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Adolescent Friendships in the Context of Dual Risk: The Roles of Low Adolescent Distress Tolerance and Harsh Parental Response to Adolescent Distress

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Abstract

Given extensive evidence of the importance of relationships with friends during development, a large body of research has examined the correlates of these significant social experiences. Most of this research, however, has examined either individual characteristics (e.g., behavior, personality) or contextual factors (e.g., family), and most of the work has studied relationships during childhood. The present study extended previous research by examining how both an individual factor (adolescent distress tolerance) and a contextual factor (parental response to adolescent distress) are linked to adolescents' friendships. Adolescents ($n = 161$) completed two behavioral measures of distress tolerance and parents reported about their responses to adolescent distress. Although distress tolerance and parental responses to distress were not directly associated with adolescents' positive or negative friendship experiences, for adolescents with low distress tolerance, harsh parental responses were negatively associated with adolescents' positive friendship quality. Further, for adolescents whose parents used harsh responses to distress, distress tolerance was negatively associated with adolescents' positive friendship quality. Results highlight the importance of studying both individual and familial factors related to adolescents' social functioning.

Keywords

distress tolerance; parental responses to distress; adolescent friendships

Children and adolescents with poor quality peer relationships are at significant risk for a wide range of adjustment problems such as depression, anxiety, and low self-esteem (see Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006, for a review). As such, it is particularly important to identify factors that may contribute to poor quality peer relationships. One factor that has been shown to contribute to the quality of children and adolescents' peer relationships is the ability to appropriately regulate negative emotions (e.g., Murphy, Shepard, Eisenberg, & Fabes, 2004; Spinrad et al., 2006). Eisenberg and colleagues have theorized that children who are unable to control their negative emotions, or who become overwhelmed by these emotions, are likely to behave in ways that are socially inappropriate or dysfunctional as a direct result of their emotional over-arousal (Eisenberg, Fabes, Guthrie, & Reiser, 2000). A second factor that is thought to contribute to adolescents' social functioning is the way in which parents respond to adolescents' distress (Collins & Laursen, 2004; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Parental responses to children's distress are thought to influence how children discuss their emotions and interact with others (Eisenberg & Fabes, 1994). In the present study, our goal was to examine how these two factors are associated with the quality of adolescents' best friendships – important relationships that are thought to play a central role in children's social and emotional development (Rubin, Bukowski, & Parker, 2006).

Distress Tolerance and Friendship

One particularly important component of managing negative emotions is the capacity to tolerate frustration or distress (often referred to as “distress tolerance;” see Zvolensky, Vujanovic, Bernstein, & Leyro, 2010). Distress tolerance, which includes tolerance of uncertainty, ambiguity, frustration, negative emotion, and physical discomfort (Zvolensky et al., 2010), has been defined as one aspect of emotion regulation (Leyro, Zvolensky, & Bernstein, 2010). This capacity is thought to include two broad domains of functioning, including *perceptions* of one's abilities to tolerate distress (often measured with self-reports), and *behavioral performance* in the context of distress (typically measured using behavioral observations during a distressing task). Importantly, the measurement of distress tolerance extends beyond capturing participants' task persistence or sustained attention capabilities, as the tasks are designed specifically to elicit emotional distress that must be managed (i.e., tolerated, regulated) in order to complete the task. In other words, completing a boring or repetitive task that is otherwise non-aversive may be a sign of task-persistence or patience but not necessarily distress tolerance.

Self-perceptions and behavioral distress tolerance have been linked to a number of important outcomes, including substance use, eating disorders, and PTSD symptoms (Daughters, Lejuez, Kahler, Strong, & Brown, 2005; Vujanovic, Bernstein, & Litz, 2011). Most research on distress tolerance has been focused on its role in the development and maintenance of psychopathology (Leyro et al., 2010). We propose that, in addition, distress tolerance is an important yet understudied capacity for competent social relationships, particularly during adolescence when individuals spend considerable amounts of time with peers and are likely to encounter experiences that elicit frustration and distress. Further, distress tolerance may be particularly important for the quality of adolescents' friendships, as these relationships become more emotionally significant across adolescence (Buhrmester & Furman, 1987). For

instance, adolescents may feel distressed when facing a conflict with a friend, or they may feel frustrated when a friend breaks a promise to keep a secret. When these experiences arise, adolescents' responses to friends may depend in part on their abilities to stay calm, despite feeling upset or hurt (see Crick & Dodge, 1994, and Lemerise & Arsenio, 2000). In other words, adolescents who can persist competently in social interactions even when hurt or distressed may have better friendships compared to adolescents who become overwhelmed and have trouble managing their negative emotions when upset.

Parental Response to Distress and Friendship

Eisenberg and colleagues (Eisenberg, Fabes, & Murphy, 1996) have speculated that parents who respond negatively to their children's emotions ultimately increase children's negative affect and inhibit the development of competent emotion regulation strategies, thereby diminishing children's capacities for engaging in socially appropriate interactions with others. A number of studies have found that children whose experiences of distress are met with supportive and encouraging responses from parents have better social outcomes than children whose parents respond to distress with punitive, dismissive, or other negative reactions (see Eisenberg, Cumberland, & Spinrad, 1998, for a review). For instance, in a cross-sectional study of children and preadolescents, Eisenberg et al. (1996) found that mothers' reports of their minimizing responses to their children's distress were negatively associated with the children's social competence. Similarly, in a longitudinal study of children starting in preschool, parents' minimizing, punitive, and distress responses to their young children's distress reliably predicted teacher reports of boys' (but not girls') poor social behavior at ages 10-12 (Eisenberg et al., 1999).

Unfortunately, much of this research examining connections between parents' responses to children's emotions and children's social relationships has been limited to studies with young children and preadolescents; much less is known about the ways in which parents' responses might relate to adolescents' social relationships (Morris et al., 2007). This lack of focus on the role of parental responses to adolescents' distress is not surprising given the relatively small amount of time that adolescents spend with their parents (i.e., fewer than 15% of their waking hours are spent with family members; Steinberg, 2008). Yet despite this limited time spent with family, adolescents' family relationships remain an important source of emotional support (Collins & Laursen, 2004). Indeed, a central question of development concerns the ways in which parents continue to play a role in adolescent development, and the present study will examine the role of parents in relation to adolescents' abilities to manage negative emotions.

The Present Study

We focused on the ways in which adolescent distress tolerance and parental response to adolescent distress might be associated with adolescents' positive and negative friendship experiences. To date, research has largely focused on how parental responses to children's emotions are associated with children's social competence or social functioning in the larger peer group (e.g., Abaied & Rudolph, 2011; Eisenberg et al., 1999, 2000) and to our knowledge, only one study has examined connections to young children's dyadic friendship

experiences (McElwain, Halberstadt, & Volling, 2007). In contrast to young children's friendships, adolescents' friendships are characterized by increased emotional support, intimacy, and self-disclosure (Berndt, 1982; Rubin et al., 2006). Given the central role of emotions in adolescent friendships, it may be that adolescents' difficulties in regulating their emotions, as well as their experience with parents who respond to their emotions with punitive and minimizing responses, have important connections to the quality of adolescents' close friendships. Notably, positive and negative friendship qualities are often only modestly correlated (e.g., Berndt, 1996) so we examined the ways in which parental responses to distress and adolescent distress tolerance may be differentially related to positive and negative friendship experiences.

There are several ways that adolescents' difficulties in tolerating distress and parents' harsh responses to adolescents' emotions could be related to adolescents' best friendship experiences. First, these two risk factors could have unique associations to adolescents' friendship experiences, thus representing additive sources of risk for poor quality friendships. A second possibility is that these two factors interact, such that adolescents' best friendships can be best understood by considering the interaction of the two risk factors. In turn, this interaction could manifest itself in several ways. One possibility is that adolescents with high distress tolerance and parents who do not respond harshly may have *better* friendships than other adolescents because they have both the capacity to manage negative emotions as well as parents whose acceptance of negative emotions makes the parents available to help their adolescents resolve any negative emotions that they do experience. In other words, these adolescents have two protective factors that, together, provide synergistic benefits to adolescents' social relationships. These adolescents may be particularly patient and slow to act destructively during the inevitable difficult times of their friendships, having had a history of interactions with their parents in which negative emotions were acknowledged and resolved within a calm, supportive context.

Another possible way in which these two factors could interact is that when adolescents have both low distress tolerance and parents who respond punitively to these emotions, they act in ways that are harmful for the friendship (e.g., a "dual-risk" model of influence; see Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007). Low distress tolerant adolescents may have the greatest need for sensitive parents to help them manage their negative emotions, and when met with dismissing and punitive parental responses, these adolescents may have few resources available for regulating their emotions. The present study was designed to explore the ways in which adolescent distress tolerance and parental responses to adolescent distress uniquely and interactively predict adolescents' experiences with their best friends.

Our initial hypotheses relate to main effects of adolescent distress tolerance and harsh parental responses to adolescent distress. We hypothesized that adolescents who displayed low distress tolerance would be more likely to report poorer friendships, relative to adolescents who had higher distress tolerance. We further hypothesized that minimizing and punitive responses from parents would be negatively associated with the quality of adolescents' friendship experiences. Finally, we explored the interaction between adolescents' distress tolerance and parents' harsh responses to adolescent distress as risk

factors for adolescents' friendship qualities. Because of the various ways that adolescents' friendship qualities may depend on the joint influence of harsh parental responses and poor regulation of negative emotions, we did not form specific hypotheses about the nature of the interaction. Instead, we took an exploratory approach to examine whether adolescents' friendship qualities could be best predicted by the interaction of harsh parental responses and adolescents' emotion regulation.

Method

Participants

Participants included 161 adolescents (ages 14-18; $M = 16.1$, $SD = .99$; 56% girls) and their primary caregiver (145 mothers, 14 fathers, 2 other), who participated in a larger cross-sectional study examining connections between distress tolerance and adolescent behavior outcomes. Families were recruited in a large metropolitan area through newspaper advertisements and mailings sent to guardians in local public high schools. The sample was racially diverse, matching the community from which it was drawn. The majority of adolescents reported that they were African American or Black (54.2%) or White (26.8%), with remaining adolescents classifying themselves as Asian (3.9%), Hispanic (2.0%), Native American (0.6%), or Other (12.4%) (including adolescents who reported more than one race). Just over half of adolescents (54%) lived in a home with both biological parents. The mean annual household income was \$86,328 ($SD = \$47,719$). For the current study, adolescents received compensation ranging from \$25 – \$35, depending on whether or not they quit the distress tolerance tasks early. Parents received \$40 in cash for their participation in the larger study.

Measures

Adolescent distress tolerance—Adolescents participated in two non-social distress tolerance tasks, which are designed to tap adolescent persistence in goal-directed behavior in the context of a distressing or frustrating experience. These tasks have been shown to induce temporary affective distress without long-term negative effects (Daughters, Lejuez, Bornoalova, et al., 2005). Participants with high distress tolerance are thought to be better able to withstand these negative emotions in order to complete the tasks, in contrast to low distress individuals, who quit the tasks early presumably to escape the negative affect they experience during the task. In the computerized version of the *Mirror Tracing Persistence Task* (MTPT-C; Daughters, Lejuez, Bornoalova, et al., 2005; Quinn, Brandon, & Forehand, 1996), adolescents were asked to trace a red dot along the outline of several shapes using a computer mouse. The further along the shapes they were able to trace, the more points they earned. However, the mouse's typical operating function was reversed, such that cursor movements to the left resulted in dot movements on the screen to the right and vice versa, thereby increasing the task's difficulty. In addition, if a participant moved the cursor outside the lines of the shape, or did not move the mouse for more than two seconds, they heard a loud buzzing sound and the cursor moved back to the starting point. The outline became progressively thinner as participants traced, making the task virtually impossible to complete. The task included three levels of increasing difficulty. During the first level, participants were shown a straight line that was relatively easy to trace. During the second

level, participants were asked to trace a right angle, which was considered to be of moderate difficulty. Following a brief resting period, participants completed the third level, which was a difficult star shape. This level lasted up to seven minutes, and participants were told that they could quit this level at any point by pressing a key on the keyboard. However, participants were told that their performance on the task would determine the size of their payment at the end of the session.

The second distress tolerance task, the *Paced Auditory Serial Addition Task* (PASAT-C; Diehr, Heaton, Miller, & Grant, 1998; Lejuez, Kahler, & Brown, 2003), measures persistence on a challenging number-addition task that has reliably been shown to increase distress levels (Daughters, Lejuez, Kahler, et al., 2005; Daughters, Sargeant, Bornovalova, Gratz, & Lejuez, 2008, Daughters et al., 2009). During this task, numbers are presented sequentially on a computer screen, and participants are asked to add the current number on the screen to the previously presented number and then to use the computer's mouse to click on the correct response (shown on a number line on the screen) before the presentation of the subsequent number. The options for responding ranged from 1 – 20, which reduced the impact of mathematical skill on task performance. For each correct answer, participants heard a pleasant bell sound and one point was added to their score. For each incorrect answer or when they did not make a response, no point was added to their score and they heard an aversive “explosion” sound. The task consisted of three levels that increased in difficulty. Level 1 was the titration phase (5 minutes), which was used to determine participants' ability levels; this measure of performance was used to control for the effects of skill on later trials, thereby increasing the likelihood that the task was distressing to all participants. Level 2 was the stress phase (5 minutes), which was more difficult than Level 1. For the first four minutes of Level 2, the trials were presented at the average latency of participants' Level 1 performance. During the final minute of this phase, the trials were presented at half the latency of the previous four minutes, making the task much more difficult. Following a brief resting period, participants completed Level 3, which was the distress tolerance phase. This phase lasted up to seven minutes, and like the mirror tracing task, participants had the option to terminate the task early. During the stress phase and the distress tolerance phase, the amount of time between number presentations exceeded the participant's skill level, thereby forcing task failure and inducing distress. Participants were given the option to terminate the task at any time during Level 3 by clicking on a “Quit” button in the upper left hand corner of the screen. However, participants were also told that their performance on the task determined the size of their payment at the end of the session. Before participants started the distress tolerance tasks, they rated their baseline level of negative affect (including their anxiety, frustration, difficulty concentrating, physical discomfort, and irritability) on a scale ranging from 1 (*none*) to 100 (*extreme*). Participants later completed the same scale after the second level of the second task, which was then used to create a *change in affective distress* score. This post-task rating was completed after Level 2, rather than Level 3, to reduce potential confounds associated with task duration during the distress tolerance phase.

Participants' performance during the distress tolerance phase of the two tasks was correlated ($r = .31, p < .001$). Interestingly, the majority (78.3%) of participants quit at least one task

early. A Pearson chi-square test indicated that more participants quit the MTPT-C ($n = 121$, 75.2%) than the PASAT-C ($n = 58$, 36.0%), $\chi^2(1) = 12.78, p < .001$, suggesting that participants found the MTPT-C to be more difficult than the PASAT-C.

Although distress tolerance can be examined either as a categorical variable (whether or not participants quit the tasks early) or as a continuous variable (latency to task termination), examination of participants' total time scores across the two tasks revealed that a large number of participants received the most extreme score on the distribution (22% of participants persisted the entire time on both tasks). This distribution pattern suggests that our assessment of distress tolerance reflects the presence of two groups (MacCallum, Zhang, Preacher, & Rucker, 2002; Rugg & Petre, 2007). As such, we created a dichotomous *Distress Tolerance* variable that separated participants who persisted on at least one task ("high distress tolerance," $n = 108$) from participants who quit both tasks early ("low distress tolerance," $n = 53$). With this approach, we were able to examine differences between the least distress-tolerant adolescents and adolescents who demonstrated at least some evidence of distress tolerance by persisting to completion on at least one task.

Parental responses to adolescent distress—Parents completed the Coping with Children's Negative Emotions Scale- Adolescent Version (CCNES-AP; Fabes & Eisenberg, 1998). Parents were asked to respond to nine hypothetical situations in which their adolescent may experience distress (e.g., adolescent becomes angry at a friend). For each situation, parents reported their likelihood of responding in six different ways (e.g., emotionally supportive, minimizing, etc) using a 7-point scale from 1 (*very unlikely*) to 7 (*very likely*). Because we were interested in harsh parental responses to adolescent distress, we followed the procedure by Fabes, Leonard, Kupanoff, and Martin (2001) and calculated a mean *Harsh Parental Responses to Adolescent Distress* summary score ($\alpha = .73$) from parents' responses on the subscales for *minimizing responses* (e.g., telling the adolescent to stop overreacting) and *punitive responses* (e.g., punishing the adolescent for expressing negative emotion). The correlation for the subscales was significant: $r = .61, p < .001$. Previous research with the 12-item child version of this scale has found it to be reliable and found that mothers' harsh responses were negatively related to teachers' reports of children's coping and social competence (Fabes et al., 2001).

Friendship quality—Adolescents reported about their closest same-sex friendship using the *Network of Relationships Inventory* (NRI; Furman & Buhrmester, 1985), a 30-item questionnaire that measures perceptions of social support and negative interactions in relationships. The NRI contains ten conceptually distinct 5-point subscales, which typically load onto three factors, including *positivity*, *negativity*, and *relative power*, as they do in the present study (subscale factor loadings ranged from .72 – .96 across factors). Connolly and Konarski (1994) found this scale to have good internal consistency and test-retest reliability. Furman (1996) reported that friends' reports on this scale are moderately to highly correlated, and scores are associated with behavioral observations of friend dyads. Because we were only interested in adolescents' perceptions of positivity and negativity in their friendships, and because there was almost no variability in adolescents' perceptions of relative power in the friendship (over 80% of the adolescents reported that power in the

friendship was evenly balanced), we did not include relative power as an outcome variable in the present study. We created a mean *Positivity in Friendship* score ($\alpha = .91$) from the following subscales: companionship, nurturance, instrumental aid, intimacy, affection, admiration, and *reliable alliance* (e.g., share secrets and private feelings) and a mean *Negativity in Friendship* score ($\alpha = .86$) by averaging responses on the *conflict* and *antagonism* subscales (e.g., hassle or nag one another).

Procedure

Data were collected as part of a larger study for which all procedures took place during a single two-hour laboratory visit. The University Institutional Review Board approved all study materials and procedures. Parents and adolescents provided written informed consent and assent, respectively. Questionnaire measures were completed first, followed by the distress tolerance tasks. The order of the distress tolerance tasks was randomized across participants.

Results

Data analysis focused on whether adolescent distress tolerance and parental responses to adolescent distress were associated with adolescents' best friendship experiences. In addition, we examined whether the interaction between adolescent distress tolerance and parental responses was predictive of adolescents' friendships. We present descriptive statistics and intercorrelations for the study variables in Table 1.

Preliminary Analyses

Missing data—Of the 161 families who participated in the study, 143 families had complete data. Analyses using Little's MCAR test indicated that data were “missing completely at random,” $\chi^2(29) = 25.89, p = .63$. Missing values were imputed using the expectation maximization algorithm to create 40 complete datasets, which were then used to compute estimates of the parameters (see Graham, Olchowski, & Gilreath, 2007).

Descriptive statistics—We conducted preliminary analyses to examine systematic differences in adolescents' distress tolerance and parents' reports of harsh parental responses to adolescent distress and friendship quality. No gender differences emerged for adolescents who quit versus persisted on at least one distress tolerance task ($p > .7$). To examine potential ethnic differences, we first coded adolescents as being either “White” (self-reported Caucasian), “Black” (self-reported African American), or “Other” (Asian, Hispanic, Native American, Other, or mixed race). Using this dummy coded race variable, we conducted a 3 (Race: White, Black, Other) \times 2 (Distress Tolerance: High, Low) Chi-square test which revealed that race was related to distress tolerance, $\chi^2(2, N = 153) = 8.14, p = .017$. Follow-up comparisons revealed that White and Black adolescents did not differ in their distress tolerance performance, $\chi^2(1, N = 126) = 1.94, p = .16$, but other minority adolescents were more likely to quit both tasks compared to both White adolescents $\chi^2(1, N = 68) = 8.05, p = .005$ and Black adolescents $\chi^2(1, N = 112) = 3.95, p = .047$. A paired t -test indicated a significant increase in affective distress during the distress tolerance tasks $t(154) = -11.16, p < .001$, indicating that, as expected, adolescents found the tasks to be

psychologically distressing. Although no gender differences emerged in adolescents' pre- or post-distress tolerance task ratings of affective distress, girls had a greater change in distress ratings ($M = 15.67$, $SD = 16.06$) compared to boys ($M = 10.83$, $SD = 12.96$), $t(147) = 1.99$, $p = .048$. No other differences emerged in distress tolerance task performance.

Parents' reports of harsh parental responses differed as a function of adolescent race, $F(2, 150) = 6.35$, $p = .002$. Bonferroni post-hoc comparisons of the three race groups (White, Black, Other) revealed that parents of White adolescents ($M = 2.30$, 95% CI [2.01, 2.59]) reported fewer harsh responses than parents of Black adolescents ($M = 2.90$, 95% CI [2.70, 3.10]), $p = .003$ and also fewer harsh responses than parents of adolescents in the Other race group ($M = 2.92$, 95% CI [2.56, 3.27]), $p = .026$, but reports from parents of Black adolescents did not differ from those of the parents of other minority adolescents, $p = 1.0$. Parents' responses did not differ as a function of adolescents' age or gender ($ps > .20$), but harsh parental responses were negatively associated with families' total income, $r(106) = -.23$, $p = .02$.

Adolescents reported more positivity ($M = 3.62$, $SD = .78$) than negativity ($M = 1.66$, $SD = .68$) in their friendships, $t(153) = 22.33$, $p < .001$. Girls ($M = 3.74$, $SD = .80$) reported more positivity in their friendships than boys reported ($M = 3.46$, $SD = .74$), $t(153) = 2.09$, $p = .036$; girls and boys did not differ in the amount of friendship negativity reported. No racial differences in adolescent reports of friendship quality emerged.

Inclusion of Covariates

No significant relations emerged between adolescents' friendships and adolescents' age, race, or family income; as such, these demographic variables were not included in subsequent analyses. Similarly, change in affective distress ratings was unrelated to participants' distress tolerance, and change in distress ratings and skill during the tasks were unrelated to the outcome variables of interest ($ps > .05$); as such, these variables were not included as covariates. Because adolescent boys and girls differed in their perceptions of friendship positivity, we included gender as a covariate in this analysis.

Data Analysis Overview

Following Aiken & West (1991), we mean-centered our continuous predictor variable (harsh parental responses) and used hierarchical regressions to test for main and interaction effects. We used a log-transformation to normalize the positively skewed negative friendship variable.¹ We added adolescent gender as a covariate in Step 1, followed by the main predictors (i.e., Adolescent Distress Tolerance and Harsh Parental Response to Distress) in Step 2. In Step 3, we included the Adolescent Distress Tolerance \times Harsh Parental Response to Distress interaction term to examine interaction effects. We probed interaction effects that were significant at $p < .05$ in two ways. First, we examined distress tolerance as a moderator of the link between parental responses to distress and friendship and tested whether the simple slopes of the high and low distress tolerance groups were significantly different from

¹Analyses were also conducted using the non-transformed outcome variables and were virtually identical to the findings using the log-transformed variables.

zero (Aiken & West, 1991). Then, we examined harsh parental responses to distress as a moderator of the link between distress tolerance and friendship using the Johnson-Neyman (J-N) technique (see Preacher, Curran, & Bauer, 2006). This technique for probing interactions is preferable when the moderator variable is continuous because it provides *meaningful values* of the moderator (“regions of significance”) for which the simple slope of the regression line is significant. In other words, this technique allows us to examine the level of harsh parental responses to distress at which the link between distress tolerance and adolescent friendship quality becomes significant.

Prediction of Adolescent Perceptions of Friendship

Positivity in the friendship— As shown in Table 2, harsh parental responses to adolescent distress were marginally negatively associated with reports of positive friendship experiences. However, a significant Adolescent Distress Tolerance \times Harsh Parental Response to Adolescent Distress interaction emerged. Probing the interaction revealed that for adolescents with high distress tolerance, there was no association between harsh parental responses and adolescents’ perceptions of positivity in their best friendships, $\beta = .01$, $t(144) = .09$, $p = .93$. For adolescents with low distress tolerance, however, harsh parental responses were negatively associated with reports of positivity, $\beta = -.29$, $t(144) = -2.83$, $p = .005$ (see Figure 1). Further, for adolescents whose parents’ harsh responses to distress were above 3.35 (41.6% of the sample had scores in this range), distress tolerance was negatively associated with adolescents’ reports of positivity in the friendship.

Negativity in the friendship— No significant main effects or interactions emerged in the prediction of adolescents’ negative perceptions of friendship (see Table 2).

Discussion

The goal of the present study was to examine the ways in which adolescent distress tolerance and parental response to adolescent distress were associated with adolescents’ positive and negative friendship experiences. Findings revealed that neither low distress tolerance nor harsh parental responses to distress were directly associated with adolescents’ positive and negative friendship experiences. Only when adolescents had low distress tolerance were harsh parental responses negatively associated with positive perceptions about adolescents’ best friendships. Further, only when parents’ harsh responses were elevated was distress tolerance negatively associated with positive perceptions of friendship. Interestingly, however, we did not find support for the notion that adolescents with high distress tolerance and parents who avoid harsh responses to adolescent distress would have *better* friendships than other adolescents. Future research should examine other parent-child relationship qualities and aspects of emotion regulation that might be associated with high-quality social relationships.

The capacity to tolerate distress could buffer adolescents from the negative friendship characteristics that may otherwise be associated with harsh parental responses, and similarly, supportive parental responses may buffer adolescents who have low distress tolerance. For example, when upset or hurt by a best friend, the capacity to stay calm rather than become distressed may enable adolescents to discuss their feelings with friends constructively, rather

than behave in ways that are destructive to the friendship – even when adolescents experience harsh parental behaviors in the home. Yet even adolescents with low distress tolerance, when they have parents who avoid harsh responses to their distress, may be able to maintain positive friendships (perhaps through skills they have learned within the parent-child relationship). Future work should examine the mechanisms through which supportive responses to distress serve as a buffer for low distress-tolerant adolescents' friendships.

Interestingly, adolescents' perceptions about negativity in the friendship were not associated with adolescent distress tolerance, parental responses to distress, or the interaction of these two factors. One reason for the different pattern of results across the two friendship quality assessments may be due to relatively low levels of negative perceptions in the sample. Because adolescents were reporting about a *best* friend and not their friendships in general, it is likely that we captured a restricted range of negative friendship perceptions. Nevertheless, we believe that negative friendship qualities warrant examination in future studies. For example, it may be that adolescent distress tolerance and parental responses to distress are associated with subtle differences in negative *behaviors* with best friends (e.g., hostility, conflict) that adolescents do not necessarily recognize when self-reporting about these qualities in their friendships. Indeed, there is evidence that adolescents report on their friendships in systematically biased ways (Ehrlich, Cassidy, Lejuez, & Daughters, 2013); observations of friend dyads would allow researchers to circumvent limitations resulting from informant biases.

We hypothesized that there would be a direct link between parental response to distress and adolescents' friendship quality. The lack of a direct association between parental responses to distress and friendship quality is consistent with findings from the only study (to our knowledge) to examine this link in young children (McElwain et al., 2007). In this study, mothers' and fathers' reports of harsh responses to their preschoolers' distress were unrelated to children's observed behaviors with friends during structured laboratory tasks. Future research should examine whether young children's emotion regulation abilities interact with harsh parental responses to predict the quality of children's friendships, as we found in our adolescent sample. This research will help shed light on questions about continuity (versus discontinuity) across development in factors associated with friendships.

Although we did not identify direct links between distress tolerance and friendship quality, researchers interested in adolescent friendships should consider the ways in which distress tolerance may be directly related to other aspects of friendship, such as long-term stability and relationship maintenance. If adolescents with low distress tolerance have trouble staying calm when upset with a best friend and therefore come to view their friends as less supportive, they may have a reduced capacity to maintain the friendship over the long term. Our choice of methods for measuring distress tolerance and friendship quality might explain the lack of direct links in the present study. Indeed, examination of links between friendship qualities and distress tolerance observed during a *nonsocial* computer task may be considered a particularly stringent test of our hypotheses about the importance of distress tolerance for adolescents' *social* relationships. Finally, direct links between adolescents' distress tolerance and their friendship experiences might emerge in future studies if

researchers incorporate other ways of examining friendships, such as friend reports and behavioral observations.

Strengths, Limitations, and Future Directions

The present study extends previous research by providing a broader picture of the ways in which adolescents' individual and family characteristics are associated with adolescents' positive and negative friendship experiences. This study also extends previous research by examining the ways in which adolescent distress tolerance might be associated with other outcomes beyond psychopathology and substance use, which have been the primary foci of distress tolerance research to date (e.g., Brown, Lejuez, Kahler, & Strong, 2002; Daughters et al., 2008; Leyro et al., 2010; MacPherson et al., 2010). Future work should examine connections between adolescent distress tolerance and other indices of adolescents' social functioning, such as their observed behaviors with friends, their social status in the peer group, and their romantic relationships.

The racial diversity of the present sample constitutes a significant extension of previous research examining parental responses to distress and adolescent distress tolerance. Yet although we had significant racial diversity, our sample included mainly middle-class families, and future work should examine connections among adolescent social functioning, distress tolerance, and parent responses to distress in a sample with greater SES diversity. Such examinations would allow for consideration of the role of environmental factors that could put extra strain on parents, and the ways in which parental stressors may be related to how parents respond to their adolescents' distress.

In the present study, we used unique informants to assess parental responses to distress (parents) and friendships (adolescents) to minimize the possibility of spurious effects due to single informant bias. Nevertheless, for each of these constructs, we relied on single informants (i.e., parents or adolescents) to report about their relationship experiences. Given the limitations inherent in informant self-reports (Achenbach, 2006), it will be important to extend this research by using other assessments of parent-adolescent and peer relationships, such as behavioral observations. In fact, we know little about how well parental reports of their responses to adolescent distress map on to their actual behavior, and it will be informative to study how closely related these reports are to observable behavior. Further, our use of a behavioral measure of distress tolerance allowed us to *observe* what adolescents do when they experience negative emotions, rather than rely on their reports of how they respond to distressing experiences, which can be biased (Robinson & Clore, 2002). An additional opportunity for future research will be to incorporate a family systems perspective to examine how mothers and fathers differentially respond to adolescent distress, and to examine the extent to which maternal and paternal behaviors have similar versus unique associations with adolescent social functioning (e.g., Grotevant, 1998; Parke, 2004). It may be that one parent's responses are more strongly related to adolescents' social functioning, and comparisons of mothers' and fathers' responses will allow for examination of whether parental responses can exert buffering or exacerbating effects (e.g., whether a supportive father can offset the negative influence of a harsh mother). Finally, we used a cross-sectional study design in the current study, and longitudinal study designs – of the sort we are

currently conducting in our laboratory – will contribute to an understanding of the ways in which distress tolerance and parental responses to distress change over time, and whether changes in individual and parent factors are associated with changes in social functioning.

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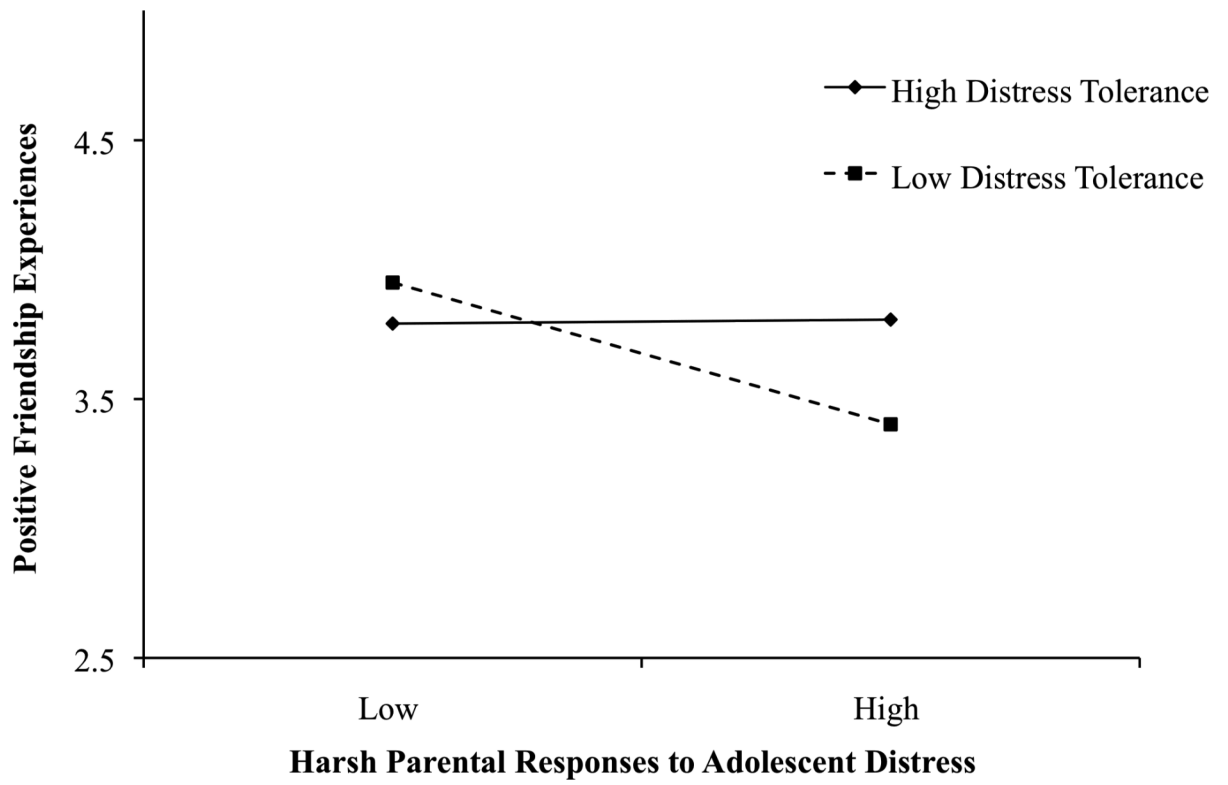


Figure 1. Joint Effect of Harsh Parental Responses to Distress and Adolescent Distress Tolerance on Adolescent-Reported Positive Friendship Experience

Table 1

Descriptive Statistics and Intercorrelations among Study Variables

Variable	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5
1. Adolescent Gender	--	--	0 - 1	-	-.03	-.09	-.18*	-.12
2. Adolescent Distress Tolerance	--	--	0 - 1		-	.13 [†]	-.10	.15 [†]
3. Harsh Parental Responses	2.75	.96	1.11 - 5.61			-	-.14 [†]	.10
4. Positivity in the Friendship	3.62	.78	1.00 - 4.95				-	-.10
5. Negativity in the Friendship	1.66	.68	1.00 - 4.00					-

Note. Adolescent gender coded as 0 = female, 1 = male. Adolescent distress tolerance coded as 0 = persisted on at least one task, 1 = quit both tasks.

** $p < .01$.

*** $p < .001$.

[†] $p < .10$.

* $p < .05$.

Table 2
 Hierarchical Regressions Predicting Adolescent Friendship Quality from Adolescent Distress Tolerance (DT) and Harsh Parental Responses to Adolescent Distress

	Positivity Friendship Experiences			Negativity Friendship Experiences		
	<i>b</i>	<i>SE</i>	<i>R</i> ²	<i>b</i>	<i>SE</i>	<i>R</i> ²
Step 1			.03*			
Adolescent Gender	-.26*	.13				
Step 2			.03 [†]			.02
Harsh Parental Responses	-.11 [†]	.07		.01	.02	
Adolescent DT	-.15	.13		.05	.03	
Step 3			.03**			.00
Adolescent DT × Harsh Parental Responses	-.28*	.13		.00	.03	

Note. Unstandardized regression are from the variable's entry into the model. DT = Distress tolerance. Adolescent distress tolerance coded as 0 = persisted on at least one task, 1 = quit both tasks. Adolescent gender coded as 0 = female, 1 = male.

[†] *p* < .10.

* *p* < .05.