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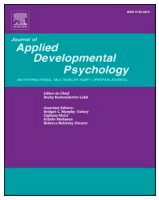

Impulsivity and adolescent relationships: Negative urgency predicts interpersonal problems in youth

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ABSTRACT

Though commonly discussed in regard to risky behavior and psychopathology, negative urgency should also play a role in *common* behaviors and problems. The present study explored negative urgency in relation to a common problem among adolescents: difficulty in interpersonal relationships. Since negative emotions precede action among individuals high in negative urgency, we investigated the role of depressive symptoms in this association. A sample of 272 youth ($M = 11.75$ years, $SD = 0.93$, 79.78% female) completed self-report measures of negative urgency, depressive symptoms, and interpersonal problems with peers, mothers, and fathers at two time points. Negative urgency cross-sectionally predicted interpersonal problems with peers and mothers, but not fathers. A heightened level of depressive symptoms among negatively urgent youth explained this effect and continued to show significant indirect associations with urgency and peer relationships four months later. Negative urgency appears to represent a global disposition, linked with interpersonal problems across multiple relationships.

Introduction

The present study sought to understand the extent to which negative urgency is associated with interpersonal problems in youth and whether depressive symptoms play a role in this association. Negative urgency refers to an individual's tendency to respond rashly to negative emotion (Cyders & Smith, 2007, 2008; Whiteside & Lynam, 2001). Negative urgency has been consistently associated with a number of problematic behaviors (e.g., substance use and aggressive behavior; Miller, Flory, Lynam, & Leukfeld, 2003; Riley, Rukavina, & Smith, 2016), yet its association with interpersonal problems is underexplored. Given the confluence of social, physical, and emotional changes during adolescence (Aylwin, Toro, Shirtcliff, & Lomniczi, 2019; Conley & Rudolph, 2009; McGuire, McCormick, Koch, & Mendle, 2019) as well as normative rises in impulsivity and distress during this time (Bailen, Green, & Thompson, 2019; Costello, Copeland, & Angold, 2011; Cyders & Smith, 2008; Steinberg, 2008), it is especially pertinent to examine associations between negative urgency and interpersonal problems during this developmental period. In light of existing work recognizing depressive symptoms as a risk factor for interpersonal relationship difficulties (e.g., Coyne, 1976; Coyne, Burchill, & Stiles, 1991), the rise in depressive symptoms during adolescence (Demaray, Ogg, Malecki, & Styck, 2022; Koch, Mendle, & Beam, 2020), and negative urgency's association with depressive symptoms among youth (Smith, Guller, & Zapolski, 2013), we considered depressive symptoms as an additional factor in the relationship between negative urgency and interpersonal problems. Understanding associations between negative urgency and behavior during adolescence can provide insight into how to prevent and intervene on this trait to improve youth well-being and, in turn, well-being throughout the lifespan (Mendle, Ryan, & McKone, 2018).

Negative urgency, externalizing, and internalizing

The study of negative urgency is rooted in impulsivity literature. While the term *impulsivity* represents an important construct with implications for personality, behavior, and psychopathology, it has been used to describe a wide range of ideas. In an attempt to consolidate research on impulsivity and create a more specific measure of this trait, Whiteside and Lynam (2001) examined how existing impulsivity measures mapped onto the five-factor-model of personality. The results indicated a four-factor structure of impulsivity, which Whiteside and Lynam (2001) described as urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking (UPPS). Urgency represented impulsive responses to negative emotions, (lack of) premeditation

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referred to acting with little thought for the consequences of one's actions, (lack of) perseverance described difficulties completing tasks that necessitate a degree of self-discipline, and sensation seeking concerned a tendency to engage in new, exciting experiences and a willingness to take risks. Each factor, while related, measures a distinct aspect of impulsivity and is associated with different behavioral outcomes. Research on negative urgency has established it as the factor most robustly related to psychopathology of all UPPS factors (Berg, Latzman, Bliwise, & Lilienfeld, 2015).

Since the term negative urgency was coined (and a measure of this trait developed), it has been studied extensively in regard to externalizing problems and behaviors. For example, negative urgency prospectively predicts substance use across a wide range of ages (Guller & Smith, 2014; Kaiser, Bonsu, Charnigo, Milich, & Lynam, 2016; Riley et al., 2016) and is consistently associated with gambling behaviors (Canale, Vieno, Griffiths, Rubaltelli, & Santinello, 2015; Fischer & Smith, 2008; Whiteside, Lynam, Miller, & Reynolds, 2005) and risky sexual behaviors (Deckman & DeWall, 2011). Negative urgency is also a robust correlate of aggressive behavior across different developmental stages (Miller et al., 2003; Settles et al., 2012; Zapolski, Stairs, Settles, Combs, & Smith, 2010), including both reactive aggression (e.g., acting aggressively in response to frustration) and relational aggression (e.g., acting aggressively in an effort to damage a person's reputation; Miller, Zeichner, & Wilson, 2012). Negative urgency's associations with aggressive behavior often have an interpersonal component, such as starting fights with others (Settles et al., 2012), and negative urgency demonstrates greater associations with intimate partner violent behavior than general violent behavior (Derefinko, DeWall, Metze, Walsh, & Lynam, 2011). These associations between negative urgency and externalizing behaviors are likely to create difficulty for those high in negative urgency as they may worsen interpersonal relationships and contribute to people high in negative urgency reporting downstream interpersonal problems.

While psychological research has paid considerable attention to the associations between negative urgency and externalizing problems, comparatively fewer studies have focused on its relationship with internalizing problems. Yet, the extant research does show that negative urgency is associated with internalizing difficulties, including anxiety (Berg et al., 2015; Johnson, Carver, & Joormann, 2013) and depressive symptoms (d'Acremont & Van der Linden, 2007; Gagnon, Daelman, McDuff, & Kocka, 2013; Miller et al., 2003). Negative urgency is also associated with intrusive thoughts (Gay, Schmidt, & Van der Linden, 2011) and obsessions (Cougle, Timpano, & Goetz, 2012), which are common in various internalizing disorders, as well as with rejection sensitivity (Anestis, Selby, & Joiner, 2007; Lesnick & Mendle, 2021). Negative urgency even predicts internalizing problems over time, with one study finding urgency scores in fifth grade significantly predicted higher levels of depression at the end of sixth grade, even after controlling for fifth grade depression and early pubertal onset, among other covariates (Smith et al., 2013).

As with externalizing problems, internalizing problems contribute to difficulties in interpersonal relationships. There is a broad literature demonstrating that depressive symptoms are associated with impaired social functioning, social inhibition (e.g., avoidance, withdrawal), and decreased enjoyment and intimacy within social interactions (reviewed in Gadassi & Rafaeli, 2015; reviewed in Hames, Hagan, & Joiner, 2013). Interpersonal theories of depression further highlight that behaviors associated with depression can contribute to conflict and stress within relationships (e.g., Coyne, 1976; Coyne et al., 1991; Hammen, 1992, 2006; Hankin, Stone, & Wright, 2010). For instance, individuals experiencing depressive symptoms tend to talk about their negative emotions and negative opinions of themselves within their relationships, which detrimentally affects the quality of these relationships (Joiner Jr., 2002). Consequently, internalizing symptoms may serve as one explanation for why individuals high in urgency also report poor interpersonal relationships: when experiencing depressive symptoms, they may attempt to ameliorate their distress in ways that erode the quality of the relationship – such as through reassurance seeking, discussions of negative emotions, or the initiation of conversations about the relationship that may be perceived negatively or aversively by others (Lesnick & Mendle, 2021; Zimmer-Gembeck, Nesdale, Webb, Khatibi, & Downey, 2016).

Negative urgency and adolescence

Associations between negative urgency and interpersonal relationships may be especially pertinent for adolescents. Although negative urgency is a dispositional trait, both foundational and recent work on negative urgency highlights global spikes in negative urgency during the adolescent years (Cyders & Smith, 2007, 2008; Lesnick & Mendle, 2021; Mendle, Beam, McKone, & Koch, 2020). Beginning at puberty, changes in behavior and emotion occur in tandem with changes in brain structure, function, and connectivity and with endocrinological shifts in circulating hormones (Aylwin et al., 2019; Goddings, Beltz, Peper, Crone, & Braams, 2019). These biological changes heighten both impulsivity and emotional lability, which may make negatively urgent responses more common. Concurrently, the social and academic landscape also begins to intensify for youth at this time. Transitions in schools and increasing academic demands must be navigated (Chung, Elias, & Schneider, 1998; Kingery, Erdly, & Marshall, 2011). Physical appearance concerns and body consciousness mount (Lindberg, Hyde, & McKinley, 2006). Perhaps most importantly, fluctuations in social relationships are common; youth both make new friends and find that long-standing friendships change (reviewed in Conley & Rudolph, 2009), while parent-child relationships are characterized by greater shifts toward autonomy (reviewed in Hazel, Oppenheimer, Technow, Young, & Hankin, 2014). Relationships with others enable youth to develop a greater sense of self-esteem (Ikiz & Cakar, 2010; Sarkova et al., 2014), but they can also be a source of stress and distress for youth (Kenny, Dooley, & Fitzgerald, 2013).

While some youth may take on the challenges of the adolescent transition productively, such as through developing a sense of purpose (Burrow & Hill, 2011; Hill, Burrow, & Sumner, 2013) and forming a sense of identity (reviewed in Crocetti, 2017; Klimstra, Hale III, Raaijmakers, Branje, & Meeus, 2010), others may struggle during this time. The sweeping changes characteristic of this developmental period, though normative, can contribute to youth feeling more disrupted in everyday roles with friends and family and to increases in psychopathology (Koch et al., 2020; Mendle, 2014). Additionally, at this time, youth tend to focus less on their future goals and the consequences of their actions (Steinberg, 2008). This culmination of factors creates a potent environment for increases in urgent behavior and the possibility of internalizing problems facilitating such urgent behavior.

Present study

The present study sought to explore associations among negative urgency and interpersonal problems in youth. Adolescents, in particular, face a great deal of interpersonal problems, as they learn to navigate new and changing relationships (Conley & Rudolph, 2009; Hazel et al., 2014). Given the relatively scant focus placed on negative urgency's associations with internalizing problems, we sought to consider the indirect effect of negative urgency on interpersonal problems through one internalizing domain: depressive symptoms. The experience of depressive symptoms is also quite common among youth during adolescence (Mendle, 2014), making it a pertinent age group for study.

This study utilized data from two time points approximately four months apart to address two hypotheses. First, adolescents who report higher levels of negative urgency will report greater interpersonal problems. In this study, interpersonal problems were assessed in terms of problems with: (1) peers; (2) mothers; and (3) fathers. Interpersonal problems can occur in all relationships, and demonstrating a link in all domains would establish the pervasiveness of negative urgency in

everyday life. However, if negative urgency is only related to interpersonal problems in one domain, such as with mothers but not peers or fathers, this may provide important insight into how negatively urgent individuals cope with negative emotions, or which relationships may evoke urgent behaviors.

Second, the association between negative urgency and interpersonal problems operates indirectly through the experience of greater depressive symptoms. While some of the effect of negative urgency on interpersonal relationships may operate through other means, such as engagement in externalizing behaviors (e.g., aggressive behavior, substance use), we hypothesize a portion of this effect may be explained by the experience of depressive symptoms. Negative urgency has already been demonstrated as a predictor of later depressive symptoms in youth (Smith et al., 2013), has been cross-sectionally associated with depressive symptoms across ages (d'Acremont & Van der Linden, 2007; Gagnon et al., 2013; Miller et al., 2003), and is related to a range of internalizing problems characteristic of individuals experiencing depressive symptoms (e.g., reassurance seeking, rejection sensitivity; Anestis et al., 2007; Lesnick & Mendle, 2021). Since people experiencing depressive symptoms may withdraw from social interactions, experience deficits in social skills and functioning, and require greater social support, it is quite possible that youth who are higher in negative urgency experience greater depressive symptoms and then experience greater interpersonal problems. Understanding the extent and nature of the association between negative urgency and interpersonal problems in youth is necessary to provide clarity on the multifinality of this trait and inform prevention and intervention work to improve the social functioning and well-being of youth.

Method

Participants

The sample at baseline comprised 272 youth between the ages of 10 and 13 years old ($M = 11.75$, $SD = 0.93$) recruited through multiple 4-H youth summer programs and a local middle school from 2015 to 2018. If youth enrolled in these programs fell outside of the 10–13 age range but wanted to participate in the study, we allowed them to complete the survey. However, data from participants who were not between the ages of 10 and 13 years old were excluded from data prior to analysis ($N = 11$). Participants self-identified as European American (82.35%), Hispanic/Latino (2.57%), African American (2.21%), American Indian/Native American (3.31%), East Asian/Pacific Islander (1.10%), Southeast Asian (1.84%) and biracial or another race (5.88%). In terms of biological sex, 79.78% of the participants were females and 20.22% were males. This study was approved by the Institutional Review Board at Cornell University [Protocol # 1207003173].

Procedure

The present data are part of a larger data collection effort on the adolescent transition and youth well-being. Participants completed self-report surveys at two time points. Baseline assessment was most often conducted during the summer, while Time 2 was assessed approximately four months later, typically in the fall of the school year. The four-month lag between timepoints constitutes a significant period in adolescent life, and allows adequate time for adolescent experiences of urgency, depressive symptoms, and interpersonal problems to be accurately captured. Parents or legal guardians provided informed consent prior to adolescent participation in the study, and all adolescents provided assent at the time of the study. At baseline, surveys were administered by researchers in-person via pen and paper. Follow-up surveys were mailed to participants and completed at home. Participants received gift card compensation after completing the surveys.

Measures

Negative urgency

The Negative Urgency subscale of the UPPS-P Impulsive Behavior Scale for Children, an 8-item self-report measure, assessed youth's tendency to act rashly when experiencing negative emotions (Zapolski et al., 2010). Items include "When I'm upset I often act without thinking," and "When I feel rejected, I often say things I later regret." All items were rated on a Likert scale ranging from 1 (*Not At All Like Me*) to 4 (*Very Much Like Me*). Resulting scores were averaged with higher scores indicating greater negative urgency ($M_{T1} = 2.26$, $SD_{T1} = 0.76$). Cronbach's α in the current sample was 0.88.

Depressive symptoms

Depressive symptoms were assessed using the Center for Epidemiological Studies Depression Scale Child version (CES-DC; Weissman, Orvaschel, & Padian, 1980). The CES-DC includes 20 self-report items measuring depressive symptoms in children. Respondents indicated their agreement using a 4-point Likert scale ranging from 0 (*Not At All*) to 3 (*A Lot*) when considering their feelings over the past week. Sample items include, "I felt down and unhappy," and "I was bothered by things that don't usually bother me." Higher scores indicate greater depressive symptoms, with a score of 15 indicating significant depressive symptoms. The mean level of depressive symptoms in the sample at Time 1 was 15.64 ($SD = 11.85$) and at Time 2 was 15.15 ($SD = 11.90$). Scores at Time 1 did not differ significantly from scores at Time 2 ($t = 0.86$, $p = .39$). While average depressive symptoms at Time 1 and Time 2 were above the clinical cutoff, this is consistent with scores in other research on youth (Demaray et al., 2022; Felton, Schwartz, Oddo, Lejuez, & Chronis-Tuscano, 2021; Funkhouser et al., 2022) and the general prevalence of mood disorders during the adolescent transition (Costello et al., 2011; Costello, Mustillo, & Erkanli, 2003; Mendle, 2014). Cronbach's α in the current sample was 0.91.

Peer interpersonal problems

Peer interpersonal problems were assessed using the Index of Peer Relations (IPR; Hudson, 1992; Forte & Green, 1994), a 25-item self-report measure of the degree to which adolescents have problems with their peers. Items were modified to use the phrase "kids my age" rather than "my peers." Sample items include, "I get along very well with kids my age," (reverse coded) and "I can't stand to be around kids my age." Adolescents responded using a 7-point Likert scale ranging from *None of the time* (1) to *All of the time* (7). Responses were summed, with higher scores indicating greater difficulty with peer relationships. Cronbach's α in the current sample was 0.95. The mean at Time 1 was 28.19 ($SD = 17.27$) while the mean at Time 2 was 26.64 ($SD = 18.75$), which were not significantly different ($t = 1.20$, $p = .23$).

Parent interpersonal problems

Interpersonal problems with parents were assessed using the Parental Conflict Scale (PCS) adapted from the Conflict subscale of the Braiker-Kelly Partnership Questionnaire (Braiker & Kelly, 1979, as cited in Lucas-Thompson, 2014), which is a 5-item self-report measure of conflict in relationships. Participants responded to the scale twice—once regarding conflict with one's mother and once regarding conflict with one's father—on a Likert scale ranging from 1 (*Not at all*) to 9 (*Very much*). Sample items include, "How often do you and your mother argue with one another?" and "To what extent do you communicate negative feelings toward your father (e.g., anger, dissatisfaction, frustration, etc.)?" Responses were summed, with higher scores indicating greater conflict. Cronbach's α in the current sample was 0.80 for mother conflict ($M_{T1} = 15.65$, $SD_{T1} = 7.59$) and 0.81 for father conflict ($M_{T1} = 13.69$, $SD_{T1} = 7.28$). Average mother conflict at Time 2 (15.23, $SD = 6.73$) did not differ significantly from that at Time 1 ($t = 0.99$, $p = .32$), nor did average father conflict at Time 2 (13.69, $SD = 7.08$) differ significantly from that at Time 1 ($t = 0.48$, $p = .63$).

Covariates

Age, sex, race, parent education, and pubertal status (assessed via the Pubertal Development Scale, Petersen, Crockett, Richards, & Boxer, 1988) were included as covariates in the analyses to account for age trends in relationship quality (Laursen, Coy, & Collins, 1998) and depressive symptoms (Kessler, Foster, Webster, & House, 1992); sex differences in depression that emerge during adolescence (Hankin et al., 1998); potential racial and socioeconomic discrepancies; and the possible impact of pubertal status on mood, emotionality, and interpersonal interactions (Conley & Rudolph, 2009). Pubertal status was calculated by taking a sum of items related to changes in height, body hair, skin, and either breast growth (for girls) or voice deepening (for boys).

Analytic plan

A series of multiple regression models were analyzed using M*plus* version 8.3 (Muthén & Muthén, 1998-2019). The first three models explored the direct effects of negative urgency on each type of interpersonal problems by regressing negative urgency and covariates onto scores on the IPR and the PCS for mothers and fathers. The second set of analyses added depressive symptoms as a predictor of each type of interpersonal problems to assess the indirect effect of negative urgency on interpersonal problems through depressive symptoms. In both sets of models, all covariates were utilized as direct predictors of interpersonal problems. Sex was additionally included as a predictor of depressive symptoms in the cross-sectional indirect effect models and pubertal status was added as a predictor of depressive symptoms in the longitudinal indirect effect models. Bootstrapped estimates of the indirect effects were obtained and percentile confidence intervals were examined. Recommendations by Preacher and Hayes (2008) were followed, which indicate that an indirect effect is considered significant if the resulting 95% confidence intervals (CIs) do not include 0.

Responses at Time 1 were used for the cross-sectional analyses. In the longitudinal models, negative urgency at Time 1 was used as a predictor of Time 2 depressive symptoms and Time 2 interpersonal problems. All covariates in the longitudinal models were Time 1 reports other than pubertal status, for which Time 2 data was used. Using Time 2 pubertal status reports allows for a greater breadth of information that may have been missing for those who had not yet started puberty at Time 1.

Missing data

Participants were invited to complete a Time 2 follow-up survey approximately four months later (M_{age} = 12.03 years, SD_{age} = 0.97). Missingness on key variables at baseline ranged from $N = 5$ (1.84%) for mother interpersonal problems to $N = 31$ (11.40%) for father interpersonal problems. Forty-three percent of the original sample completed the follow-up. Of participants who completed the follow-up assessment, missingness on key variables at follow-up ranged from $N = 1$ (0.85%) for peer and mother interpersonal problems to $N = 10$ (8.47%) for father interpersonal problems. Adolescents who participated at Time 1 only did not differ significantly on any variables from those who participated at both timepoints except for sex; girls were more likely to be missing than boys, though this is likely attributable to the difference in sample size for these sexes. This satisfies the conditions for missing at random (MAR), so missing data was addressed using full information maximum likelihood (FIML) estimation with robust standard errors.

Results

Descriptive statistics and correlations are presented in Table 1. Peer, mother, and father interpersonal problems were all significantly positively correlated with each other at both Time 1 (*r*'s = 0.29 to 0.66) and Time 2 (*r*'s = 0.28 to 0.74). Each type of interpersonal problem was significantly correlated with Time 1 negative urgency at both Time 1 (*r*'s = 0.17 to 0.33) and Time 2 (*r*'s = 0.20 to 0.29), such that higher self-

Table 1
Means, standard deviations, and intercorrelations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1 NU															
2. T1 Peer IP	0.32***														
3. T1 Mother IP	0.33***	0.40***													
4. T1 Father IP	0.17**	0.29***	0.66***												
5. T1 CES-DC	0.40***	0.54***	0.30***	0.20**											
6. Age	0.03	0.18**	−0.01	−0.02	0.11										
7. Race	−0.06	−0.03	0.04	0.13	−0.10	−0.03									
8. Sex	−0.13	0.06	0.02	−0.04	0.06	0.03	0.13*								
9. PEdu	−0.12	−0.08	−0.18	−0.15	−0.13	0.04	0.06	0.18							
10. T1 PS	0.05	0.16*	0.18**	0.08	0.15*	0.34***	0.08	0.28***	−0.10						
11. T2 Peer IP	0.20*	0.65***	0.25**	0.14	0.49***	0.34***	−0.02	0.08	−0.05	0.28***					
12. T2 Mother IP	0.29***	0.25**	0.61***	0.49***	0.24**	0.14	−0.11	0.08	−0.22	0.28***	0.30***				
13. T2 Father IP	0.23**	0.25**	0.57***	0.50***	0.30***	0.10	0.04	0.09	−0.17	0.18*	0.28**	0.74***			
14. T2 CES-DC	0.32***	0.49***	0.33***	0.18*	0.66***	0.26***	−0.04	−0.03	−0.11	0.31***	0.63***	0.27**	0.22*		
15. T2 PS	0.04	0.27***	0.17*	0.04	0.25***	0.34***	0.06	0.36***	−0.19	0.77***	0.28**	0.26**	0.14	0.40***	
M	2.26	28.19	15.65	13.69	15.64	11.75	1.66	1.80	4.48	9.58	26.64	15.23	13.69	15.15	9.93
(SD)	(0.76)	(17.27)	(7.59)	(7.28)	(11.85)	(0.93)	(1.66)	(0.40)	(1.11)	(2.68)	(18.75)	(6.73)	(7.08)	(11.90)	(2.56)

Note: *** p ≤ .001; ** p ≤ .01; * p < .05; NU=Negative Urgency; IP=Interpersonal Problems; PEdu = Parent Education; PS=Pubertal Status.

reported negative urgency was related to higher self-reported interpersonal problems with peers and parents. Greater interpersonal problems with parents and peers were also positively correlated with depressive symptoms at both Time 1 (r's = 0.20 to 0.54) and Time 2 (r's = 0.18 to 0.63). Depressive symptoms were also significantly positively correlated with Time 1 negative urgency at both Time 1 ($r = 0.40$) and Time 2 ($r = 0.32$).

Cross-sectional results

Cross-sectional results with unstandardized parameter estimates are presented in Table 2. In the direct effects models, higher negative urgency significantly predicted a greater degree of interpersonal problems with peers ($\beta = 0.31$, 95% CI [0.18, 0.43]) and mothers ($\beta = 0.31$, 95% CI [0.17, 0.45]), but not fathers ($\beta = 0.14$, 95% CI [−0.02, 0.30]). Of the covariates, age significantly predicted peer interpersonal problems ($\beta = 0.15$, 95% CI [0.03, 0.28]), suggesting that older participants reported greater problems with their peers. Pubertal status significantly predicted interpersonal problems with mothers ($\beta = 0.16$, 95% CI [0.01, 0.29]), with more physically mature adolescents reporting greater conflict with their mothers.

Though the traditional approach to examining indirect effects (Baron & Kenny, 1986, as cited in Hayes, 2009) posits that the effect of the independent variable (negative urgency) on the dependent variable (interpersonal problems) without the potential indirect effect (depressive symptoms) must be significant, this approach has been scrutinized due to its limited ability to detect indirect effects in comparison to other methods (reviewed in Hayes, 2009). Because it is possible that part of the effect of negative urgency on interpersonal problems operates through depressive symptoms, the potential indirect effects for all models were still explored.

The indirect effect of negative urgency on interpersonal problems through depressive symptoms was significant for relationships with peers ($\beta = 0.19$, 95% CI [0.12, 0.27]), mothers ($\beta = 0.08$, 95% CI [0.02, 0.15]), and fathers ($\beta = 0.07$, 95% CI [0.01, 0.14]), with individuals high in negative urgency experiencing greater depressive symptoms and, in turn, greater interpersonal problems (see Table 2). Depressive symptoms were a significant predictor of interpersonal problems with peers ($\beta = 0.47$, 95% CI [0.36, 0.58]), mothers ($\beta = 0.19$, 95% CI [0.05, 0.33]), and fathers ($\beta = 0.17$, 95% CI [0.02, 0.32]), indicating that individuals who experienced more depressive symptoms reported greater interpersonal problems with peers and parents. Total effects were significant for interpersonal problems with peers ($\beta = 0.33$, 95% CI [0.20, 0.44]) and mothers ($\beta = 0.32$, 95% CI [0.17, 0.46]), but not fathers ($\beta = 0.14$, 95% CI [−0.02, 0.30]).

Once depressive symptoms were included in the models, negative urgency only remained a significant predictor of interpersonal problems with mothers ($\beta = 0.24$, 95% CI [0.08, 0.39]). Pubertal status also remained a significant predictor of interpersonal problems with mothers in the indirect effect model ($\beta = 0.14$, 95% CI [0.01, 0.28]) and age remained a significant predictor of peer interpersonal problems ($\beta = 0.12$, 95% CI [0.001, 0.24]). Further, negative urgency significantly predicted depressive symptoms in the indirect models ($\beta = 0.41$, 95% CI [0.31, 0.51]). To improve overall model fit of the cross-sectional models, sex was included as an additional predictor of depressive symptoms. This makes theoretical sense given the vast literature on sex differences in depression (e.g., Nolen-Hoeksema & Hilt, 2009); however, sex did not emerge as a significant predictor of depressive symptoms ($\beta = 0.12$, 95% CI [−0.01, 0.23]). The R^2 for depressive symptoms was 0.17, meaning negative urgency and sex explained 17% of the variance in depressive symptoms.

The indirect effects models all evidenced adequate model fit. The model predicting peer interpersonal problems evidenced the best fit, with a non-significant chi-square value, Comparative Fit Index (CFI)

Table 2
Cross-sectional models.

	Direct Effects				Indirect Effects			
	b	SE	95% confidence interval		*b*	SE	95% confidence interval	
			Lower	Upper			Lower	Upper
Peer Interpersonal Problems								
Negative urgency	**7.14**	**1.63**	**3.88**	**10.40**	2.99	1.58	−0.003	5.68
Depressive Symptoms					**0.68**	**0.08**	**0.53**	**0.84**
Age	**2.85**	**1.20**	**0.58**	**5.22**	**2.18**	**1.12**	**0.01**	**4.30**
Race	−0.17	0.51	−1.20	0.78	0.26	0.50	−0.74	1.18
Sex	4.37	3.03	−1.81	9.83	1.82	2.56	−3.36	6.53
Parent education	−1.13	1.43	−3.80	1.75	−0.38	1.35	−2.91	2.35
Pubertal status	0.33	0.49	−0.57	1.26	0.14	0.42	−0.66	0.97
Indirect Effect					**4.39**	**0.90**	**2.80**	**6.28**
Mother Interpersonal Problems								
Negative urgency	**3.13**	**0.78**	**1.60**	**4.73**	**2.41**	**0.81**	**0.81**	**4.10**
Depressive Symptoms					**0.12**	**0.05**	**0.03**	**0.21**
Age	−0.40	0.53	−1.43	0.65	−0.55	0.55	−1.62	0.53
Race	0.24	0.28	−0.35	0.77	0.31	0.28	−0.28	0.87
Sex	0.79	1.41	−2.13	3.35	0.31	1.36	−2.57	2.85
Parent education	−0.93	0.70	−2.17	0.54	−0.80	0.70	−2.11	0.60
Pubertal status	**0.44**	**0.20**	**0.04**	**0.81**	**0.41**	**0.19**	**0.02**	**0.79**
Indirect Effect					**0.79**	**0.35**	**0.19**	**1.51**
Father Interpersonal Problems								
Negative urgency	1.33	0.77	−0.21	2.87	0.67	0.81	−0.89	2.42
Depressive Symptoms					**0.11**	**0.05**	**0.01**	**0.20**
Age	−0.22	0.56	−1.30	0.87	−0.35	0.56	−1.47	0.72
Race	0.57	0.36	−0.15	1.29	0.67	0.36	−0.04	1.37
Sex	−0.57	1.44	−3.61	2.29	−0.90	1.41	−3.77	1.94
Parent education	−0.80	0.64	−2.09	0.38	−0.75	0.63	−2.01	0.40
Pubertal status	0.22	0.20	−0.21	0.59	0.19	0.20	−0.23	0.55
Indirect Effect					**0.68**	**0.32**	**0.08**	**1.36**

Note. Bolding indicates estimate is significant at $p < .05$.

above 0.95 and Standardized Root Mean Square Residual (SRMR) below 0.08 (reviewed in Kline, 2015); χ^2 (4, N = 272) = 9.55, p = .05, CFI = 0.96, SRMR = 0.04. The models of mother interpersonal problems, χ^2 (4, N = 272) = 9.86, p = .04, CFI = 0.94, SRMR = 0.03, and father interpersonal problems, χ^2 (4, N = 272) = 9.98, p = .04, CFI = 0.91, SRMR = 0.03, demonstrated similar fit to the model of peer interpersonal problems.

To calculate the percent of the direct effect of negative urgency on interpersonal problems which is explained by the indirect effect of negative urgency on interpersonal problems through depressive symptoms, we utilized the product of coefficients method (Ditlevsen, Christensen, Lynch, Damsgaard, & Keiding, 2005; MacKinnon, 2000). Following this approach, the regression coefficient of negative urgency predicting depressive symptoms was multiplied by the regression coefficient of depressive symptoms predicting interpersonal problems, for each type of interpersonal problems separately. Then, the outcome of this multiplication was divided by the regression coefficient for the direct effect of negative urgency on each type of interpersonal problems plus the product of the regression coefficient of negative urgency predicting depressive symptoms and the regression coefficient of depressive symptoms predicting interpersonal problems. The results indicated that depressive symptoms explained the greatest percentage of the association between negative urgency and interpersonal problems with peers (60%), followed by fathers (52%) and mothers (24%).

Longitudinal results

Longitudinal results are presented in Table 3. Similar to the cross-sectional results, in the direct effect models, negative urgency prospectively predicted greater interpersonal problems with mothers over a four-month period (β = 0.25, 95% CI [0.07, 0.41]), while this relationship failed to reach significance for father-related interpersonal problems (β = 0.18, 95% CI [−0.04, 0.38]). Contrary to the cross-sectional findings, negative urgency did not significantly predict interpersonal problems in relationships with peers (β = 0.18, 95% CI [−0.06, 0.40]) over the four-month period. Of the covariates, age remained a significant predictor of peer interpersonal problems (β = 0.29, 95% CI [0.11, 0.45]) and pubertal status remained a significant predictor of mother interpersonal problems (β = 0.21, 95% CI [0.004, 0.41]). In the longitudinal direct effects model predicting mother interpersonal problems, race emerged as a significant predictor (β = −0.17, 95% CI [−0.28, −0.07]).

With regard to the indirect effects model, negative urgency significantly predicted depressive symptoms (β = 0.30, 95% CI [0.12, 0.48]). Although depressive symptoms significantly predicted all types of interpersonal problems in the cross-sectional models, this was not the case for the longitudinal indirect effect models. Time 2 depressive symptoms only significantly predicted Time 2 interpersonal problems with peers (β = 0.60, 95% CI [0.36, 0.76]), but not mothers (β = 0.09, 95% CI [−0.13, 0.30]) or fathers (β = 0.10, 95% CI [−0.15, 0.34]). Similar to the cross-sectional models, with the inclusion of depressive symptoms, negative urgency only significantly predicted interpersonal problems with mothers (β = 0.22, 95% CI [0.03, 0.39]). The indirect effect of higher negative urgency on greater peer interpersonal problems through depressive symptoms was significant (β = 0.18, 95% CI [0.05, 0.32]), but this indirect effect was not significant for interpersonal problems with mothers (β = 0.03, 95% CI [−0.04, 0.10]) or fathers (β = 0.03, 95% CI [−0.04, 0.12]). As in the cross-sectional peer model, age was a significant predictor in the longitudinal indirect effects model of peer relationships (β = 0.20, 95% CI [0.06, 0.35]). Race remained a significant predictor of mother interpersonal problems in the longitudinal indirect effects model (β = −0.17, 95% CI [−0.28, −0.05]). While the total effect was significant for interpersonal problems with mothers (β = 0.25, 95% CI [0.06, 0.41]), this was not the case for interpersonal

Table 3
Longitudinal models.

	Direct Effects				Indirect Effects			
	b	SE	95% confidence interval		*b*	SE	95% confidence interval	
			Lower	Upper			Lower	Upper
Peer Interpersonal Problems								
Negative urgency	4.37	2.77	−1.36	9.76	0.29	2.23	−4.35	4.42
Depressive Symptoms					**0.93**	**0.16**	**0.59**	**1.19**
Age	**5.79**	**1.92**	**2.13**	**9.50**	**3.97**	**1.56**	**1.12**	**7.14**
Race	0.08	0.84	−1.64	1.76	0.26	0.73	−1.16	1.70
Sex	2.33	5.87	−9.38	13.92	6.10	4.04	−2.17	14.09
Parent education	0.54	1.84	−3.00	4.08	0.04	1.71	−3.42	3.44
Pubertal status	1.23	0.86	−0.44	2.93	−0.52	0.77	−1.98	0.95
Indirect Effect					**4.43**	**1.77**	**1.27**	**8.09**
Mother Interpersonal Problems								
Negative urgency	**2.20**	**0.82**	**0.57**	**3.75**	**1.96**	**0.83**	**0.27**	**3.50**
Depressive Symptoms					0.05	0.06	−0.07	0.18
Age	0.70	0.71	−0.78	2.02	0.61	0.73	−0.88	2.03
Race	**−0.71**	**0.24**	**−1.24**	**−0.24**	**−0.70**	**0.25**	**−1.24**	**−0.21**
Sex	1.49	2.16	−3.23	5.62	1.80	2.11	−2.69	5.62
Parent education	−0.74	0.72	−2.06	0.93	−0.78	0.72	−2.10	0.87
Pubertal status	**0.53**	**0.26**	**0.01**	**1.00**	0.43	0.28	−0.17	0.95
Indirect Effect					0.25	0.29	−0.31	0.87
Father Interpersonal Problems								
Negative urgency	1.71	1.00	−0.35	3.56	1.46	0.97	−0.43	3.32
Depressive Symptoms					0.06	0.07	−0.09	0.20
Age	0.71	0.77	−0.75	2.24	0.60	0.82	−1.04	2.23
Race	−0.15	0.41	−0.94	0.69	−0.13	0.42	−0.93	0.74
Sex	3.33	2.02	−0.99	7.13	3.51	1.98	−0.67	7.37
Parent education	−0.80	0.78	−2.23	0.94	−0.83	0.78	−2.29	0.88
Pubertal status	0.14	0.30	−0.43	0.78	0.05	0.32	−0.54	0.76
Indirect Effect					0.27	0.37	−0.40	1.09

Note. Bolding indicates estimate is significant at $p < .05$.

problems with peers ($\beta = 0.19$, 95% CI [−0.03, 0.41]) or fathers ($\beta = 0.18$, 95% CI [−0.04, 0.38]).

Pubertal status was included as a predictor of depressive symptoms in the longitudinal models, as this provided improved model fit and is consistent with past literature which demonstrates associations between pubertal changes and depressive symptoms (e.g., Lewis et al., 2018; Mendle, Harden, Brooks-Gunn, & Graber, 2011). Accordingly, pubertal status did significantly predict depressive symptoms ($\beta = 0.44$, 95% CI [0.25, 0.60]). The associated R^2 for the model predicting depressive symptoms was 0.27, suggesting that negative urgency and pubertal status explained 27% of the variance in depressive symptoms.

Model fit of the longitudinal indirect effects models was good. The peer interpersonal problems model had the highest CFI value, χ^2 (4, $N = 272$) = 6.28, $p = .18$, CFI = 0.98, SRMR = 0.04, followed by mother interpersonal problems, χ^2 (4, $N = 272$) = 6.19, $p = .19$, CFI = 0.96, SRMR = 0.03, and finally father interpersonal problems, χ^2 (4, $N = 272$) = 6.14, $p = .19$, CFI = 0.94, SRMR = 0.03. All models had non-significant chi-square values and SRMR values below 0.08. According to the product of coefficients method (Ditlevsen et al., 2005; MacKinnon, 2000), Time 2 depressive symptoms explained 93% of the association between negative urgency and peer interpersonal problems at Time 2; 11% of the association between negative urgency and mother interpersonal problems; and 16% of the association between negative urgency and father interpersonal problems.

Discussion

This study represents an initial step toward clarifying the way in which negative urgency is associated with problematic relationships and the role of internalizing problems in negative urgency's associations with behavior. To this end, adolescents who scored high in negative urgency reported greater interpersonal problems with parents and peers. Results indicated nuanced differences in this association between negative urgency and interpersonal problems, such that the association was dependent upon the type of relationship (e.g., mother-child, father-child, peer-to-peer) and the presence of depressive symptoms. These results elucidate the pervasiveness of negative urgency within the lives of youth and emphasize the need to find ways to address this trait so that youth may maintain healthy social relationships during this pivotal developmental period.

Although negative urgency was associated with interpersonal problems in each relationship, there were disparate findings for interpersonal problems with mothers compared to fathers. Specifically, in the cross-sectional data, negative urgency was directly associated with greater interpersonal problems with peers and mothers, but only indirectly associated with greater interpersonal problems with fathers. These findings may be reflective of normative trends in parent-child relationships. Throughout adolescence, youth tend to report greater closeness, security, and support with mothers than fathers (Doyle, Lawford, & Markiewicz, 2009; Ebbert, Infurna, & Luthar, 2019; Paterson, Field, & Pryor, 1994) and mothers tend to be more knowledgeable about adolescents' lives than fathers (Updegraff, McHale, Crouter, & Kupanoff, 2004). It is also possible that the lack of findings for father relationships may be related to the greater proportion of female participants in this sample given that adolescent girls, in particular, rely more on their mothers than fathers for intimacy and feelings of safety (Paterson et al., 1994). Thus, interpersonal problems with fathers may be less common among youth, and particularly girls, due to fewer interaction opportunities or differences in the nature of father-child compared to mother-child relationships. There were also a number of missing responses for father interpersonal problems. While analyses were adequately powered to detect an effect, there were more missing responses for father interpersonal problems than for peer or mother interpersonal problems. Additional research will confirm whether the results for relationships with fathers represent a true null effect or an artifact of the present sample.

The high proportion of female participants in the present sample may not only contribute to findings regarding father relationships, but other findings as well. While one previous study did not find sex differences in negative urgency among a sample of preadolescents (Settles et al., 2012), there is a long research literature implicating sex and gender differences in emotional responses to interpersonal stress during adolescence (e.g., Hamilton, Stange, Abramson, & Alloy, 2015; Rudolph, 2002; Shih, Eberhart, Hammen, & Brennan, 2006). Accordingly, it is plausible that girls may be more likely to enact negatively urgent behaviors within their interpersonal relationships than other youth. Girls are, of course, also more likely to experience depressive symptoms during early adolescence (e.g., Salk, Hyde, & Abramson, 2017), which may increase the frequency of upsetting situations that evoke negatively urgent behaviors. Assessing these associations in a more sex-balanced sample would support the consistency of present findings.

Through longitudinal analyses, we found that, while the direct effect of negative urgency on interpersonal problems persisted for mothers, only the indirect effect through depressive symptoms was significant for peers. One possibility is that, due to the fragility of peer relationships during adolescence (Brown & Larson, 2009), negatively urgent adolescents exert greater effort to maintain these peer relationships. When experiencing depressive symptoms, it may seem both more vital and more difficult to maintain this investment, and peer relationships consequently suffer. In contrast, adolescents may not be as concerned about the loss of parent-child relationships—given the increase in youth autonomy and decrease in reliance on parents during adolescence (Hazel et al., 2014) as well as the perceived permanence of parent-child relationships—and thus exert less effort to control their negatively urgent behavior with their mothers. Regardless of the presence of depressive symptoms, parent-child relationships typically involve normative conflict during adolescence (reviewed in Hazel et al., 2014). As such, the disparate results of the longitudinal analyses for interpersonal problems with peers and mothers can be viewed as consistent with the characteristics of adolescent development.

Additionally, co-rumination, which captures the tendency to discuss and ponder interpersonal problems with another person (Rose, 2002; Rose, 2021), could play a part in negatively urgent youth's relationship difficulties. Co-rumination is a paradox. It is associated with increased relationship closeness while also exacerbating depressive symptoms in youth (reviewed in Rose, 2021). Co-rumination is quite common among youth and tends to be centered on interpersonal difficulties. One possibility is that negatively urgent youth may discuss their interpersonal problems in certain relationships with other important people in their lives; rather than resolving these relationship difficulties, co-ruminating on relationship problems may foster a sense that these relationships are indeed in peril and result in more frequent negatively urgent attempts to "fix" or resolve relationship problems. Because these attempts are driven by negative emotions and fears, they are likely to backfire, worsening the relationships they are intended to fix.

Taken together, these results suggest for negatively urgent adolescents, depressive symptoms represent one mechanism through which negative urgency may ultimately be associated with interpersonal difficulties. Though our analyses support internalizing dysfunction as one path through which negative urgency influences behavior, results did not account for the entire effect of negative urgency on interpersonal problems. It is possible that an alternate path, such as through externalizing behavior, accounts for the remainder of this effect. Even so, while the way in which negative urgency manifests may be context dependent, negative urgency is not. Instead, negative urgency appears to pervade interpersonal domains. This indicates that negative urgency represents a global disposition that influences action in multiple situations and relationships.

Future directions and limitations

The present study provides a first step in understanding urgency in everyday occurrences, as interpersonal problems are something most people experience at some point in their lives. We propose two possible directions for future research to expand on this work. First, negative urgency is relatively understudied in common occurrences, like interpersonal problems. It is both interesting and valuable to consider how negative urgency may present in daily life versus solely with regard to psychopathology and risky behavior. Understanding negative urgency's association with more everyday problems may allow parents, clinicians, teachers, and others to prevent the development of more problematic behavior. For example, understanding that youth who are higher in negative urgency report greater interpersonal problems may help parents or teachers identify youth at risk for future development of psychopathology by the ways in which they engage with their parents and peers.

In addition to work exploring negative urgency's impact on daily problems, further exploration of negative urgency's associations with internalizing difficulties is necessary. While some work has been done in this area, more attention is needed to fully understand the transdiagnostic nature of negative urgency. Clarifying how and why urgency manifests as externalizing in some people (or some situations) and internalizing in others may provide meaningful insights for intervention and prevention work, as well as a deeper sense of factors underlying the development of psychopathology.

This study faced a few, concrete limitations. One limitation of the present work is its sole reliance on self-reports. While youth self-reports are reliable and important indicators of their lived experiences, the present study does provide a one-sided view of relationships. Future work should incorporate parent and friend reports on interpersonal problems with youth to assess whether these reports corroborate or deviate from each other. One possibility is that youth high in negative urgency perceive greater interpersonal problems with others due to their discomfort with negative emotions, but those around them may not feel the relationship is quite as contentious. This may help calibrate future intervention work to determine whether youth require support in their personal interpretations of interpersonal relationships or if they need support in the dynamics of the relationship.

The current study was further methodologically limited by the availability of data from only two time points. This precluded the analyses from exploring depressive symptoms as a true mediator of the negative urgency-interpersonal problems association due to a lack of temporal precedence among the three variables (i.e., depressive symptoms were assessed at the same time as interpersonal problems). Examination of the present associations across at least three time points, as well as over differing time intervals, would enhance understanding of the timing and sequelae of these associations. Further, the present analyses examined negative urgency's association with interpersonal problems over time without the inclusion of Time 1 interpersonal problems in the model. While this choice was congruent with our primary study question, it could be considered a limitation of the current analyses, as our results do not provide an estimate of the extent to which negative urgency predicts interpersonal problems above and beyond the influence of baseline interpersonal problems.

Similarly, the analytic approach employed in the present analyses did not account for and separate stable, between-person effects from within-person effects. Between-person effects have been demonstrated to contribute to the co-occurrence of psychopathology and related individual differences (e.g., Allegrini et al., 2022; O'Connor, McGuire, Reiss, Hetherington, & Plomin, 1998), and may partially account for the associations between negative urgency, depressive symptoms, and interpersonal problems in the present study. Future examinations of negative urgency, depressive symptoms, and interpersonal problems should utilize data that allows between- and within-person effects to be separated to determine the contributions of each.

Beyond methodology and analyses, the present study had a few data limitations. First, our attrition rate, while on par with other studies in similar samples (e.g., Giollabhui et al., 2018; Stumper, Olino, Abramson, & Alloy, 2019), was high. Second, the present sample was recruited from a limited geographic area and was rather homogenous in terms of race and ethnicity. Finally, the sex distribution of our sample was skewed such that many more adolescents were female than male. Further exploration in more diverse samples and wider geographic areas are necessary to support the generalizability of these results.

Conclusion

The present results constitute an initial exploration of the associations among negative urgency, depressive symptoms, and interpersonal problems. Understanding these associations in adolescence is especially important, as experiences during this developmental period hold enduring impacts across the lifespan. Our analyses yielded both similar and disparate results for the role of negative urgency and depressive symptoms in adolescents' various interpersonal relationships. Together, these results emphasize the nuances of individual differences while also highlighting the pervasiveness of negative urgency in adolescents' lives. Negative urgency is not only present in relation to clinical symptoms, but also in adolescents' everyday experiences, such as interpersonal problems. Further research on negative urgency's impact on both clinical and non-clinical outcomes is key to ensuring that our adolescents have a chance to thrive both in this developmental period and the years that follow.

Data availability

Data will be made available on request.

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