The Moderating Role of Ethnic Identity and Perceived Discrimination on Anxiety and Depression

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Abstract

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Key models of depression and anxiety across ethnic groups emphasize the role of ethnic identity (EI) as protective and perceived discrimination (PD) as a risk factor for psychopathology. Some research suggests EI may buffer, and other research suggests it may increase, the relation between PD, anxiety, and depression within minority samples. The current study examined the role of EI and PD on symptoms of depression/anxiety in African Americans, Latinx, and European Americans. We hypothesized: 1) Higher EI will predict lower depression and anxiety in African Americans and Latinx compared to European Americans; 2) Higher PD will predict higher depression and anxiety for African Americans and Latinx compared to European Americans; and 3) The relation between PD, anxiety, and depression will be moderated by EI in that high levels of ethnic identity will weaken the relations between PD, anxiety, and depression only for the minority groups. Participants (n= 331) were recruited from Amazon Mechanical Turk. EI predicted lower anxiety and depression in African Americans and PD predicted higher anxiety and depression across ethnic groups. EI moderated the relation between PD and anxiety for both African Americans and Latinx, but only predicted depression in African Americans. Future research should explore what variables contribute to EI increasing or buffering relations between discrimination and psychopathology with longitudinal methods to draw casual claims.

Introduction

In the United States, anxiety and depressive disorders are among the most prevalent of mental health disorders. As of 2015, anxiety disorders were reported to have a 33.7% lifetime prevalence rate and 18.4% of the United States population suffers from an anxiety disorder in a given year (Bandelow et al., 2015). Similarly, Major Depressive Disorder (MDD) is the leading cause of disability in the United States for those aged 15 to 44 (NIMH, 20149). Approximately 17% of individuals will suffer from major depression in their lifetime and 3-5% of the population suffers from MDD at any given time (NIMH, 2019).

Epidemiological studies have reported disproportionate prevalence rates across ethnic groups. Breslau, Kendler, Su, Gaxiola-Aguilar, and Kessler (2005) report members of disadvantaged ethnic groups do not have increased risk of psychopathology compared to White populations; however, they do report higher rates of persistent disorders. Asnaani, Richet, Dimaite, Hinton, and Hoffman (2010) partially support this finding, reporting Whites have the highest rates of anxiety disorders compared to minority groups. Specifically, Whites are the most likely to be diagnosed with generalized anxiety disorder, social anxiety disorder, and panic disorder compared to African Americans and Hispanic Americans. Further, in support of findings by Breslau and colleagues (2005), epidemiological studies have reported that African Americans and Hispanics have higher prevalence of persistent depressive disorder, feelings of sadness, hopelessness, and worthlessness compared to Whites (Dunlop et al., 2003; Riolo et al., 2005; CDC, 2016). Additionally, a 2016 report from the Centers for Disease Control indicated that African Americans were 10% more likely to report serious psychological distress compared to Whites (CDC, 2016).

The sources of these cultural differences in psychopathology prevalence rates, particularly within depression and anxiety, are not well understood. For example, researchers have suggested that errors in recall of symptoms, underreporting, measurement bias, and less knowledge of conceptualizations of mental health disorders contribute to cultural differences in reporting of prevalence rates (Breslau et al., 2005; Asnaani et al., 2010). Prior studies have suggested, given increased rates of discrimination and oppresion in ethnic and racial minorities groups, that risk for psychopathology may be more elevated than is currently reported (Soto et al., 2011; Stein et al., 2016).

In support of concerns about heightened risk for psychopathology among ethnic minorities, a meta-analysis by Pascoe and Richman (2009) concluded that perceived discrimination has a significant negative effect on both mental and physical health, produces heightened stress responses, and is related to increased participation in unhealthy behaviors and reduced participation in healthy behaviors across ethnic groups. Specifically, Pascoe and Richman propose a model in which discrimination impacts mental and physical health via three main pathways: 1) discrimination can directly impact physical health; 2) responses to discrimination, such as physiological or emotional responses, can impact health through heightened stress reactivity; and 3) heightened stress responses, from repeated instances of percieved discrimination, directly impact health. Specific to mental health outcomes, past research has found discrimination is linked to increased depression and anxiety in African American and Latinx immigrant populations (Hall & Ibaraki, 2016; Soto et al., 2011). Although research broadly supports a link between discrimination and poor mental health outcomes, it is still unclear how to mitigate the impacts of discrimination for minority populations.

Given concerns about risk for anxiety and depression for minority groups due to discrimination, prior researchers have explored potential protective factors. One such factor is ethnic identity, which refers to how individuals' sense of belongingness to a particular ethnic group affects their thoughts and behaviors reflective of that identity (Stein et al., 2016; Hall and Ibaraski, 2016; Smith and Sylva, 2011). A meta-analysis by Smith and Sylva (2011) concluded that ethnic identity has a modest relation to overall well-being for people of color. Specifically, across ethnic minority groups, high ethnic identity predicts positive psychosocial outcomes, reduction of internalizing symptoms, more positive adjustment, increased self-esteem, and higher motivation.

Few studies have explored the direct relations between ethnic identity, depression, and anxiety. Williams and colleagues (2012) found that ethnic identity in a college and community African American sample predicted reduced levels of depression and anxiety. Similarly, high ethnic identity, in combination with high levels of affirmation and belonging, predicted decreased depression and anxiety in Latino immigrant college students (Thibeault et al., 2017). Although this research suggests that ethnic identity impacts mental health for African American and Latinx populations, past research has found that ethnic identity is either not related to, or is not as strongly related to, psychopathology and psychosocial outcomes for White populations (Carter et al., 2005; Hall and Ibaraki, 2016). Therefore, it is possible that ethnic identity may be a unique resilience factor against the development of psychopathology for ethnic minorities. Along these lines, Hall and Ibaraki (2016) suggest that increasing ethnic identity may reduce psychopathology for people of color. However, current research on the direct relations between ethnic identity, anxiety, and depression for African American and Latinx populations is limited in quantity. Further research, using additional samples and methodologies, is needed.

In summary, prior literature suggests that a strong ethnic identity, particularly in African Americans, may be a protective factor that supports resilience and lower depression and anxiety (Williams et al., 2012; Hall & Ibaraki, 2016; Thibeault et al., 2017). When considering the mechanisms behind these relations between ethnic identity, discrimination, and psychopathology, it is theorized that a strong ethnic identity may prevent negative stereotypes from impacting and altering self-perceptions (Pascoe and Richman, 2009). In support, Stein and colleagues (2016) found, in a longitudinal study, that a positive ethnic identity buffered the relation between peer ethnic discrimination and depressive symptoms in African American and Latinx adolescents. Likewise, Sellers and colleagues (2003) found that strong ethnic identies in an African American adolescent sample buffered the impact of discrimination on psychological functioning. Further, Mossakowski (2003) found that ethnic identity was related to lower depression despite instances of discrimination in sample of Filipino Americans.

However, other literature suggests that high levels of ethnic identity predict higher levels of perceived discrimination due to increased awareness of discrimination (Hall & Ibaraki, 2016). For example, Noh and colleagues (1999) concluded the relation between ethnic identity and discrimination increased the relation between discrimination and depression in a sample of Southeast Asian refugees. Overall, literature on the joint effects of ethnic identity and discrimination on depression and anxiety is limited for African American and Latinx populations. Therefore, the current study contributes to the current literature by investigating the unique and combined effects of ethnic identity and experiences of discrimination on depression and anxiety for African American and Latinx samples.

I generated the following hypotheses:

1.) Higher ethnic identity will predict lower depression and anxiety in African American and Latinx samples compared to a European American sample.

2.) Higher discrimination will predict higher depression and anxiety for African American and Latinx samples compared to a European American sample

3) The relation between discrimination, anxiety, and depression will be moderated by ethnic identity for African American and Latinx samples. Specifically, high levels of ethnic identity will weaken the relations between discrimination, anxiety, and depression only for the minority groups.

Methods

Participants

331 participants (demographic information in Table 1) were recruited through Amazon.com's Mechanical Turk (MTurk), an online survey administration platform. Participants were quota-sampled to ensure an equal distribution of ethnicity, with recruitment for different groups stopped when the sample size (110) was met. For the purpose of this study, only individuals who identified as African American/Black, Hispanic, or White were included in the sample. Participants had to currently live in the United States to participate.

Ethnicity and residency were determined through a short screening questionnaire at the beginning of the survey. If participants identified as African American/Black, Hispanic, or White, and the quota for each group was not yet filled, they proceeded to the full survey. The final sample consisted of 111 Black/African American participants, 111 Hispanic/Latinx participants, and 109 White/European American participants. Participants were paid $3 for completing the survey. Three attention check questions were administered throughout the survey, but were not an exclusion for payment as prior research on data quality has suggested it

negatively impacts data quality (Anduiza and Galais 2016; Berinsky, Margolis, & Sances 2014). Specifically, screening out participants who fail attention checks may introduce a demographic bias, resulting in lower quality responses and inducing the Hawthorne effect (Vannette, 2016). In the current sample, 205 participants correctly answered all attention check questions, 94 participants incorrectly answered one attention check question, 26 participants incorrectly answered two questions, and six participants incorrectly answered all three questions. Approval was obtained from the relevant institutional review board for all aspects of this research.

Materials and Procedures

A survey was administered through Qualtrics and posted to MTurk titled, "Answer Surveys About Culture and Emotion". Surveys were posted in batches where nine participants could complete the survey within one batch. Any user of MTurk was able to enter the survey. Once entering the survey, participants were instructed to complete a short screening questionnaire, and then were instructed to complete the full survey if they were eligible. Following completion of the survey, participants were paid $3.

Measures

Demographic Information. Participants were asked to report gender, sexual orientation, age, primary language, education level, annual income, race, ethnicity, country of origin, and years living in the United States.

Depression. Depression was measured using the Beck Depression Inventory-II, a 21 item questionnaire assessing current depressive symptoms rated on a 4-point Likert-type scale ranging from 0 to 3 (Beck et al., 1996). The BDI-II has high construct validity (Sharp & Lipsky, 2002) and is positively correlated with the Hamilton Depression Rating Scale, $r = 0.71$ (Beck et al., 1996;Sharp & Lipsky, 2002). In the current sample, the internal consistency was $\alpha = .95$.

Anxiety. Anxiety was measured using the Mini-Mood and Anxiety Symptom Questionnaire (Mini-MASQ), a 26 item questionnaire assessing current anxiety and depression symptoms (Casilla & Clark, 2000). The measure uses a 5-point Likert scale from 0 (not at all) to 4 (extremely). Higher scores correspond with higher anxious and depressive symptoms. The scale was developed as a shortened adaptation of Watson and Clark's (1991) Mood and Anxiety Symptom Questionnaire. The Mini-MASQ has been tested in community African American samples and college samples and in prior studies has yielded high correlations with the MASQ and other validated shortened versions of the MASQ (Lin, Yung, Wigman, Killackey, Baksheev, & Wardeneer, 2014). In the current sample, the internal consistency was $\alpha = .95$.

Ethnic Identity. Ethnic identity was assessed using The Multigroup Ethnic Identity Measure-Revised (Phinney & Ong, 2007). The questionnaire begins with an open ended question asking participants to identify their ethnic group followed by 15 items assessing exploration and commitment to the self-identified ethnic group. The measure is scored on a Likert-scale from 1 (strongly disagree) to 4 (strongly agree). Past research, primarily in college student samples, indicates good reliability with α ranging from .81 to .89 for the overall scale (Phinney & Ong, 2007; Yoon, 2011). In the current sample, the internal consistency was strong, $\alpha = .91$.

Perceived Discrimination. To assess perceived discrimination, the Perceived Ethnic Discrimination Questionnaire-Community Version-Brief was utilized (Brondolo et al., 2005). The measure is a 17-item scale adapted from the Percieved Ethnic Discrimination Questionnaire developed by Contrada et al. (2001). Items are scored on a Likert-type scale ranging from 1 (never happened) to 5 (happened very often).The scale is reported to have good within-group and between-group variability in responses (Brondolo et al., 2005). In the current sample, the internal consistency was strong, $\alpha = .97$.

Results

Between-group comparisons of demographic variables

ANOVA was used to test for statistically significant differences in age, gender, education, and income between ethnic groups. Results indicated significant differences in gender, age, and education between ethnic groups (Table 1). Specifically, the European American and Latinx samples consisted of significantly more females compared to the African American sample. African American and Latinx participants were significantly younger than were White participants and African American participants were significantly more educated than were White participants. Thus, gender, age, and education were included in the below regression analyses to control for these differences.

Between group comparisons of study variables

ANOVA was used to test for statistically significant differences in measures of anxiety, depression, ethnic identity, and perceived discrimination between ethnic groups. Results indicated significant differences between ethnic groups (Table 1). Specifically, African American and Latinx participants reported higher levels of anxiety, ethnic identity, and percieved discrimination in comparison to European Americans. Further, Latinx participants reported higher levels of depression compared to European Americans but not African Americans.

Predicting anxious and depressive symptoms from ethnic identity

To test Hypothesis 1, a series of linear regression analyses were computed to predict depression and anxiety from ethnic identity for each ethnic group. Specifically, for each predicted variable (either depression or anxiety) and ethnic group (African American, Latinx, or European American), two models were computed. The first model explored the effect of control variables (education, age, gender, and number of incorrect attention check questions) on the

predicted variable, and the second model added the effect of ethnic identity on the predicted variable.

Regarding predictions for the African American sample (Table 2), the results indicated that ethnic identity significantly predicted depression, t (5,104) = -3.50, $p < .001$. Model 1, containing the control variables, explained 16% of variance, with education, β = 3.18, $p = .009$, and gender, β = 4.36, $p = .001$, significantly predicting depression. Adding ethnic identity in Model 2 explained an additional 8% of variance, β = -11.43, $p < .001$. The change in variance explained from Model 1 to Model 2 was significant, F (2, 105) = 12.21, $p < .001$.

Ethnic identity also predicted anxiety in the African American sample, t (5,104) = -3.25, $p < .001$. Model 1, containing control variables, explained 31% of variance, with age β = -9.17, $p = .001$, attention check, β = 5.71, $p = .006$, and education, β = 5.69, $p = .001$, and gender, β = 5.21, $p = .01$, predicted anxiety. Adding ethnic identity in Model 2 explained an additional 6% of variance, b = -0.75, $p = .001$. The change in variance explained from Model 1 to 2 was significant, F (2, 105) = 10.58, $p < .001$.

Ethnic identity did not significantly predict anxiety or depression in Latinx participants (Table 4). However, attention checks significantly predicted anxiety, β = 7.59, $p < .001$, and depression, β = 7.00 , $p < .001$ in Model 1. Further, ethnic identity did not significantly predict anxiety or depression in European American participants (Table 3). For European Americans, attention checks significantly predicted anxiety, b = 12.31, $p < .001$ and depression β = 7.00, $p < .001$ in Model 1.

Predicting anxious and depressive symptoms from perceived discrimination

To test Hypothesis 2, a similar series of linear regression analyses were computed to predict depression and anxiety from perceived ethnic discrimination for each ethnic group.

Specifically, for each predicted variable (either depression or anxiety) and ethnic group (African American, Latinx, or European American), two models were computed. The first model explored the effect of control variables (education, age, gender, and number of incorrect attention check questions) on the predicted variable, and the second model added the effect of perceived discrimination on the predicted variable.

Regarding predictions for the African American sample (Table 5), results indicated that discrimination significantly predicted depression in the African American sample, t (5,104) = 3.78, $p < .001$. Model 1, containing control variables, explained 16% of variance. Adding discrimination in Model 2 explained an additional 9% of variance, $\beta = 4.63$, $p < .001$. The change in variance explained from Model 1 to Model 2 was significant, F (2, 105) = 14.27, p <.001.

Perceived discrimination also predicted anxiety in the African American group, t (5,104) = -4.44, $p < .001$. Model 1, containing control variables, explained 31% of variance. Adding ethnic identity in Model 2 explained an additional 10% of variance, $\beta = 7.45$, $p < .001$. The change in variance explained from Model 1 to 2 was significant, F (2, 105) = 19.73, $p < .001$.

Percieved discrimination also predicted depression in the Latinx sample (Table 6), t (4,106) = 4.22, $p < .001$. Model 1, containing control variables, explained 11% of variance. Adding perceived discrimination in Model 2 explained an additional 12% of variance, $\beta = 5.12$, $p < .001$. The change in variance explained from Model 1 to Model 2 was significant F (2, 107) = 17.83, p <.001.

Perceived discrimination additionally predicted anxiety in the Latinx sample, t (4,106) = 7.98, $p < .001$. Model 1, containing control variables, explained 14% of variance. Adding perceived discrimination in Model 2 explained an additional 31% of variance, $\beta = 11.50$, p <

.001. The change in variance explained from Model 1 to Model 2 was significant, F (2, 107) = 63.72, p <.001.

Perceived discrimination also predicted depression in the European American sample (Table 7), t (5,103)= 5.83, p < .001. Model 1, containing control variables, explained 10% of variance. Adding perceived discrimination in Model 2 explained an additional 21% of variance, $\beta = 9.33$, $p < .001$. The change in variance explained from Model 1 to Model 2 was significant F (2, 104) = 34.04, p <.001.

Perceived discrimination additionally predicted anxiety in the European American sample, t (5,103) = 5.56, p < .001. Model 1, containing control variables, explained 16% of variance. Adding perceived discrimination in Model 2 explained an additional 18% of variance, $\beta = 13.11$, $p < .001$. The change in variance explained from Model 1 to Model 2 was significant F (2, 104) = 30.88, p <.001.

Predicting anxious and depressive symptoms from the interaction of discrimination and ethnic identity

To test Hypothesis 3, a series of linear regression analyses were computed to predict depression and anxiety from perceived discrimination, moderated by ethnic identity. Specifically, for each predicted variable (either depression or anxiety) and ethnic group (African American, Latinx, or European American), two models were computed. The first model explored the effect of control variables (education, age, gender, and number of incorrect attention check questions) on the predicted variable, and the second model added the interaction of perceived discrimination and ethnic identity on the predicted variable.

Regarding predictions for the African American sample (Table 8), results indicated that the interaction of perceived discrimination and ethnic identity significantly predicted depression

for African Americans t (7,102)= 2.53, p = .01. Figure 1 (and all following figures) represents the finding graphically the relation between discrimination (x-axis) and depression (y-axis) at 1 standard above the mean of ethnic identity, at the mean of ethnic identity, and 1 standard deviation below the mean of ethnic identity. The shaded areas represent the 95% confidence interval around each prediction line. Model 1, containing control variables, explained 16% of variance. Adding the interaction term in Model 2 explained an additional 22% of variance. The change in variance explained from Model 1 to Model 2 was significant, F (2, 105) = 13.61, p <.001.

The interaction of perceived discrimination and ethnic identity also predicted anxiety (Figure 2) for African Americans, t (7,102) = 3.63, p < .001. Model 1, containing control variables, explained 31% of variance. Adding the interaction term in Model 2 explained an additional 23% of variance. The change in variance explained from Model 1 to Model 2 was significant, F (2, 105) = 18.48, p < .001.

The interaction of perceived discrimination and ethnic identity additionally predicted anxiety in Latinx sample (Figure 2; Table 9), t (6,104) = 2.24, p = .01. Model 1, containing control variables, explained 14% of variance. Adding the interaction term in Model 2 explained an additional 35% of variance. The change in variance explained from Model 1 to Model 2 was significant, F (2, 107) = 25.97, p < .001.

Discussion

Ethnic Identity, Anxiety, and Depression

Partially supporting Hypothesis 1, the current study found higher ethnic identity predicted lower self-reports of anxiety and depression for African American but not Latinx or European American participants. Findings for the African American group align with Williams and

colleagues (2012) who found that ethnic identity predicted lower depression and anxiety for African Americans but not European Americans within a community and college sample. For African Americans, ethnic identity appears to serve as a protective factor against symptoms of anxiety and depression.

Findings for the Latinx group did not support Hypothesis 1, which predicted that ethnic identity also would predict anxiety and depression for Latinx individuals. These findings partially align with Thibeault and colleages (2017) who found ethnic identity mediated the relation between discrimination, anxiety, and depression in combination with high affirmation and belonging for Latino immigrants. Therefore, for Latinx samples, it is possible the relation between ethnic identity and psychopathology is not direct and other variables contribute to the relation that were not measured in the current study. No relations were found for the European American sample, supporting Hypothesis 1. These results align with prior research concluding that there is no relation between ethnic identity and psychopathology for European American samples, and prior theory that European Americans are less impacted by the role of ethnic identity (Gallagher, 2003; McDermott and Samson, 2005; Thibeault et al., 2017; Williams et al.,2012). Specifically, prior theorists have suggested ethnic identity develops unconsciously for European Americans because societal norms (i.e. “white as default”) align European American culture with generic American culture (Chaves and Guido-DiBritto, 1999). Therefore, ethnic identity would not be considered influential in psychopathology for European Americans.

Perceived Discrimination, Anxiety, and Depression

Results indicated that perceived discrimination predicted anxiety and depression for all ethnic groups in the sample thus partially supporting Hypothesis 2. These results are consistent with prior studies that report perceived ethnic discrimination predicts various psychological

outcomes across ethnic groups (Pascoe and Richman, 2009). However, these findings do not support the hypothesis that there would not be a relation for European Americans. Past research suggests that minority populations often experience ethnic discrimination at higher rates than do European Americans (Lee, Perez, Boykin, & Mendoza-Denton, 2019). Soto and colleagues (2011) found that discrimination did not increase the risk of developing generalized anxiety disorder in a European American sample. Thus, it was predicted that the relation would not be significant for this group. However, considering literature on the impacts of discrimination on health, despite lower instances of perceived discrimination, it is justified that any perceptions of ethnic discrimination would be impactful across ethnic groups. Therefore, the study supports a long history of research suggesting the negative impact of discrimination on mental health outcomes.

Interaction of Ethnic Identity and Discrimination on Anxiety and Depression

The current study found that the interaction of ethnic identity and discrimination predicted depression and anxiety for African Americans but only anxiety for Latinx groups. The interaction predicted neither depression nor anxiety for European Americans. Specifically, as shown in Figures 1-3, the relations between discrimination and anxiety, and discrimination and depression, were stronger for both African Americans and Latinx with higher ethnic identity, while the relations between discrimination and psychopathology were not as strong for those with lower ethnic identity. For African Americans and Latinx with low ethnic identity, higher perceptions of discrimination appear to have no meaningful relations with psychopathology.

These findings suggest that higher ethnic identity in the minority groups sampled predicts more psychological impact from experiences of discrimination. This supports Hall and Ibaraki (2016) who suggested that increased ethnic identity results in higher awareness of

instances of discrimination. In support of Pascoe and Richman's (2009) model of the perceived discrimination-health relationship, increased recognition of perceived discrimination would increase stress responses and ultimately impact psychological health. In other words, as ethnic identity increases, experiences of discrimination become more salient, and their impact on health increases.

These findings, however, contradict other research suggesting that ethnic identity serves as a buffer to the relation between discrimination and mental health. Specifically, past researchers have found that within African American and Latinx populations, a strong identity can weaken the relation between discrimination, anxiety, and depression (Mossakowski, 2003; Sellers et al., 2003; Stein et al., 2016). However, past studies have used adolescent samples, where this study utilized adults over the age of 18, thus it is possible that the buffering effect of ethnic identity may only occur earlier in development.

The findings further suggest, for both the African American and Latinx group, low ethnic identity weakens the relation between discrimination and anxiety. In addition, for the African American group, low ethnic identity weakens the relation between discrimination and depression. Given various literature reporting the importance of a strong ethnic identity, particularly within African American communities, this should not be interpreted as suggesting that low ethnic identity serves as a protective factor against discrimination. Rather, it may suggest that those with low ethnic identity are likely more oblivious to discrimination. Specifically, if an individual does not have a good understanding of the values, traditions, and culture of their ethnic group, they are unlikely to recognize discrimination against their ethnic group.

Limitations

The current study utilized a cross-sectional survey and as such we can only speak of associations, not causal relations. Thus, while ethnic identity predicts lower depression and anxiety in African Americans within the current study, these results cannot conclude high ethnic identity causes lower anxiety and depression. It may be possible, for example, that depression may causally lower one's sense of ethnic identity. However, prior longitudinal studies in adolescent samples have suggested the relation is not bidirectional (Sellers et al., 2003; Stein et al., 2016).

Further, given the cross-sectional design, variables other than those of current interest may contribute to the current findings. For example, past literature has suggested measures of personality may contribute to levels of ethnic identity and discrimination. Specifically, Watson and Clark (1984) suggests individuals higher in negative emotionality are more likely to be depressed. Therefore, it is possible that those with high negative emotionality are more likely to percieve more discrimination, have lower ethnic identity, and therefore be more anxious and depressed.

In this study, across ethnic groups, various demographic variables were significant predictors of outcome variables and thus were incorporated as control variables. Given the complexity of factors that influence anxiety and depression, it is not surprising that several demographic variables were significant predictors in the current study. Given that the current study specifically sought to explore the role of ethnic identity and discrimination in predicting anxiety and depression above and beyond these other variables, it beyond the scope to fully interpret these additional significant findings.

Further, the current study utilized self-report measures to assess target variables. Thus, participant insight into symptoms may not be as accurate compared to objective measures.

Although the measures used were validated across the ethnic groups selected, past research has suggested that several standardized measures may not produce results as reliably in ethnic minority samples compared to European American samples.

The current study utilized a sample recruited from Mturk, an online survey platform. Although past research has suggested Mturk as a good method of recruiting diverse samples, using online survey administration has the potential to bias the sample. Specifically, individuals who create, and can navigate, accounts for online survey platforms for pay and have access to the technology to do so, may not be representative of the broader community. Therefore, it is not clear how current results generalize to community samples recruited offline.

Conclusions and Future Directions

In conclusion, consistent with prior literature, the current study found that ethnic identity protects against symptoms of anxiety and depression for African Americans (Hall & Ibaraki, 2016; Smith & Sylva, 2011; Williams et al., 2012). Further, discrimination predicts increased symptoms of anxiety and depression across ethnic groups, including European Americans. Importantly, the study suggests that although ethnic identity may be protective for African Americans, it may result in ethnic discrimination becoming more salient, thus increasing symptoms of anxiety and depression in African American and Latinx samples. Therefore, future studies should explore factors that contribute to the relation between ethnic identity and discrimination within these communities. Specifically, given the current study was cross-sectional, longitudinal designs using adult populations, would identify casual relations between ethnic identity, perceived discrimination, and psychopathology.

Further, given that findings were not consistent between the minority (i.e. African American and Latinx) samples in the current study, future research should explore each group

separately to better understand the relation between ethnic identity, discrimination, anxiety, and depression uniquely within each ethnic group. Finally, given the current findings support prior research that ethnic identity increases the relation between discrimination and psychopathology, and contradicts other research suggesting a buffering effect, future studies should aim to explore what variables contribute to whether ethnic identity increases or buffers the relation. Specifically, past research concluding a buffering effect was within adolescent populations, therefore future research should explore how development influences the relation.

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Table 1
Participant Characteristics

	Group		
Variable	African American	European American	Latinx
Age			
M	2.03	2.51	2.23
SD	0.62	0.94	0.76
Education			
M	4.77	4.33	4.55
SD	1.02	1.33	1.35
Gender			
N (Female)	51	46	62
N (Male)	49	63	46
N (Non-binary)	0	0	1
N (Transgender FTM)	0	8	0
N (Transgender MTF)	0	2	2
Income			
M	5.47	5.02	5.55
SD	2.49	2.63	2.61
Attention Check			
M	0.55	0.32	0.60
SD	0.79	0.57	0.74
Ethnic Identity			
M	48.74	45.09	47.90
SD	7.29	6.54	6.69
Perceived Discrimination			
M	2.46	1.40	2.36
SD	1.09	0.69	1.12
Anxiety			
M	59.52	52.70	62.94
SD	21.03	17.10	22.04
Depression			
M	35.87	32.51	37.31
SD	13.54	11.35	15.59

Notes. Age: 1= Under 25. 2= 25-35. 3 = 36=45, 4 = 46-55, 5 = 56+ ;
Income: 1 = Less than 10,000, 2 = 10,000-19,999, 3= 20,000-29,9999, 4 = 30,000-39,9999, 5= 40,000-49,999, 6= 50,000-59,999, 7= 60,000- 69,9999, 8= 70,000-79,999, 9= 80,000-89,999, 10= 90,000-99,000, 11= 100,000-149,999, 12= More than 150,000 ;
Education: 1= primary education, 2= high school or equivalent, 3= vocational or technical school, 4= some college, 5= Bachelor's degree, 6= Master's degree, 7= Doctoral degree, 8= professional degree, 9= Other

Table 2

Regression Analyses Predicting Depression and Anxiety from Ethnic Identity for AAs

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-19.60	10.58	[-40.65, 1.33]	0.66
Age	-9.17	2.85	[-14.82, -3.52]	.00
Attention Check	5.71	2.57	[1.30,10.11]	.01
Education	5.69	3.38	[2.34, 9.02]	.00
Gender	5.21	2.80	[1.52,8.90]	.01
Model 2				
Eth Identity	-0.75	0.23	[-1.21, -0.29]	.00
Depression				
Model 1				
(Intercept)	-14.39	7.55	[-29.36, 0.58]	.06
Age	-3.66	2.03	[-7.69,0.36]	.07
Attention Check	-0.61	1.58	[-3.75, 2.53]	.70
Education	3.18	1.20	[0.79, 5.56]	.01
Gender	4.36	1.33	[1.72, 6.99]	.00
Model 2				
Eth Identity	-11.43	7.22	[-0.89, -0.25]	<.00

Table 3

Regression Analyses Predicting Depression and Anxiety from Ethnic Identity for EA

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-7.99	7.32	[-22.51, 6.51]	.28
Age	-0.63	1.70	[-3.98, 2.73]	.71
Attention Check	12.31	2.63	[7.09, 17.53]	<.00
Education	0.79	1.14	[-1.47, 3.06]	.49
Gender	-2.49	3.20	[-8.83, 3.86]	.44
Model 2				
Eth Identity	-0.18	0.23	[-0.65, 0.28]	.23
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	.43
Gender	0.57	2.19	[-3.79,4.92]	.80
Model 2				
Eth Identity	-8.99	7.44	[-0.65, 0.28]	.23

Table 4

Regression Analyses Predicting Depression and Anxiety from Ethnic Identity for Latinx

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-0.40	5.58	[-11.47, 10.67]	0.94
Age	0.46	1.85	[-3.21,4.12]	0.80
Attention Check	7.59	1.90	[3.82, 11.35]	<.00
Gender	-2.08	2.00	[-6.06, 1.90]	0.30
Model 2				
Eth Identity	-0.04	0.29	[-0.62, 0.55]	0.91
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	0.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	0.43
Gender	0.57	2.19	[-3.79,4.92]	0.80
Model 2				
Eth Identity	-0.58	5.64	[-0.48, 0.36]	0.92

Table 5

Regression Analyses Predicting Depression and Anxiety from Discrimination for AA

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-19.60	10.58	[-40.65, 1.33]	.66
Age	-9.17	2.85	[-14.82, -3.52]	.01
Attention Check	5.71	2.57	[1.30,10.11]	.01
Education	5.69	3.38	[2.34, 9.02]	.00
Gender	5.21	2.80	[1.52,8.90]	.01
Model 2				
Discrimination	7.45	1.68	[4.13, 10.79]	<.00
Depression				
Model 1				
(Intercept)	-14.39	7.55	[-29.36, 0.58]	.06
Age	-3.66	2.03	[-7.69,0.36]	.07
Attention Check	-0.61	1.58	[-3.75, 2.53]	.70
Education	3.18	1.20	[0.79, 5.56]	.01
Gender	4.36	1.33	[1.72, 6.99]	.00
Model 2				
Discrimination	4.63	1.22	[2.20, 7.05]	<.00

Table 6

Regression Analyses Predicting Depression and Anxiety from Discrimination for EA

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-7.99	7.32	[-22.51, 6.51]	.28
Age	-0.63	1.70	[-3.98, 2.73]	.71
Attention Check	12.31	2.63	[7.09, 17.53]	<.00
Education	0.79	1.14	[-1.47, 3.06]	.49
Gender	-2.49	3.20	[-8.83, 3.86]	.44
Model 2				
Discrimination	13.11	2.36	[8.43, 17.79]	<.00
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	.43
Gender	0.57	2.19	[-3.79,4.92]	.80
Model 2				
Discrimination	9.33	1.69	[6.16,12.50]	<.00

Table 7

Regression Analyses Predicting Depression and Anxiety from Discrimination for Latinx

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-0.40	5.58	[-11.47, 10.67]	.94
Age	0.46	1.85	[-3.21,4.12]	.80
Attention Check	7.59	1.90	[3.82, 11.35]	<.00
Gender	-2.08	2.00	[-6.06, 1.90]	.30
Model 2				
Discrimination	11.50	1.44	[8.64,14.35]	<.00
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	.43
Gender	0.57	2.19	[-3.79,4.92]	.80
Model 2				
Discrimination	5.12	5.19	[2.72, 7.53]	<.00

Table 8

Regression Analyses Predicting Depression and Anxiety from the Interaction of Ethnic Identity and Discrimination for AA

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-19.60	10.58	[-40.65, 1.33]	0.66
Age	-9.17	2.85	[-14.82, -3.52]	.00
Attention Check	5.71	2.57	[1.30,10.11]	.01
Education	5.69	3.38	[2.34, 9.02]	.00
Gender	5.21	2.80	[1.52,8.90]	.01
Model 2				
Eth Identity * Discrimination	0.58	0.16	[0.27,0.91]	<.00
Depression				
Model 1				
(Intercept)	-14.39	7.55	[-29.36, 0.58]	.06
Age	-3.66	2.03	[-7.69,0.36]	.07
Attention Check	-0.61	1.58	[-3.75, 2.53]	.70
Education	3.18	1.20	[0.79, 5.56]	.01
Gender	4.36	1.33	[1.72, 6.99]	.00
Model 2				
Eth Identity* Discrimination	0.31	0.12	[0.07, 0.55]	.01

Table 9

Regression Analyses Predicting Depression and Anxiety from the Interaction of Ethnic Identity and Discrimination for EA

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-7.99	7.32	[-22.51, 6.51]	.28
Age	-0.63	1.70	[-3.98, 2.73]	.71
Attention Check	12.31	2.63	[7.09, 17.53]	<.00
Education	0.79	1.14	[-1.47, 3.06]	.49
Gender	-2.49	3.20	[-8.83, 3.86]	.44
Model 2				
Eth Identity * Discrimination	-0.03	0.31	[-0.64, 0.58]	.93
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	.43
Gender	0.57	2.19	[-3.79,4.92]	.80
Model 2				
Eth Identity* Discrimination	-0.19	0.21	[-0.61, 0.22]	.35

Table 10

Regression Analyses Predicting Depression and Anxiety from the Interaction of Ethnic Identity and Discrimination for Latinx

DV and Predictors	β	SE	95%CI [LL,UL]	p-value
Anxiety				
Model 1				
(Intercept)	-0.40	5.58	[-11.47, 10.67]	.94
Age	0.46	1.85	[-3.21,4.12]	.80
Attention Check	7.59	1.90	[3.82, 11.35]	<.00
Gender	-2.08	2.00	[-6.06, 1.90]	.30
Model 2				
Eth Identity * Discrimination	0.52	0.23	[0.06, 0.98]	.02
Depression				
Model 1				
(Intercept)	-9.79	5.02	[-19.74, 0.17]	.05
Age	0.52	1.16	[-1.79,2.82]	.65
Attention Check	7.00	1.80	[3.40,10.57]	<.00
Education	0.62	0.78	[-0.93,2.17]	.43
Gender	0.57	2.19	[-3.79,4.92]	.80
Model 2				
Eth Identity* Discrimination	0.22	0.20	[-0.18, 0.62]	.28

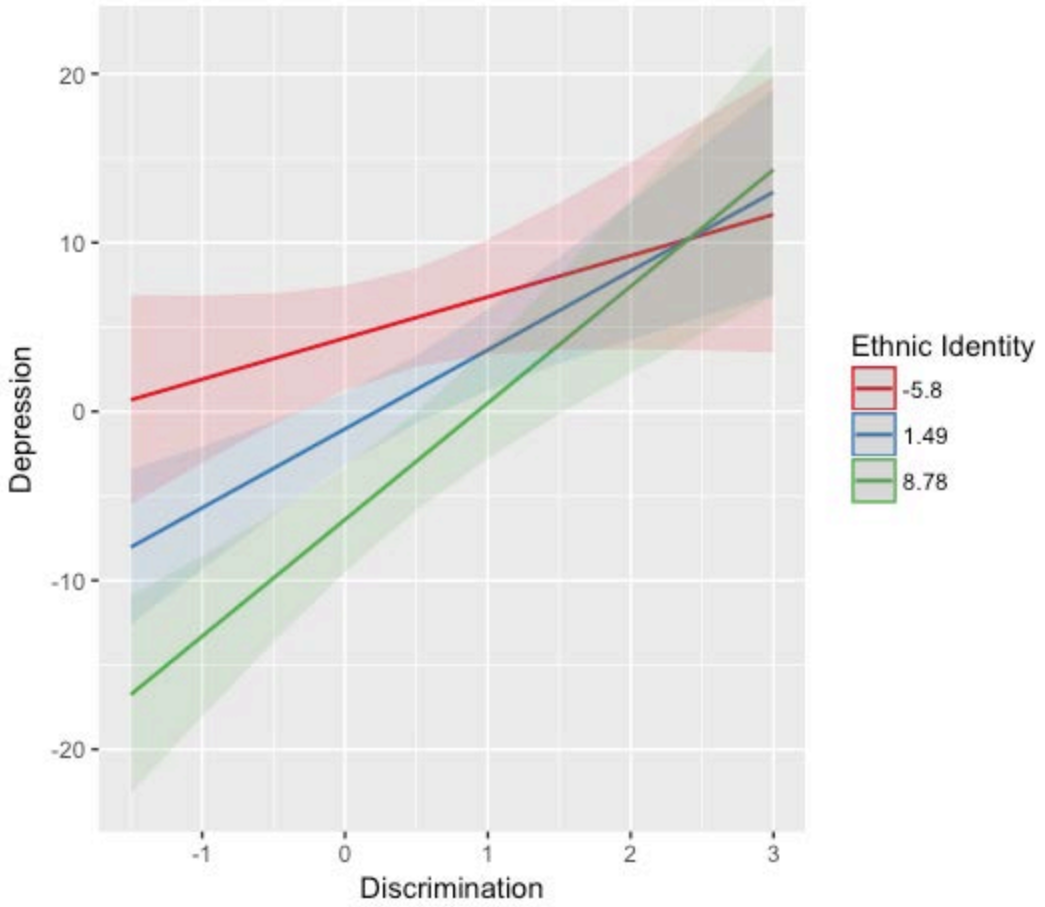

Figure 1. The interaction of discrimination and ethnic identity on depression for African Americans.

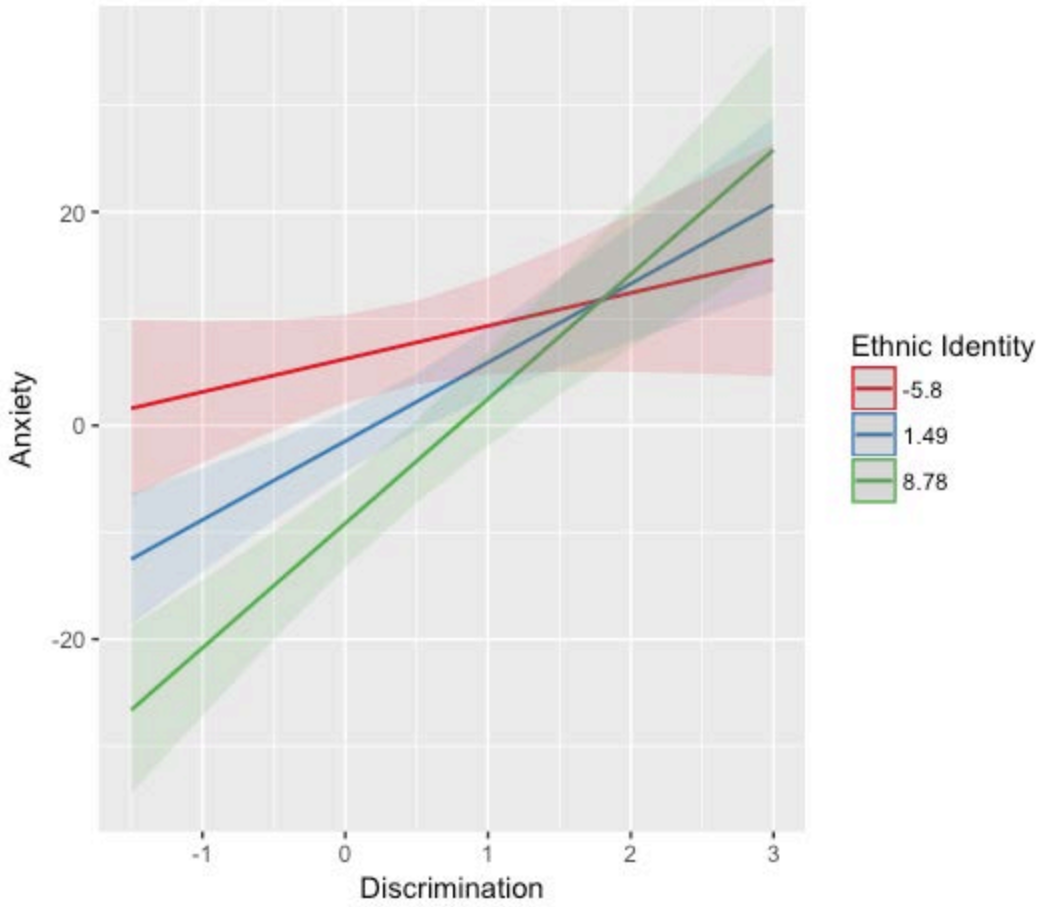

Figure 2. The interaction of discrimination and ethnic identity on anxiety for African Americans.

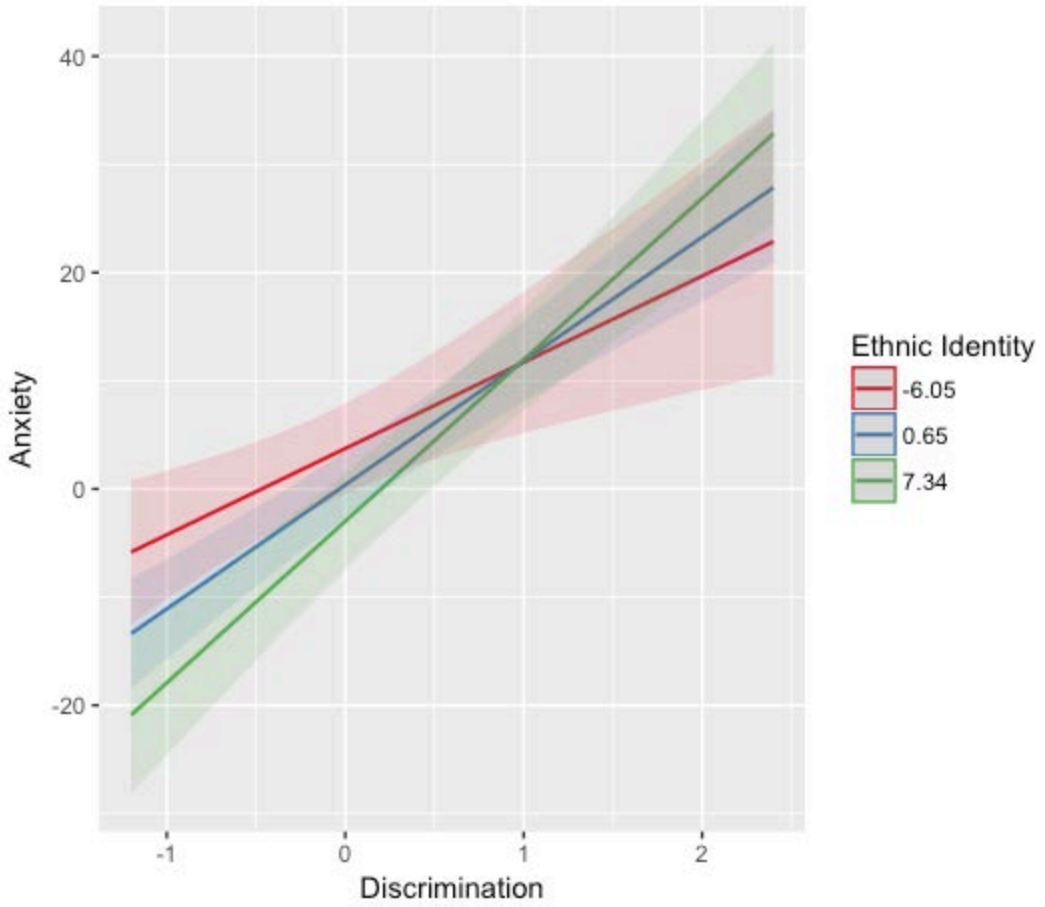

Figure 3. The interaction of discrimination and ethnic identity on anxiety for Latinx.