

THE EMOTIONAL RESIDUE OF STIGMA SENSITIVITY:
IMPLICATIONS FOR DEPRESSIVE SYMPTOMS IN ASIAN AMERICAN YOUTH

A Thesis

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by

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ABSTRACT

Drawing on the racial discrimination and emotion literatures, this study examined the association between stigma sensitivity (the extent to which one anticipates being stereotyped or discriminated against based on race) and emotional inertia (the degree to which one's affect is resistant to change over time), and how each contributed to depressive symptoms. First-year Asian American undergraduate students ($N = 152$) completed a baseline questionnaire that included measures of race-based stigma consciousness and depressive symptoms as well as daily diary reports of their affect. Multilevel analysis showed that higher levels of stigma sensitivity were associated with greater inertia of negative affect. Regression analysis showed that stigma sensitivity and emotional inertia each independently predicted depressive symptoms, such that individuals who expected more discrimination, and those who experienced more carryover of negative affect from one day to the next, reported more depressive symptoms. These results demonstrate the importance of studying the unique roles of stigma sensitivity and emotional inertia in depression among Asian American youth.

Keywords: racial discrimination, stigma sensitivity, emotional inertia, depressive symptoms, Asian American

BIOGRAPHICAL SKETCH

Emily O. Miller studied Spanish and psychology as an undergraduate at the University of Rochester. Upon completing her bachelor's degree, she spent an academic year at the Universidad Nacional de Río Cuarto in Argentina on a Fulbright English Teaching Assistantship. She returned to the United States to study for a master's degree in Bilingual/ Bicultural Childhood Education at Teachers College, Columbia University. Emily taught elementary school for ten years, first in a dual-language second-grade classroom in Sunset Park, Brooklyn and then in a fourth-grade classroom in Ithaca, New York. As she was exploring a possible career change, the one-year master's program in Human Development at Cornell University provided her with the opportunity to determine if academia was right for her. The positive experiences she has had learning from the faculty and her fellow students both in Human Development and the wider Cornell community have motivated Emily to continue studying for her PhD in Educational Policy Studies at the University of Wisconsin - Madison.

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INTRODUCTION

Nationwide surveys indicate that depression is common among college students in the United States: in one study 17.3% met the criteria for depression on the Patient Health Questionnaire - 9 (Eisenberg, Hunt, & Speer, 2013), and in another study 26% met the criteria for dysphoria on the Beck Depression Inventory - II (Whisman & Richardson, 2015). Also concerning are the racial and ethnic disparities in mental health, as White students report significantly fewer depressive symptoms than students of Color (Eisenberg et al., 2013; Whisman & Richardson, 2015). Comparisons of European American and Asian American undergraduates have consistently found that Asian Americans score higher on measures of depressive symptoms (Okazaki, 2000; Young, Fang, & Zisook, 2010). Given the high prevalence of depressive symptoms among Asian American college students, it is important to understand the factors that may be putting this population at risk. Research in the field of racial discrimination shows that greater sensitivity to one's stigmatized status is associated with poor mental health outcomes (Guzman, Goto, & Wei, 2016). Research in the field of emotion demonstrates the link between affective inertia and depressive symptoms (Houben, Van den Noortgate, & Kuppens, 2015). This study draws on the findings of these two fields to explore how stigma sensitivity and emotional inertia contribute to depressive symptoms among Asian American college students.

Stigma Sensitivity and Mental Health

Two measures of stigma sensitivity are the Stigma Consciousness Questionnaire (SCQ; Pinel, 1999) and the Race-Based/ Status-Based Rejection Sensitivity Questionnaires (RSQ;

Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002; Chan & Mendoza-Denton, 2008).

The SCQ measures “the extent to which targets expect to be stereotyped or discriminated against” (Pinel, 1999, p. 114) and the RSQ assesses “individual differences in anxious expectations of race-based rejection” (Mendoza-Denton et al., 2002, p. 899). In a study of African American and Asian American undergraduates, Guzman and colleagues (2016) examined the impact of different measures of stigma sensitivity on mental health outcomes. The authors found that both the SCQ and the RSQ (Race-Based for African American participants, Status-Based for Asian American participants) were positively associated with indicators of poor mental health. These results suggest convergent validity between the two measures of stigma sensitivity. In addition to its association with increased symptoms of poor mental health in general, stigma sensitivity has been linked to depressive symptoms specifically. In a study of Asian American undergraduates, Chan and Mendoza-Denton (2008) found that students who scored higher on the Status-Based RSQ also scored higher on the Beck Depression Inventory.

While race-based stigma sensitivity is the extent to which one expects prejudice and discrimination, the related concept of racism-related vigilance is the degree to which one experiences anticipatory stress about future discrimination. D.R. Williams developed the Racism-Related Vigilance Scale to capture the “anticipatory strategies/ psychological predispositions used to negotiate everyday perceptions of inter-ethnic group racism” (first published in Clark, Benkert, & Flack, 2006, p. 564). Researchers have consistently found an association between racism-related vigilance and depressive symptoms in both college and community samples (Hill & Hoggard, 2018; Himmelstein, Young, Sanchez, & Jackson, 2015; LaVeist, Thorpe, Pierre, Mance, & Williams, 2014; Watson-Singleton, Hill, & Case, 2019).

There is some evidence that perseverative thoughts mediate the relationship between both stigma sensitivity and racism-related vigilance, and poor mental health outcomes. In a study of African American college students, the relationship between race-based rejection sensitivity and negative affect was found to be partially mediated through intrusive thoughts (Henson, Derlega, Pearson, Ferrer, & Holmes, 2013). Participants who were more sensitive to stigma were more likely to report that they involuntarily remembered a recent racist incident, and in turn experienced more feelings of anxiety, depression and hostility (Race-Based RSQ scores also had a significant direct effect on negative affect in the mediational model). Hill and Hoggard (2018) found that the effect of racism-related vigilance on depression was mediated through rumination. African American women college students who scored higher on the Racism-Related Vigilance Scale also scored higher on the Ruminative Responses Scale and those who scored higher on the Ruminative Responses Scale also scored higher on the Center for Epidemiologic Studies Depression Scale (CES-D). It may be that stigma sensitivity is an indicator of perseverative thoughts about racism. Given the well-established association between rumination and depression (Aldao, Nolen-Hoeksema, & Schweizer, 2010), it may be that the relationship between stigma sensitivity and depressive symptoms is explained, at least in part, by a focus on and repetitive thoughts about racial discrimination.

Emotional Inertia and Mental Health

Over the last two decades, there has been a growing body of work on the dynamic nature of emotions and the relationship between different patterns of change over time and mental health (Kuppens, 2015). Three of the most studied types of affect dynamics are variability (the range of an individual's emotional ratings over time, operationalized as the standard deviation of

these ratings), instability (the magnitude of emotional change from one time point to the next, operationalized as the mean squared successive difference, MSSD), and inertia (the degree to which emotions carryover from one point in time to the next, operationalized as the autocorrelation between ratings at successive time points). In a recent meta-analysis, Houben and colleagues (2015) found that overall, high levels of variability, instability and inertia were associated with a variety of poor mental health outcomes. The effect sizes did not vary significantly by the interval between measurements or the method of data collection (e.g. seconds in coding behaviors in laboratory studies, hours when using self-reports on mobile devices in experience sampling methods, or days when using paper or computer self-reports in diary studies). The authors also found that the effects of negative affect dynamics on psychological well-being were stronger than the effects of the positive affect dynamics. As patterns of emotional change over time are an indication of affective regulation, it is not surprising that these patterns are associated with mental health.

In studies of depressive symptoms, there has been particular interest in emotional inertia because psychological inflexibility is characteristic of depression (American Psychiatric Association [APA], 2013). Significant differences in the extent to which emotions are resistant to change over time have been found between those who meet the diagnostic criteria for depression and those who do not, with depressed adolescents exhibiting greater emotional inertia (Kuppens, Allen, & Sheeber, 2010). In addition to being a symptom of depression, there is evidence that emotional inertia is also a risk factor for developing depression in the future. Kuppens and colleagues (2012) found that affect inertia at time one predicted depression status two and a half years later, above and beyond depressive symptoms and mean level of affect at time one.

Despite the theoretical and empirical links between depression and emotional inertia, there have been some contradictory findings when examining different affect dynamic patterns in the same study. For example, Thompson and colleagues (2012) found that the instability of negative affect was more characteristic of adults with major depressive disorder (MDD) than was the inertia of negative affect. However, Koval, Pe, Meers, and Kuppens (2013) found that variability and inertia of negative affect were independently associated with depressive symptoms, but instability was not. These divergent findings and the relationships between different dynamic patterns (e.g. high instability implies high variability and low inertia), suggest the need to adjust for both mean level and variability of affect when examining the relationship between emotional inertia and depressive symptoms (Dejonckheere et al., 2019).

Purpose of the Current Study

This study aims to extend work in the fields of racial discrimination and emotion dynamics by exploring the associations between stigma sensitivity, negative affect inertia, and depressive symptoms. Though few studies of stigma sensitivity have examined affective change over time, Mendoza-Denton and colleagues' (2012) research suggests that those who expect more discrimination may have emotions that are resistant to change. The authors found that students who scored higher on the Race-Based RSQ did not experience an increase in their feelings of well-being over the first three weeks at college, while those who scored lower on the measure did. Research in the field of emotion dynamics provides a framework for studying stigma sensitivity and emotional inertia. Given that stigma sensitivity may indicate perseverative thoughts about racism, studies that explore the relationships between rumination, emotional inertia, and depressive symptoms may be illustrative (Brose, Schmiedek, Koval, & Kuppens,

2015; Koval, Kuppens, Allen, & Sheeber, 2012). Koval and colleagues (2012) found that those who scored higher on the Ruminative Response Scale experienced greater inertia of various negative emotions, and that both rumination and affect inertia independently predicted depressive symptoms. Consistent with these findings, the present study has two hypotheses. Hypothesis 1 is that stigma sensitivity and negative affect inertia will be positively associated, such that individuals who score higher on the Race-Based Stigma Consciousness Questionnaire will experience greater carryover of negative emotions from one day to the next. Hypothesis 2 is that both stigma consciousness and emotional inertia will have an independent effect on depressive symptoms, over and above the mean level and variability of negative affect. By examining the lingering emotional effects of stigma sensitivity, as well as, the unique contributions of stigma sensitivity and emotional inertia to depressive symptoms, this study contributes to a better understanding of the high rates of depression among Asian American youth.

METHODS

Participants

The data used in this study are part of a larger research project on the experiences, beliefs, and physical and psychological well-being of Asian American undergraduates at a predominantly White university in the Northeast (Ong, Burrow, Fuller-Rowell, Ja, & Sue, 2013; Ong, Cerrada, Lee, & Williams, 2017). One hundred fifty-two first-year students (87 males, 65 females) participated in the 14-day diary study. Participants ranged in age from 16 to 20 years, with an average age of 18.14 ($SD = 0.55$). The students self-identified as Chinese American (89, 58.5%), Asian Indian (20, 13.2%), Taiwanese (12, 7.9%), Korean (9, 5.95%), Vietnamese (8, 5.3%), Filipino (6, 3.9%), Japanese (5, 3.3%), Cambodian (1, 0.7%), Hmong (1, 0.7%), and Malaysian (1, 0.7%). Most participants (56.6%) were born in the United States to parents who were born elsewhere (second generation). Some students (28.3%) were born in Asia and came to the U.S. as children (1.5 generation) and others (8.6%) were born in Asia and came to the U.S. as adults (first generation). The rest of the participants (6.5%) identified as third through fifth generations or did not know enough about their family's history determine their generational status. The median range of self-reported family income was \$75,000 to \$99,999.

Procedure

First-year Asian American students were recruited to participate in a study about their identity and daily experiences. During the consent process, participants were informed that all data would be collected via a secure Internet website and that they could earn up to \$40 for their participation (\$2 for each day, and a \$12 bonus for completing all surveys). Following the

consent process, participants were contacted via email first with a link to the baseline questionnaire and then each day for 14 consecutive days with a reminder to complete the daily diary measures. The baseline survey included demographic questions, the stigma consciousness and depressive symptoms measures, as well as, other background information. Among the components of the daily diary was a measure of participants' emotions. To ensure that responses reflected individuals' affect for the day overall, the diary questionnaires were only accessible between 7:00 pm and 12 midnight.

Measures

Stigma consciousness. Participants' awareness of stereotypes about Asian Americans was assessed at baseline using a modified version of the Stigma Consciousness Questionnaire (SCQ; Pinel, 1999). The 10-item measure included statements such as: "Stereotypes about Asians have not affected me personally;" and "Most Caucasians have a lot more racist thoughts than they actually express." Individuals rated the extent to which they either agreed or disagreed with each statement using a Likert-type scale with a range of 1 (*strongly disagree*) to 7 (*strongly agree*). Items were reverse-coded as needed and averaged to produce a composite stigma consciousness score. Scores can range from 1 to 7 and higher scores indicate greater stigma sensitivity. The measure showed high internal consistency ($\alpha = .89$).

Negative affect: level, variability, and inertia. As part of the diary questionnaire, participants rated their daily negative affect (NA). They indicated the degree to which they experienced the following emotions: *sadness, anger, irritation, disgust, and hostility*, on a five-point scale (1 = *not at all*, 5 = *a great deal*). A composite measure of negative affect was calculated by averaging the scores for the five emotions for each participant each day. To

determine each individual's level of negative affect, the within-person mean across days was calculated. Consistent with previous research on emotion dynamics, negative affect variability was operationalized as the standard deviation of each participant's ratings across days (Houben et al., 2015). As emotional inertia is the degree to which one's affect carries over from point in time to the next, the autocorrelation between negative affect scores with a lag of one day was calculated (Houben et al., 2015). Although the hypotheses involved predictions about composite negative affect, the mean, standard deviation, and autocorrelation of each of the five individual emotions were also calculated for exploratory purposes.

Depressive symptoms. Participants completed the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) as part of the baseline questionnaire. They indicated how often they had experienced 20 depressive symptoms during the previous week on a scale ranging from 0 (*Rarely or None of the time*) to 3 (*Most of All of the time*). Items included: "I was bothered by things that usually don't bother me;" and "I enjoyed life." Items were reverse-coded as needed and summed such that higher scores indicate higher levels of depressive symptoms. Scores can range from 0 to 60, and scores of 16 or higher signal mild to moderate levels of depressive symptoms (Radloff, 1991). The measure showed high internal consistency ($\alpha = .86$).

Analytic Strategy

Part 1: Multilevel Modeling

Consistent with other studies of emotional inertia (e.g., Koval et al., 2012; Suls, Green, & Hillis, 1998), these data were analyzed using multilevel modeling (MLM) because it allows for the nested structure of data containing repeated measures (Bryk & Raudenbush, 1992). In the present study, measures of daily negative affect were nested within individuals. For composite

negative affect, as well as each emotion, there were 2,128 possible data points (152 participants across 14 days); however, an advantage of MLM is that individuals who have missing data (i.e. who did not complete all questions on all of the daily diaries) can still be included in the analysis. The total number of data points for composite negative affect was 1,925 (for individual emotions the range was from 1,608 for *hostility* to 1,937 for *anger*). In addition, MLM allows for precision weighting, meaning that more reliable units of observation contribute more to the estimation of parameters than less reliable units (for a discussion, see Bryk & Raudenbush, 1992, pp. 32-57). Instead of disaggregating the data to the level of each individual assessment, which would violate the assumption of independent observations, or averaging over participants' repeated observations, which would obscure the day-to-day changes in affect, MLM allows for the modeling of both within- and between-person effects using maximum likelihood estimation. At Level 1, the within-person autocorrelation of affect measures from one point in time to the next, emotional inertia, was determined. At Level 2, the between-person differences in emotional inertia as a function of stigma consciousness was calculated.

Level 1: Within-person model of emotional inertia

$$NA_{ij} = \pi_{0j} + \pi_{1j} (NA_{i-1j}) + r_{ij}$$

where NA_{ij} is an estimate of person j 's negative affect on day i ; π_{0j} , the intercept, is a person j 's mean level of negative affect; and π_{1j} is the degree to which person j 's negative affect on day $i-1$ predicts their negative affect on day i (i.e. emotional inertia); and r_{ij} is the day-level residual of person j 's score at time i from the predicted score. Both π_{0j} and π_{1j} are treated as random factors. This model was used for composite negative affect and each of the five individual emotions.

Level 2: Between-person model of stigma consciousness:

$$\pi_{0j} = \beta_{00} + \beta_{01} (\text{SC}_j) + r_{0j}$$

$$\pi_{1j} = \beta_{10} + \beta_{11} (\text{SC}_j) + r_{1j}$$

where both the intercept, the mean level (π_{0j}), and the slope, inertia (π_{1j}), of negative affect are modeled as a function of each individual's score on the Stigma Consciousness Questionnaire (SC_j). Therefore, the slopes of these equations (β_{01} and β_{11}), represent the relationship between stigma consciousness and mean level of negative affect and negative affect inertia, respectively. This model was used for composite negative affect and each of the five individual emotions.

Part II: Regression Analysis

In addition to examining the relationship between stigma consciousness and the inertia of negative affect, the association of each of these variables with depressive symptoms was of interest. In order to capture the unique contribution of the dynamic measure of emotional inertia, both the mean level and the standard deviation, or variability, of negative affect were adjusted for in the linear regression model (Dejonckheere et al., 2019):

$$\text{CES-D}_j = \beta_0 + \beta_{1j} (\text{SC}_j) + \beta_{2j} (\text{NA Inertia}_j) + \beta_{3j} (\text{NA Level}_j) + \beta_{4j} (\text{NA Variability}_j) + u_j$$

where CES-D_j is an estimate of person j 's score on the depressive symptoms measure. It is calculated as a function of the grand mean of CES-D score, the intercept (β_0); person j 's score on the Stigma Consciousness Questionnaire (β_{1j}); person j 's negative affect inertia (β_{2j}); person j 's mean level of negative affect (β_{3j}); person j 's variability of negative affect (β_{4j}); and a random error component (u_j). This model was used for composite negative affect and each of the five individual emotions.

RESULTS

Descriptive Statistics

Table 1 displays the means and standard deviations of the variables as well as the correlations between them. The mean CES-D score for this sample was 14.32 ($SD = 7.48$) and the mean SCQ score was 4.001 ($SD = 1.081$). For composite negative affect, the mean level for this sample was 1.542 ($SD = 0.556$), indicating that in general, participants experienced negative emotions somewhere between *Not at all* and *A little* over the course of a day. The average within-person negative affect variability was 0.400 ($SD = 0.283$) and the average negative affect inertia was 0.448 ($SD = 0.148$). There was a significant, positive relationship between CES-D scores and all other variables ($p < 0.05$), indicating that increased levels of sigma consciousness as well as higher level, variability, and inertia of negative affect were associated with more depressive symptoms. Stigma consciousness was positively correlated with the level and inertia of composite negative affect ($p < 0.05$), but not with negative affect variability ($p = 0.497$). This means that those who were more sensitive to stigma experienced greater negative affect overall and greater carryover of negative emotions from one day to the next, but not a broader range of negative affect ratings. All three emotion measures, level, variability and inertia, were associated with each other ($p < 0.05$).

Table 1: Means, Standard Deviations, and Correlations between Depressive Symptoms, Stigma Consciousness, and Composite Negative Affect (NA) Level, Variability and Inertia

| | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 |
|------------------------|----------|-----------|-----------|-----------|-----------|---------|
| 1 Depressive Symptoms | 14.32 | 7.48 | 1.000 | | | |
| 2 Stigma Consciousness | 4.001 | 1.081 | 0.326 *** | 1.000 | | |
| 3 NA Level | 1.542 | 0.556 | 0.332 *** | 0.183 * | 1.000 | |
| 4 NA Variability | 0.400 | 0.283 | 0.206 * | 0.056 | 0.672 *** | 1.000 |
| 5 NA Inertia | 0.448 | 0.148 | 0.389 *** | 0.460 *** | 0.304 *** | 0.200 * |

* $p < .05$ ** $p < .01$ *** $p < .001$

Notes: Correlations with CES-D scores were computed with an N of 137, and correlations between all other variables were calculated with $N = 152$.

Stigma Consciousness and Negative Affect

Hierarchical linear modeling (HLM) was used to account for the nested structure of the daily diary data (i.e., days nested within persons). The results of these analyses are presented in Table 2. At Level 1, the mean level of negative affect is represented by the intercept and emotional inertia is operationalized as the slope. At Level 2, the relationship between individuals' level of stigma consciousness and both the level and inertia of negative affect were examined. For composite negative affect, those who scored higher on the SCQ experienced significantly higher levels ($\beta = 0.201$, $SE = 0.044$, $p < 0.01$) and inertia ($\beta = 0.199$, $SE = 0.023$, $p < 0.01$) of negative emotions. These results support Hypothesis 1. The relationships between stigma consciousness and the five individual negative emotions were also explored. Interestingly, SCQ scores were positively associated with the level and inertia of *sadness*, *anger*, and *irritation* ($p < 0.05$); however, for *disgust* and *hostility*, stigma consciousness was not significantly associated with either level or inertia ($p > 0.10$). These results suggest that the significant associations between stigma consciousness and composite negative affect are driven by *sadness*, *anger*, and *irritation*.

Table 2: Multilevel Models Examining the Relationship between Emotional Inertia and Stigma Consciousness

| <i>Outcome</i> | <i>Fixed Effect</i> | <i>Level 1</i> | | <i>Level 2 (Stigma Consciousness)</i> | |
|----------------|------------------------|-----------------------|----------------|---|----------------|
| | | β (<i>SE</i>) | <i>p-value</i> | β (<i>SE</i>) | <i>p-value</i> |
| NA | Intercept (Mean Level) | 1.559 (0.047) | < 0.001 | 0.201 (0.044) | 0.004 |
| | Slope (Inertia) | 0.219 (0.028) | < 0.001 | 0.199 (0.023) | 0.003 |
| Sadness | Intercept (Mean Level) | 1.500 (0.061) | < 0.001 | 0.199 (0.056) | 0.006 |
| | Slope (Inertia) | 0.227 (0.023) | 0.003 | 0.214 (0.019) | 0.007 |
| Anger | Intercept (Mean Level) | 1.720 (0.066) | < 0.001 | 0.193 (0.061) | 0.012 |
| | Slope (Inertia) | 0.215 (0.021) | 0.001 | 0.212 (0.018) | 0.003 |
| Irritation | Intercept (Mean Level) | 1.758 (0.062) | < 0.001 | 0.210 (0.057) | 0.004 |
| | Slope (Inertia) | 0.190 (0.027) | 0.014 | 0.185 (0.023) | 0.008 |
| Disgust | Intercept (Mean Level) | 1.459 (0.046) | < 0.001 | 0.067 (0.042) | 0.111 |
| | Slope (Inertia) | 0.127 (0.033) | 0.043 | 0.073 (0.029) | 0.311 |
| Hostility | Intercept (Mean Level) | 1.381 (0.047) | < 0.001 | 0.047 (0.044) | 0.279 |
| | Slope (Inertia) | 0.219 (0.040) | 0.001 | -0.013 (0.037) | 0.726 |

Notes: Analysis was performed with the HLM 7 Hierarchical Linear and Nonlinear Modeling software developed by Stephen Raudenbush, Tony Bryk and Richard Congdon, Scientific Software International, Inc. (c) 2013. Level 1 predictors were centered around the group mean and the Level 2 predictor (Stigma Consciousness) was centered around the grand mean. Approximate *df* = 149.

Predicting Depressive Symptoms

Using linear regression analysis, the effects of stigma consciousness and emotional inertia on depressive symptoms were examined (Table 3). Participants' scores on the SCQ and the inertia of negative affect were entered independently to capture their unique contributions to CES-D scores. In addition to the variables of primary interest, adjustments were made for both the mean level and the standard deviation, or variability, of negative affect (Dejonckheere et al., 2019). In support of Hypothesis 2, Model 1 shows that both stigma consciousness ($\beta = 0.064$, *SE* = 0.029, *p* < 0.05) and inertia of composite negative affect ($\beta = 0.575$, *SE* = 0.214, *p* < 0.01) were

significant predictors of depressive symptoms over and above the level and variability of negative affect. Those who were more sensitive to stigma and who experienced more carryover of negative emotions from one day to the next scored higher on the CES-D. Models 2 through 6 show the exploratory analysis for each of the five individual negative emotions. In each of these models, both stigma consciousness and mean level of the emotion were significant, positive predictors of depressive symptoms ($p < 0.05$). However, only the inertia of *sadness*, *anger*, and *irritation* were positively associated with CES-D scores while adjusting for the other variables ($p < 0.05$; Models 2, 3, and 4). The variability of negative affect was not significantly predictive of depressive symptoms, except in the case of *sadness* (Model 2), where increased variability of this emotion was associated with lower CES-D scores ($\beta = -0.225$, $SE = 0.097$, $p < 0.05$). Indeed, in Model 2 all predictors, stigma consciousness and inertia, level and variability of *sadness*, were independently associated with depressive symptoms ($p < 0.05$) and this model had the highest R^2 (0.261). Although these are exploratory analyses, the results highlight the important relationship between depressive symptoms and dysphoric affect in particular (APA, 2013).

Table 3: Regression Models Predicting CES-D Scores from Stigma Consciousness and Emotional Inertia while Adjusting for Level and Variability of Negative Affect

| Model | R ² | Predictor | β (SE) | p-value |
|-------|----------------|--|---|------------------------------------|
| 1 | 0.229 | Stigma Consciousness NA Inertia NA Level NA Variability | 0.064 (0.029) 0.575 (0.214) 0.166 (0.075) -0.013 (0.139) | 0.031 0.008 0.028 0.926 |
| 2 | 0.261 | Stigma Consciousness Sadness Inertia Sadness Level Sadness Variability | 0.087 (0.026) 0.577 (0.150) 0.178 (0.058) -0.225 (0.097) | 0.001 < 0.001 0.003 0.022 |
| 3 | 0.179 | Stigma Consciousness Anger Inertia Anger Level Anger Variability | 0.076 (0.029) 0.638 (0.246) 0.981 (0.047) -0.087 (0.088) | 0.011 0.011 0.039 0.325 |
| 4 | 0.242 | Stigma Consciousness Irritation Inertia Irritation Level Irritation Variability | 0.057(0.029) 1.083 (0.393) 0.176 (0.047) -0.089 (0.081) | 0.049 0.007 < 0.001 0.273 |
| 5 | 0.207 | Stigma Consciousness Disgust Inertia Disgust Level Disgust Variability | 0.080 (0.035) 0.250 (0.280) 0.246 (0.066) -0.138 (0.095) | 0.024 0.374 < 0.001 0.148 |
| 6 | 0.169 | Stigma Consciousness Hostility Inertia Hostility Level Hostility Variability | 0.106 (0.036) 0.017 (0.116) 0.189 (0.074) -0.060 (0.108) | 0.003 0.886 0.011 0.581 |

Notes: NA = negative affect. R² for all models was calculated with 136 total degrees of freedom and was significant at the p < 0.001 level. Statistics are based on cases with no missing values for any variable used.

DISCUSSION

This study contributes to the understanding of the relationship between stigma sensitivity, lingering negative affect, and depressive symptoms among Asian American youth. The descriptive statistics for this sample show that it is comparable to other samples of Asian American college students. The mean CES-D score in this study was 14.32 ($SD = 7.48$), which is similar to what other researchers have found (Herman et al., 2011: CES-D scores for Other Asians $M = 14.58$, $SD = 9.55$; Okazaki, 2000: Written CES-D scores $M = 14.44$, $SD = 7.47$). Likewise, the mean SCQ score for this sample was 4.001 ($SD = 1.081$), which is consistent with the results of other studies of Asian American undergraduates (Guzman et al., 2016: $M = 4.46$, $SD = 1.02$; Son & Shelton, 2011: $M = 3.548$, $SD = 1.077$). These results suggest that the findings of this study are generalizable to the broader population of Asian American college students in the U.S.

Hypothesis 1 was that participants' scores on the Race-Based SCQ and the inertia of negative affect across daily diary reports would be positively associated. Indeed, multilevel modeling (MLM) showed that those who worried more about being stigmatized based on their race or ethnicity had emotions that were resistant to change over time. In addition to the primary analysis of composite negative affect, exploratory analysis of individual emotions showed that stigma consciousness was also positively associated with the inertia of *sadness*, *anger*, and *irritation*, but not *disgust* or *hostility*.

These data do not allow for an explanation of why stigma consciousness and negative affect inertia are associated; however, the literature suggests a possible mechanism. Inertia is a symptom of poor emotion regulation (Koval, Butler, Hollenstein, Lanteigne, & Kuppens, 2015;

Kuppens et al., 2012; Suls & Martin, 2005) and stigma sensitivity may be a form of maladaptive coping. There is some evidence that stigma sensitivity is a form of perseverative thought. Henson and colleagues (2013) found that individuals who scored higher on the Race-Based RSQ experienced more intrusive thoughts about a recent racist experience. In studying the relationship between racism-related vigilance and depressive symptoms, Hill and Hoggard (2018) found that the association was largely explained by rumination. Participants who scored higher on the Racism-Related Vigilance Scale, also scored higher on the Ruminative Response Scale, and experienced more depressive symptoms. Rumination is passively and repetitively thinking about the negative (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) and has been shown to be an ineffective emotion regulation strategy (Aldao et al., 2009). In studies that have examined the relationship between rumination and emotional inertia, perseverative thought and affective inflexibility have been found to be associated (Brose et al., 2015; Koval et al., 2012). Thus, it may be that stigma sensitivity captures the tendency to ruminate about racism and thereby prolongs negative emotional responses to experiences of discrimination.

While stigma sensitivity may be similar to rumination in some ways, it is important to note where the two constructs differ. Rumination is not associated with problem-solving (Nolen-Hoeksema et al., 2008), but stigma sensitivity may help motivate individuals to combat discrimination. People who are more aware of stereotypes about their group are more likely to attribute negative feedback to discrimination, as opposed to a personal weakness (Major & O'Brien, 2005). This difference in attribution may lead to different emotional responses, which in turn may lead to different actions. In a laboratory experiment of people's responses to ambiguous discrimination, Wang, Stroebe, and Dovidio (2012) found that individuals who scored higher on the SCQ were less likely to feel depressed and more likely to feel angry and

want to take collective action against discrimination. In this study problem-solving was not measured, so it is not known whether those who were more sensitive to stigma were more likely to take steps to address racism.

In addition to establishing the relationship between stigma sensitivity and emotional inertia, this study also shows how they contribute to depressive symptoms. Hypothesis 2 was that stigma consciousness and emotional inertia would each have an independent effect on depressive symptoms, when adjusting for the mean level and variability of negative affect. This hypothesis was also supported. Stigma consciousness was a significant predictor of CES-D score, above and beyond the mean, variability and inertia of negative affect. This result is consistent with other studies that have found a positive relationship between stigma sensitivity and racism-related vigilance, and depressive symptoms (e.g. Chan & Mendoza-Denton, 2008; Hill & Hoggard, 2018). Furthermore, the inertia of composite negative affect was also uniquely predictive of CES-D score. This finding is generally consistent with the results of other studies demonstrating a positive association between emotional inertia and depression (Houben et al., 2015). Following conflicting results on the effects of different patterns of emotion dynamics on mental health (Koval et al., 2013; Thompson et al., 2012), researchers called for simplifying and clarifying the association between how emotions change over time and psychological well-being (Dejonckheere et al., 2019). In contrast with studies that found that the mean (Bos, Jonge, & Cox, 2019) or the mean and standard deviation (Dejonckheere et al., 2019) were sufficient predictors of depression, the results of this study show that emotional inertia also significantly and independently explains variation in depressive symptoms. Thus, while calculating the autocorrelation of affect ratings between one time point and the next is complicated, emotional inertia captures important information about emotion dynamics and should be included along

with the simpler affective measures of mean and standard deviation when modeling mental health outcomes.

Limitations and Future Directions

This study is a good first step to better understanding the relationships between stigma sensitivity, emotion dynamics, and mental health; however, it is limited in scope. Future research should address some of the limitations. One limitation of this research is its generalizability to other populations. The participants in this study were first-year Asian American students at an elite, primarily White institution (PWI). Although some researchers do not consider Asian American students to be stigmatized in the academic domain (Pinel, Warner, & Chua, 2005), there is ample evidence that Asian Americans do experience racial and ethnic discrimination (Pascoe & Smart Richman, 2009) and that individual differences in stigma sensitivity are associated with differences in psychological well-being (e.g. Chan & Mendoza-Denton, 2008). Among Asian American college students, stigma consciousness is associated with poor mental health even when explicitly considering the positive stereotype of being intelligent (Son & Shelton, 2011). It will be important to study the relationship between stigma sensitivity, emotion dynamics, and mental health among other racial and ethnic groups as well. While Guzman and colleagues (2016) found significant associations between expecting bias and psychological well-being for both African American and Asian American students, the effects were different for the two groups. It will also be important to explore these relationships among people of different ages. Currently, the relationship between perseverative thinking, affect inertia depressive symptoms has been found among participants aged 15 to 30 (Brose et al., 2015; Koval et al., 2012). Race-based stigma sensitivity has primarily been studied among college students, but the

relationship between racism-related vigilance and depressive symptoms has been found in young and middle-aged adults (Watson-Singleton, Hill, & Case, 2019).

Testing the generalizability of the concepts across a variety of different measures of the concepts will also be important. While the links between stigma sensitivity and depressive symptoms (Chan & Mendoza-Denton, 2008) and racism-related vigilance and depressive symptoms (e.g. Hill & Hoggard, 2018) have been established, it may be that the measures of stigma sensitivity, the Race-Based/ Status-Based RSQ (Mendoza-Denton et al., 2002; Chan & Mendoza-Denton, 2008) and the SCQ (Pinel, 1999), and racism-related vigilance, the Racism-Related Vigilance Scale (Clark et al., 2006), capture different processes and therefore have different relationships with emotional inertia. It will also be important to explore the relationship between anticipating discrimination and the inertia of other emotions, including ones related to anxiety and fear (e.g. *nervous, afraid*) and shame (e.g. *guilty, ashamed*). Other studies have demonstrated that those who worry more about discrimination show higher levels of these emotions (Henson et al., 2013; Son & Shelton, 2011; Chan & Mendoza-Denton, 2008). Finally, it is important to explore mental health outcomes beyond depressive symptoms, such as self-esteem and anxiety, as these have also been linked to negative affect inertia (Houben et al., 2015) and have been studied in the context of expectations of discrimination (Chan & Mendoza-Denton, 2008; Guzman et al., 2016).

Though the present study explores anticipating discrimination, it does not include measures of discrimination itself. The relationship between stigma sensitivity and discrimination is complex as individuals who have experienced more discrimination are more sensitive to stigma about their group (Mendoza-Denton et al., 2002) and people who are more sensitive to stigma also perceive more discrimination (Pinel, 1999). Furthermore, both stigma sensitivity and

perceived discrimination are associated with depression (Chan & Mendoza-Denton, 2008; Chau, Bowie, & Juon, 2018; Williams, Neighbors, & Jackson, 2003). It may be that stigma sensitivity is a pathway through which discrimination impacts mental health. Watson-Singleton and colleagues (2019) found that discrimination and depressive symptoms were significantly and positively correlated only for individuals who scored at or above the mean on the Racism-Related Vigilance Scale. In a mediational analysis, Himmelstein and colleagues (2015) found that racism-related vigilance mediated the association between everyday discrimination and stress. However, it may also be that discrimination and stigma sensitivity each independently contribute to poor mental health outcomes. In studies of physical health, sleep quality and blood pressure, both perceived discrimination and racism-related vigilance were independently associated with poor health outcomes (Hicken, Lee, Ailshire, Burgard, & Williams, 2013; Hicken, Lee, Morenoff, House, & Williams, 2014). Future research should examine if and how discrimination and expectations of discrimination contribute to emotional inertia and depressive symptoms.

This study's findings demonstrate associations between stigma consciousness and emotional inertia, and stigma consciousness, emotional inertia, and depressive symptoms; however, because the study is cross-sectional, it does not allow for the establishment of directional pathways between the variables. A mediational model might be developed by doing a longitudinal study that involved taking baseline measurements of experiences with discrimination, anticipating discrimination and mental health, conducting experience sampling or daily diary measures that included everyday discrimination or microaggressions and measures of affect for three or four weeks scattered over the course of a year, and concluding with a follow-up questionnaire with the same measures assessed at baseline. Such a study design could shed

light on the relationship between experiences with and expectations of discrimination, if and how emotional inertia mediates the association between stigma sensitivity and depressive symptoms, and potential causal pathways between the predictors and depressive symptoms.

Conclusion

The present study highlights the important role of emotion dynamics in understanding the relationship between stigma sensitivity and depressive symptoms among Asian American youth. Multilevel analysis of daily diary data showed that higher levels of stigma consciousness were associated with increased inertia of negative affect over time. However, the results of regression analysis showed that both stigma sensitivity and emotional inertia were independently associated with depressive symptoms, over and above the mean level and variability of negative affect. More broadly, this research contributes to the racial discrimination literature by including emotion dynamics in the study of how people of Color experience racism, and it contributes to the emotion literature by exploring the relationship between stigma sensitivity and emotion dynamics.

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APPENDIX – MEASURES

Race-Based Stigma Consciousness Questionnaire (SCQ)

Please indicate the extent to which you agree with the following statements.

| | Strongly disagree | Disagree | Disagree somewhat | Neither agree or disagree | Agree somewhat | Agree | Strongly Agree |
|---|----------------------|----------|----------------------|---------------------------------|-------------------|-------|-------------------|
| Stereotypes about Asians have not affected me personally. | | | | | | | |
| I never worry that my behaviors will be viewed as stereotypically Asian. | | | | | | | |
| When interacting with Caucasians, I feel like they interpret all my behaviors in terms of the fact that I am Asian. | | | | | | | |
| Most Caucasians do not judge Asians on the basis of their ethnicity. | | | | | | | |
| My being Asian does not influence how Caucasians act with me. | | | | | | | |
| I almost never think about the fact that I am Asian when I interact with Caucasians. | | | | | | | |
| My being Asian does not influence how people act with me. | | | | | | | |
| Most Caucasians have a lot more racist thoughts than they actually express. | | | | | | | |
| I often think that Caucasians are unfairly accused of being racist. | | | | | | | |
| Most Caucasians have a problem with viewing Asians as equals. | | | | | | | |

Negative Affect

TODAY, how much did you feel...

| | Not at all | A little | Moderately | Quite a bit | A great deal |
|------------|------------|----------|------------|-------------|--------------|
| Anger | | | | | |
| Irritation | | | | | |
| Disgust | | | | | |
| Sadness | | | | | |
| Hostile | | | | | |

The Center for Epidemiologic Studies Depression Scale (CES-D)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way DURING THE PAST WEEK.

| | Rarely or None of the time | Some of the time | A moderate amount of the time | Most or all of the time |
|---|----------------------------------|---------------------|-------------------------------------|----------------------------|
| I was bothered by things that usually don't bother me. | | | | |
| I did not feel like eating; my appetite was poor. | | | | |
| I felt that I could not shake off the blues even with help from my family or friends. | | | | |
| I felt that I was just as good as other people. | | | | |
| I had trouble keeping my mind on what I was doing. | | | | |
| I felt depressed. | | | | |
| I felt that everything I did was an effort. | | | | |
| I felt hopeful of the future. | | | | |
| I thought my life had been a failure. | | | | |
| I felt fearful. | | | | |
| My sleep was restless. | | | | |
| I was happy. | | | | |
| I talked less than usual. | | | | |
| I felt lonely. | | | | |
| People were unfriendly. | | | | |
| I enjoyed life. | | | | |
| I had crying spells. | | | | |
| I felt sad. | | | | |
| I felt that people disliked me. | | | | |
| I could not get "going." | | | | |