Introduction

Research on youth stress coping and mental well-being has demonstrated the associations between stress coping responses and depressive symptoms (e.g., Tompkins et al., 2011). The coping responses include rumination, specifically its brooding subtype, and mindfulness. Rumination is a passive and repetitive focusing on depressive symptoms and their causes and consequences, and it is related with depressive symptoms (Nolen-Hoeksema, 1991). Rumination, brooding subtype in particular, is a maladaptive coping response to stress as it increases the impact of stress on depressive symptoms in adolescents (Burwell & Shirk, 2007; Kraaij et al., 2003). Mindfulness, on the other hand, is a response that involves purposefully non-judgmental awareness and acceptance of the present moment (Kabat-Zinn, 1994). It can decrease rumination (Deyo et al., 2009) and is related with a reduction in depressive symptoms (Raes et al., 2003).

Most research that has examined the stress and youth depressive symptoms has focused on middle class and Caucasian samples (e.g., Franko et al., 2004; Sanchez et al., 2012). Findings in the current literature are based on a skewed sample representation that does not stand for the diverse representation in the youth population. Caucasian and middle class populations may demonstrate differential associations between the coping responses and depressive symptoms than those in the low-income, urban minority youth. Thus, it is important to expand our knowledge of the relation between stress responses and depressive symptoms to minority youth in low-income, urban environments.
The primary aim of the current study was to examine types of stress, stress responses, and depressive symptoms in a low-income, urban minority youth sample. Specifically, high school students who were ‘over-age and under-credited’ were selected (OA-UC; i.e., have fewer than the expected academic credits for their age) because they represent a particularly vulnerable population (Rath et al., 2012). The types of stressors from multiple domains included violence exposure, family, and peer stress. The study examined the associations between these stressors and depressive symptoms. Further, it analyzed the moderating effects of stress responses, rumination and mindfulness, on the associations between multiple stressors and depressive symptoms. Third, the study tested the moderating effects of mindfulness on the association between rumination and depressive symptoms.

**METHOD**

**Overview**

The current study analyzed the baseline data collection from a school-based mindfulness intervention program. The larger study was a collaborative project including academic institutions, the Baltimore City Public School System, and a non-profit organization called the Holistic Life Foundation (HLF). The goal of the larger study was to examine the psychological benefits the students could receive through participating in the mindfulness program compared to the students who did not participate in the program.

**Participants**

Students from four different Baltimore City high schools, two as control sites and the other two as intervention sites, participated in the current study. All
students were considered as the over-age and under-credited who represent those who struggle in the traditional education system and do not meet the expected number of credits for the age and intended grade (Rath, Rock, & Laferriere, 2012). A total of 92 students participated at the baseline collection of the larger data collection. The sample was 53% male and 93.5% African-American (M_{age} = 17.88, SD_{age} = 0.91).

**Procedures**

After the Institutional Review Boards approval of recruiting students from the four schools, researchers visited and introduced the mindfulness intervention program at each school for participant recruitment. During the recruitment, the ‘OA-UC’ students were purposively targeted and sampled. Responsible researchers read an oral assent script and described the intervention to students who wanted to participate. Once the students gave the oral assent, parental consent was obtained via phone conversations or permission letters. Then, individually at a respective school, participants completed computer-based surveys that were displayed on screen and recorded to accommodate possible variability in literacy levels. There were two time-points, baseline and post-intervention, that students from all four schools completed the questionnaires. Students received gift cards a reward for participating in the survey. The current study analyzed the baseline data collection.

**Measures**

Stress. Two measures were assessed in order to examine the different types of stressors. The Responses to Stress Questionnaire, the Peer Stress scale is a measure that examines a broad range of coping responses to peer stress including
voluntary responses and involuntary reactions in adolescence (RSQ; Connor-Smith, 2000). The current study selected a subset of items that presented different events of peer stressor and asked how stressful these stressful have been in the last six months. These five items showed a good reliability ($\alpha = .795$; e.g., teased by other students) in the current study. The Stressful Life Events (SLE) Scale is a 36 item that assess the frequency of stressful events in the last twelve months. For the SLE, three different domains of stressors were selected which were; the Peer subscale (7 items; e.g., best friend moved away), the Violence Exposure subscale (8 items; e.g., seen someone beaten, shot, or really hurt by someone), and the Family subscale (17 items; e.g., parental separation or divorce, or one of parents left the family).

**Mindfulness.** The Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer, & Smith, 2011) examines youth's current levels of mindfulness. The scale includes 10 items that reflect two facets of mindfulness. Acting with awareness is a facet that represents an awareness of the present-moment and a full engagement in one's current activity (e.g., “I walk from class to class without noticing what I’m doing” – reverse scored). Accepting without judgment is the other facet that represents a nonjudgmental awareness and openness to experiencing a full range of internal experiences (e.g., “I get upset with myself for having certain thoughts” – reverse scored). Total summed scores of the 10 items range from 0 to 40, with higher scores indicating higher levels of mindfulness. The scale showed a good internal consistency ($\alpha = .800$) for a sample of participants with a mean age of 12.60 years (SD = 1.68, range = 10 to 17; see Greco, Baer, & Smith, 2011). The CAMM scores were negatively correlated with child-reported somatic complaints,
internalizing symptoms, externalizing behavior problems, thought suppression and psychological inflexibility, which indicates predictive validity for the scale. The scores were positively correlated with the overall quality of life and academic competence. For the current study, the scale showed a good reliability in the ‘OA-UC’ sample as well ($\alpha = .871$).

**Rumination.** The current study adapted the Children's Response Styles Questionnaire (CRSQ; Abela, Aydin, & Auerbach, 2007) to examine the participants’ current level of brooding level. The current study selected 14 items of the total 25 items. Each item describes from maladaptive self-focused brooding response to depressed mood. The word “sad” in the item stem was reworded to “upset” in order to prevent the problem of confounding depressive symptoms with the report of brooding (e.g., “When I am sad, I think about how alone I feel” to “When I am upset, I think about how alone I feel”). Scaling for each item ranges from 1 to 4, with higher scores indicating a higher tendency to engage in the brooding. In a previous research conducted by the developers of the measure, the respective subscale of the CRSQ had a good internal consistency of ($\alpha = .77$) and a good test–retest reliability over a 4-week interval ($r=0.72$; see Abela, Aydin, & Auerbach, 2007). The adapted subscale also showed a good reliability in the current the ‘OA-UC’ sample ($\alpha = .917$).

**Depressive Symptomatology.** Center for Epidemiological Studies Depression Scale (CES-D; Randloff, 1977) was used to examine students’ current level of depressed mood focused symptomatology. This 20-item self-report scale is designed for the general population. Items ask how often respondents experienced each symptom during the past week on a 4-point scale. Sample items? A total score is
obtained from adding the scores of each item, with higher scores indicating higher levels of depressive symptomatology. The internal consistency reliability was above .87 for both genders across four adolescent samples, and the test-retest reliability after 6 months was above .49 across all samples, except for .19 for one group of boys (Roberts, Andrews, Lewinsohn, & Hops, 1990). In this study, six items were modified to increase comprehension (e.g., “I felt that I could not shake off the blues even with help from my family or friends” was reworded “I felt that I could not cheer up even with help from my family or friends”).

Results

Depressive symptoms were associated positively with peer stress and rumination and negatively with mindfulness. The symptoms were not associated with violence or family stressors. Mindfulness was negatively associated with peer stress. Two peer stress variables were positively associated with each other (Table 1). There was a significant moderating effect of rumination on the association between the peer stress and depressive symptoms ($B = 0.07, t(88) = 2.27, p = .025$; see Figure 1). The association was stronger for those with higher levels of rumination and significant for those above $+0.73 \text{ SD}$ on rumination. There was a significant moderating effect of mindfulness on the association between rumination and depressive symptoms ($B = -0.21, t(88) = -2.48, p = .015$; see Figure 2). The association was weaker for those with more mindfulness and non-significant for those above $+0.93 \text{ SD}$ on mindfulness. Rumination and mindfulness did not moderate the associations between other stressors and depressive symptoms.

Discussion
Among the over-age, under-credited urban minority youth, not every stressor type from different domains was associated with depressive symptoms. The cross-contextual peer stress, and not the context-specific community violence exposure and family stress, had a significant association. This is in contrast to some past findings of associations between community violence exposure and depression (e.g., Slopen et al., 2012) but consistent with other non-significant findings (e.g., Mrug & Windle, 2010). Although the peer stress is considered as common across diverse ethnicities and socioeconomic statuses, its nature may differ across contexts. Then, the finding on the significant association may reflect that the peer stress is specific to depressive symptoms in the unique sample the current study examined. It is hence important to examine the examined different types of stressors and their associations with other mental health outcomes in the future (i.e., anxiety, behavioral problems, and anger).

One limitation to the study was that the SLE only allowed dichotomous answers. That is, participants indicated either an event occurred or not. They did not answer the impact of each event on them. The lack of significant association between the cross-specific stressors may be attributed to the lack of variability in participants’ answers. Future research may examine subjective ratings of experience of life events and find more significant associations.

Consistent with findings in predominately middle class, Caucasian samples (e.g., Cox et al., 2012), low-income, urban minority youth who reported rumination has a stronger positive association between peer stress and depressive symptoms. This suggests that other findings regarding rumination in the past research may be
generalizable to the urban, minority, at-risk population. Mindfulness was a protective factor, that is, those with more mindfulness had a weaker association between rumination and depressive symptoms. The results suggest that low-income, urban minority youth may benefit from mindfulness interventions targeting reductions in rumination (e.g., RFCBT; Watkins, 2015) and increases in mindfulness (e.g., Mendelson et al., 2010) to decrease depression.
References


Table 1. Bivariate Correlations

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<tr>
<th></th>
<th>DEP</th>
<th>RUM</th>
<th>MIND</th>
<th>RSQ</th>
<th>PEER</th>
<th>VIOL</th>
<th>FAM</th>
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<td>RUM</td>
<td>Rumination (CRSQ)</td>
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<td>.387***</td>
<td>-.522 ***</td>
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<td>.239*</td>
<td>-.184</td>
<td>.211*</td>
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<td>.184</td>
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<td>.126</td>
<td>-.071</td>
<td>.118</td>
<td>.446***</td>
<td>.650***</td>
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M       | 14.924 | 27.935 | 35.924 | 7.163 | 2.04 | 1.67 | 6.37 |
SD      | 9.338 | 9.298 | 8.909 | 2.535 | 1.61 | 2.03 | 3.78 |

Note. N = 92. * p < .05, ** p < .01, *** p < .001

Figure 1 Rumination moderates the association between peer stress and depressive symptoms.

Figure 2 Mindfulness moderates the association between rumination and depressive symptoms.