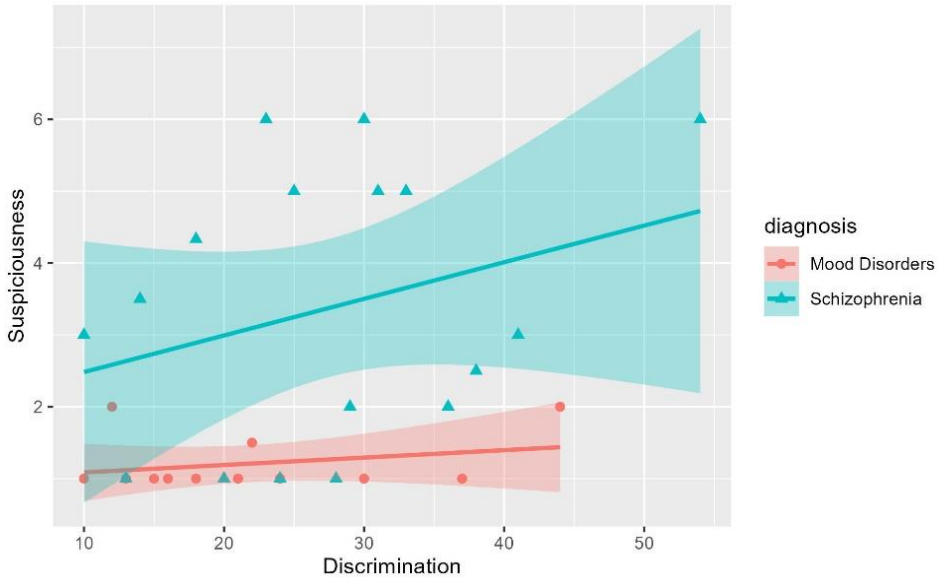
Alternative Explanations

I tested two alternative hypotheses to explain the finding of SZ patients showing the most discrimination. First, it is possible that SZ patients have a higher level of suspiciousness, which is a common symptom of schizophrenia. For these individuals, elevated suspiciousness may increase the perception that they are being followed or otherwise disrespected, resulting in higher reported discrimination. Figure 4 depicts the relationship

between suspiciousness symptom severity and perceived discrimination for SZ and MD participants. Contrary to expectations, we observed no significant relationship between suspiciousness and discrimination for SZ patients ($r(22) = 0.15$, $p = .478$) and MD patients ($r(14) = 0.05$, $p = .856$). So, this is also not the main reason why SZ patients report higher discrimination than other groups.

Figure 4

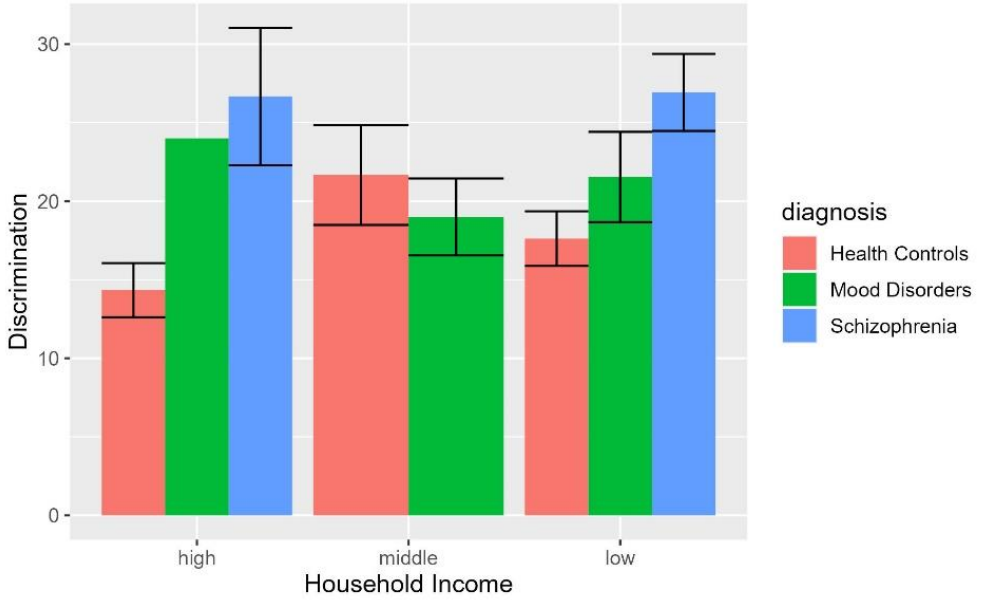
Suspiciousness Related to Discrimination Across Diagnosis Groups



Next, we predicted that SZ patients would report more frequent experiences with discrimination as a result of living in predominantly low-income neighborhoods and the associated societal challenges that accompany it. These individuals may experience more frequent assaults and inappropriate treatment, resulting in higher perceived discrimination. We therefore conducted a two-way ANOVA (income x diagnosis) to examine the effect of household income on discrimination (see Figure 5). Contrary to expectations, we observed that household income did not impact self-reports of discrimination ($F(2, 73) = 0.61$, $p = .544$).

Figure 5

Perceived Discrimination Across Different Household Income and Diagnosis Groups



Finally, a multiple regression model was conducted to examine the relationship between perceived stress and independent variables of discrimination, diagnosis, race, and sex (see Table 2). We found that this model accounted for 26% of the variance in perceived stress; discrimination was found to be a significant predictor of perceived stress, as was diagnosis. However, race and sex were not significant predictors. The results of the regression model were aligned with the results from the ANOVAs and correlations reported above.

Table 2

Model Summary with Estimates and Confidence Intervals

Variable	B	SE	t	p	95% CI
(Intercept)	5.70	3.66	1.56	0.124	[-1.59, 12.98]
Discrimination	0.25	0.08	3.37	0.001	[0.10, 0.40]
Mood Disorders	4.88	1.88	2.60	0.011	[1.14, 8.62]
Schizophrenia	4.87	1.82	2.67	0.009	[1.24, 8.50]
Race	-0.07	0.60	-0.12	0.907	[-1.27, 1.13]
Sex	0.29	1.46	0.20	0.842	[-2.62, 3.20]

Note. $R^2_{adj} = 0.26$. CI = confidence interval for B.

Discussion

In the current study we examined the associations between discrimination and stress among individuals with severe mental illness. We found that schizophrenia and mood disorder patients reported experiencing greater stress compared to healthy controls. Schizophrenia patients also reported experiencing the most discrimination, followed by individuals with mood disorders. A general positive relationship between discrimination and stress was found across mental illness patient and healthy control groups. It indicates that people experiencing more discrimination tend to report higher levels of stress. Such results are consistent with those reported by Sawyer et al. (2012), who found that the mere anticipation of discrimination leads to increased stress. Other studies also show that discrimination is positively associated with stress and discrimination can be considered as a stressor similar to other stressful events (Flores et al., 2008; Pascoe & Richman, 2009). This association was slightly stronger for women and racial minority groups, but the results were not significant. It suggests that race and gender may not moderate the association between discrimination and stress.

In addition, we hypothesized that one reason for the higher rates of reported discrimination among SZ patients would be the marginally greater number of participants from racial minority groups. However, we found that both white and non-white schizophrenia patients report higher discrimination, which was unexpected. Two alternative hypotheses were tested: (1) The symptom of suspiciousness will lead to greater perceived discrimination among schizophrenia patients; and (2) patients are more likely to live in low-income neighborhoods and experience more assaults and discrimination because of their low

household income.

However, neither alternative hypothesis was supported by the results. For the first hypothesis, a nonsignificant (albeit positive) relationship between paranoia symptoms and perceived discrimination was found. The second hypothesis was also rejected because schizophrenia patients reported higher discrimination regardless of whether they had high or low household income, as shown in Figure 5. The fact that a diagnosis of schizophrenia significantly predicted discrimination regardless of race, paranoia symptoms, and household income is supported by other studies. Dinos et al. (2004) found that schizophrenia patients are more likely to report experiencing more overt discrimination and increased stigma than other patients (e.g., depression). Many studies also show that schizophrenia is more stigmatized compared to other diagnoses of mental disorders (Ben-Zeev et al., 2010; Durand-Zaleski et al., 2012; Hazell et al., 2022).

There were some limitations to the present study. First, the data are cross-sectional, lacking follow-up information for the sample. Previous research, utilizing longitudinal data, found that daily perceived discrimination was associated with a decline in general mental health and worsened symptoms of depression over time, after controlling for variables such as income and education (Schulz et al., 2005). Therefore, further incorporation of longitudinal data into future research on this topic is needed to better understand the mechanisms of the association between discrimination and stress, as well as to infer more comprehensive causal relationships.

Another limitation pertains to the potential biases associated with the self-reported data used in the current study to measure perceived stress and discrimination. The scales required

participants to recall their experiences and rate them, which may be susceptible to issues of forgetting, unreliable memory, and reliability bias and errors (Dohrenwend, 2006).

There were also strengths of the current study. First, we included patients of several severe mental illnesses, including depression, bipolar disorder, and schizophrenia, in the sample, instead of only focusing on specific psychological disorders. Next, the findings showed positive associations between discrimination and stress. Future studies can focus more on the causal relationship between stress and discrimination and how discrimination, as a stressor, leads to higher levels of stress through stigma. Patients with other severe psychological disorders (e.g., post-traumatic stress disorder) can also be included in the sample of further studies.

Conclusion

The present study expands contemporary understanding regarding experiences with discrimination and stress among individuals diagnosed with severe mental health conditions such as schizophrenia and mood disorders. We aim to shed light on the association between discrimination and stress and how this is impacted by other variables like gender and race. Understanding this connection is crucial for enhancing support systems and interventions for minority groups experiencing severe mental illness and heightened perceived discrimination. It also sheds light on exploring ways for individuals to better manage their mental health and prevent psychological disorders. Further research focusing on this topic can help us discover improved methods to aid those people facing serious mental health challenges exacerbated by stress and discrimination.

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