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Distress tolerance and early adolescent externalizing and internalizing symptoms: The moderating role of gender and ethnicity☆

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ABSTRACT

A large body of research has examined the development of internalizing and externalizing symptoms in childhood and early adolescence. Notably, there is significant concomitant impairment associated with early adolescent symptomatology, as well as association of these symptoms with future development of psychopathology, poor physical health, self-destructive thoughts and behaviors, criminal behavior, and HIV risk behaviors. Drawing on negative reinforcement theory, the current study sought to examine the potential role of distress tolerance, defined as the ability to persist in goal-directed activity while experiencing emotional distress, as a potential mechanism that may underlie both internalizing and externalizing symptoms among 231 Caucasian and African American youth (M age = 10.9 years; 45.5% female; 54.5% Caucasian ethnicity). A series of regressions resulted in significant moderated relationships, such that low distress tolerance conferred increased risk for alcohol use among Caucasians, delinquent behavior among African Americans, and internalizing symptoms among females. Clinical implications, including the potential role of negative reinforcement models in early intervention with young adolescents, are discussed.

Introduction

A large body of research has examined the development of internalizing and externalizing symptoms in childhood and early adolescence, noting the impairment associated with such symptoms, as well as their association with the future development of psychopathology (Colman, Wadsworth, Croudace, & Jones, 2007; DeWit, Adlaf, Offord, & Ogborne, 2000), poor physical health (Keenan-Miller, Hammen, & Brennan, 2007), self-destructive thoughts and behaviors (Klomek et al., 2008), criminal behavior (Sourander et al., 2007), and HIV risk behaviors (Brook, Adams, & Balka, 2004). Although often treated separately and considered to develop through different pathways (Achenbach & Edelbrock, 1984), internalizing and externalizing symptoms share important commonalities in their association with negative affect (Oland & Shaw, 2005). As such, to better understand and assess common mechanisms underlying the development of both internalizing and externalizing symptoms, a negative reinforcement-based model provides a potentially useful approach (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Khantzian, 1985).

Negative reinforcement behavior

Negative reinforcement models emphasize that the motivational basis of behavior is the escape or avoidance of negative affective states. Although negative reinforcement models have been applied almost exclusively to the dependence stages of substance use (see Eissenberg, 2004 for an exception), with the use of substances functioning to reduce incipient physical and psychological symptoms of withdrawal (Baker et al., 2004), this model may be particularly relevant for understanding early adolescent development of internalizing and externalizing symptoms. Specifically, the ways in which emerging adolescents respond to developmental changes, and the accompanying negative affect that often coincides with such stressors, may impact

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current and future adjustment and psychopathology (Grant, Compas, Thurm, McMahon, & Gipson, 2004; McMahon, Grant, Compas, Thurm, & Ey, 2003; Schneiders et al., 2006). For instance, a large body of literature has demonstrated that the normative stressors that come with adolescence often result in increased levels of negative affect (e.g., Brooks-Gunn & Warren, 1989; Larson & Ham, 1993), and those individuals who rely on dysfunctional styles of coping in the face of negative emotions are less able to effectively regulate their negative mood states. This inability to regulate affective distress thereby increases vulnerability to the immediate relief offered by either: (1) isolating themselves, as is common in depression and anxiety; or (2) engaging in various risky behavioral alternatives (e.g., alcohol use). Engagement in these behaviors often brings relief (perceived and/or actual), thereby enhancing the attractiveness and likelihood of such behavior for future situations. For example, a socially anxious youth who feels uncomfortable around peers may find that when they drink alcohol their anxiety is reduced, completely absent of any dependence or accompanying withdrawal symptoms. Because drinking alcohol in this case aided in successfully reducing their anxiety/negative affect, the youth is more likely to drink alcohol in the future. This scenario fits well with the established empirical literature examining the role of social anxiety and social discomfort in relation to alcohol use which has a strong basis in stress-coping and other negative reinforcement models (e.g., Morris, Stewart, & Ham, 2005; Myers, Aarons, Tomlinson, & Stein, 2003; Weinberg & Bartholomew, 1996). Further, prominent behavioral theories of anxiety among youth have long implicated the role of avoidance in both the development and maintenance of anxiety symptoms and behavior (e.g., Barlow, 2002).

Behavioral assessment of negative reinforcement behavior: distress tolerance

To capture an individual's propensity towards behavior motivated by negative reinforcement, studies on adult samples have utilized behavioral assessments of *distress tolerance*, defined as the ability to persist in goal-directed activity while experiencing emotional distress. Briefly, the behavioral assessment of distress tolerance involves participant engagement in and persistence on a computerized task that gradually increases in difficulty thereby increasing affective distress. The participant has the option to persist (with some small positive reinforcement available for persisting) or, in contrast, to terminate the task, thereby reducing emotional distress in the short term (negative reinforcement) but losing out on the rewards in the long term. In regard to externalizing behavior such as substance use and delinquent behavior, low distress tolerance as measured by these behavioral tasks is associated with increased substance use (Quinn, Brandon, & Copeland, 1996), shorter durations of smoking cessation and illicit drug use abstinence attempts (Brandon et al., 2003; Brown, Lejuez, Kahler, & Strong, 2002; Daughters, Lejuez, Kahler, et al., 2005b), increased dropout rates from residential drug treatment (Daughters, Lejuez, Bornovalova, et al., 2005a), and higher rates of antisocial personality disorder among a sample of male participants (Daughters, Sargeant, Bornovalova, Gratz, & Lejuez, 2008). Speaking to internalizing symptoms, low distress tolerance is associated with higher rates of borderline personality disorder in a sample consisting largely of female participants (Bornovalova et al., in press), anxiety sensitivity (Anestis, Selby, Fink, & Joiner, 2007) and depression (Buckner, Keough, & Schmidt, 2007).

In order to begin to translate our understanding of distress tolerance and adult outcomes to an early adolescent sample, it is important to consider potential moderators of the relationship between negative affect and behavior, especially given evidence of clear gender and ethnicity differences in internalizing and externalizing symptoms. As such, the following sections highlight the potential role of gender and ethnicity in the development of these symptoms and behaviors.

Gender differences in internalizing symptoms

Evidence indicates that female adolescents in comparison to males report higher levels of internalizing symptoms such as depression, anxiety, and psychosomatic complaints (Angold, Erkanli, Silberg, Eaves, & Costello, 2002; Kolip, 1997; Lewinsohn, Gotlib, Lewinsohn, Seeley, & Allen, 1998; Wade, Cairney, & Pevalin, 2002). This may be the result of females and males responding to normative adolescent stressors differently. For instance, the relationship between the frequency of stressful life events and depressive symptoms intensifies as females mature, but diminishes for males. Female adolescents also report a higher number of stressful life events, have more acute reactions to these events, and view these events as more taxing than adolescent males (e.g., Jose & Ratcliffe, 2004). Risk factors, such as body image, self-esteem, pubertal changes, and transitions to high school also increase adolescents' chance of developing depression and the effect of these risk factors have been show to be more intense for female versus male adolescents (Marcotte, Fortin, Potvin, & Papillon, 2002). Furthermore, the most pronounced gender differences in depression are among symptoms of affective distress, such as a depressed and anxious mood, while less significant gender differences were found in other symptoms of depression, such as sleep and concentration problems (Compas et al., 1997). In line with a negative reinforcement approach, the link between symptoms of affective distress and internalizing symptoms such as depression and anxiety among females may be a gender specific consequence of an inability to effectively cope with affective distress.

Ethnicity differences in externalizing behavior

Emerging evidence suggests clear ethnicity differences in the engagement of externalizing behaviors, with a specific focus on alcohol use and delinquent behavior. In regard to alcohol use, Caucasian adolescents are significantly more likely to consume alcohol than their African American peers (Blum et al., 2000; Broman, 2007; Horton, 2007). Furthermore, Caucasians report drinking on more days and having more alcohol related problems than African Americans (Horton, 2007). Potential environmental mediators for ethnicity differences include less alcohol use, and stronger negative views about the harmful effects of alcohol, among African American than Caucasian parents (Peterson, Hawkins, Abbott, & Catalano, 1994). Differences in parental views and behavior may translate into children's attitudes toward alcohol use. In support of this view, African American elementary school students express stronger expectations that alcohol use will result in a loss of control and more long term negative effects, while Caucasian students believe that alcohol use will lead to positive affective reactions (Rinehart, Bridges, & Sigelman,, 2006). Further, African American children convey more negative attitudes toward adult alcohol use and fewer intentions to use alcohol as adults than their Caucasian peers. In regard to violent and delinquent behavior, evidence suggests that this behavior is more common among African American youth than their Caucasian peers (Eaton et al., 2006; Sampson, Morenoff, & Raudenbush, 2005). For instance, compared to Caucasians, studies indicate that African American youth are more likely to be diagnosed with conduct disorder (Cameron & Guterman, 2007), self -report engaging in a higher rate of index offenses (Elliot, Huizinga, &