



Understanding the Associations between Helicopter Parenting and Emerging Adults' Adjustment

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Abstract

Emerging adulthood is an important developmental period where youth continue to grow and develop. Parents may affect a smooth transition into adult roles by utilizing parenting practices that are developmentally inappropriate, such as helicopter parenting. Despite the recent attention on helicopter parenting, we know little about why helicopter parenting may be disadvantageous to adjustment and for whom helicopter parenting may be most disadvantageous. In the current study, the associations among helicopter parenting and college students' relationship competence (friendship and romantic), substance use problems, and depressive symptoms was examined, as were potential mediators of these associations. To examine these associations a sample of 637 college students in the Northeastern United States ($M_{age} = 20.03$; 70% female; 63% White) completed surveys. Structural equation models indicated that helicopter parenting was associated with increased depressive symptoms, substance use problems, and decreased relationship competence and that these relationships were similar across males and females and youth of different racial/ethnic backgrounds. Perceived stress and youth's perception that their basic psychological needs were undermined mediated the relationship between helicopter parenting and depressive symptoms. Undermining of psychological needs was the only significant mediator for the association between helicopter parenting and relationship competence. These findings are critical for informing the understanding of the mechanisms that link parenting during emerging adulthood to maladjustment.

Keywords Depressive symptoms · Helicopter parenting · Perceived stress · Psychological needs · Relationship competence · Substance use problems

Highlights

- Helicopter parenting was associated with important emerging adult outcomes.
- Psychological needs explained associations between parenting and outcomes.
- Findings have implications for understanding why helicopter parenting is harmful.

Emerging adulthood is an important developmental period for youth where they continue to take on adult roles. Yet, the time between 18–25 has been recognized as a period of delayed adult roles that has left many young adults expressing uncertainty about their adult status (Willoughby et al. 2015). Recently, researchers have recognized that for many emerging adults, their parents may exacerbate this

delay by utilizing parenting practices that restrict autonomy, undermine competence, and create a general sense of powerlessness in young adult children (Bronson and Meryman 2009; Schiffrin et al. 2014). This parenting practice is referred to as over-parenting or helicopter parenting and has been defined as developmentally inappropriate parenting that involves excessive advice, provision of too many tangible resources, excessive problem solving, and excessive monitoring of emerging adult's activities (Segrin et al. 2015). A handful of studies have demonstrated that helicopter parenting has been associated with increased internalizing problems, increased substance use, and decreased relationship competence (LeMoyne and Buchanan 2011; Padilla-Walker and Nelson 2012; Schiffrin et al. 2014;

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Segrin et al. 2012; Segrin et al. 2015). Few studies, however, have evaluated the potential reasons why helicopter parenting may be associated with negative adjustment, and for whom helicopter parenting has the strongest impact. It is important for research to identify theoretically driven explanations of why helicopter may be associated with adjustment during emerging adulthood and to understand if these associations differ based on gender, ethnicity, and age of youth, as this research may contribute to our basic understanding as to why helicopter parenting matters and for whom it matters most.

The time from 18–25 is a time of great change and how individuals navigate that change may have repercussions for concurrent and later development (Arnett 2000). Parents play an important role in emerging adults' success in navigating this developmental period by providing their children with autonomy and support while they negotiate life changes (Furstenberg 2010). Parenting practices that undermine emerging adults' autonomy and competence in navigating challenges may be particularly problematic at a time when youth are trying to develop competencies needed to be successful adults (Patock-Peckham and Morgan-Lopez 2009). Research has recognized that parenting practices, specifically helicopter parenting practices, are associated with maladjustment during the period of emerging adulthood (Bronson and Merryman 2009; Schiffrin et al. 2014). Helicopter parenting is likely to be associated with maladjustment because parents who have trouble relinquishing control of their children's lives are interfering in a normative individuation process that needs to occur for youth to become successful adults (Aquilino 2006). Three important indicators of successful adjustment—relationship competence, substance use, and depression have been shown to be developmentally salient indicators of adjustment (Arnett 2000; Roisman et al. 2004) and have implications for life long development that include addiction, unemployment, and relationship instability (Arnett et al. 2014; Sussman and Arnett 2014).

Perhaps, one of the most salient developmental tasks during emerging adulthood is developing competence in peer relationships (Roisman et al. 2004). Helicopter parenting may interfere with developing competence in both romantic relationships and friendships as parents may interfere with their adult children's problem solving and sense of competence within these relationships. A growing but small body of research has examined the association between helicopter parenting and romantic relationship development (Willoughby et al. 2015) and more general peer relationships during emerging adulthood (Darlow et al. 2017; van Ingen et al. 2015). The body of research has been mixed in regards to the effect that helicopter parenting has on peer relationship development, with van Ingen et al. (2015) and Darlow et al. (2017) finding no relationship

between helicopter parenting and peer adjustment after taking into account other important variables in the model. In contrast, Odenweller et al. (2014) found that increased dependency on others was associated with higher levels of helicopter parenting. More work is needed that explicitly looks at both friendship and romantic relationship competence among emerging adults given the importance of developing these competencies.

Substance use generally peaks during the developmental period of emerging adulthood and begins to decline at around 26 (Schulenberg et al. 2017; Stone et al. 2012). There is a robust literature on parenting and adolescent substance use during the high school years (See Allen et al. 2003 for review). A small subset of that literature suggests that extreme levels of parental control, as might be observed in helicopter parents, are associated with increased substance use during adolescence (Calafat et al. 2014; Stice et al. 1993). Researchers have argued that this extreme control may undermine autonomy development and as such provide an explanation for the association between over parenting and increased substance use (Schiffrin et al. 2014). The two studies that have examined the association between helicopter parenting and substance use during emerging adulthood found that helicopter parenting is associated with recreational consumption of pain pills among college students (LeMoyné and Buchanan 2011) and increased risk behaviors (e.g., marijuana use) in the context of high helicopter parenting and low parental warmth (Nelson et al. 2015). These two studies have begun to address frequency of substance use during emerging adulthood but have not looked specifically at substance use problems more generally, which is of particular concern during this developmental period.

The transition and instability of emerging adulthood (e.g., job changes; changes in relationships) make it a particularly relevant time to examine mood changes associated with depression (Arnett et al. 2014). Recent research has even suggested that individuals within the period of emerging adulthood may exhibit the highest 12-month prevalence of mood disorders when compared to all other ages (Kessler et al. 2005). Within the limited body of research on helicopter parenting, several of those studies have examined mental health as an outcome. Findings from these studies generally suggest that helicopter parenting is associated with increased depression and decreased well-being among 18–25 year old (Darlow et al. 2017; Kouros et al. 2017). Given the implications that mental health outcomes have for successful development (e.g., job stability, healthy relationships); it is important to examine associations between helicopter parenting and self-reports of depression.

Past research and theorizing on helicopter parenting and emerging adults' adjustment has suggested that it is important to examine potential explanations as to why

helicopter parenting affects development among 18–25 year old (Darlow et al. 2017; Schiffrin et al. 2014). Given that emerging adults need to demonstrate competence and control in their daily lives (Arnett et al. 2014), two potential explanations as to why helicopter parenting affects adjustment are that it undermines students' basic psychological needs and/or it cultivates a feeling of perceived stress in youth such that youth feel a lack of control in their daily lives. Self-determination theory suggests that individuals have three basic psychological needs that must be met to be successful in life: competence, autonomy, and relatedness. Individuals who do not have these needs met may develop indicators of psychopathology (Deci and Ryan 2000). Theoretically, helicopter parenting may undermine these needs by diminishing emerging adult children's sense of competence, autonomy, and relatedness with parents due to over control (Segrin et al. 2015). Past research has found associations between helicopter parenting and the undermining of emerging adults' basic psychological needs (Cui et al. 2019; Okray 2016). Furthermore, research has indicated that the undermining of basic psychological needs is associated with increased depression (Wei et al. 2005; Ryan et al. 1995), increased substance use (Wong 2008), and decreased relationship competence (La Guardia and Patrick 2008; Leak and Cooney 2001). Basic psychological needs as a mediator of the effect of helicopter parenting have been demonstrated empirically in two previous studies. Schiffrin et al. focused on the outcomes of internalizing problems and life satisfaction in college students and found that psychological needs, particularly competence, explained the association between parenting and depressive symptoms such that helicopter parenting no longer was associated with depressive symptoms once psychological needs were included in the model. Cui et al. (2019) examined psychological needs as one potential mediator in the relationship between helicopter parenting and frequency of alcohol use and found that neither helicopter parenting nor psychological needs were associated with alcohol use and thus, did not meet the criteria for mediation. Given these disparate findings, more research is needed to examine psychological needs as a mediator of a diverse set of outcomes.

An additional explanation for the associations between helicopter parenting and adjustment is that experiencing overly controlling parenting may undermine youths' belief that they have the resources to control their daily lives, which may manifest in perceived stress. Perceived stress has been defined as the perception that the demands of the environment exceed the resources that one perceives as having to deal with those demands (Cohen et al. 1983). Given the role that perceived stress may have in the development of mental and behavioral health outcomes, such as depression and substance use (Bergdahl and

Bergdahl 2002; Bovier et al. 2004) it is warranted to examine it as a potential mediator of the associations between helicopter parenting and emerging adults' adjustment. Theoretically, one might expect that parents who overly control their adult children's lives may have created a context where their child has not had the opportunity to resolve problems on their own resulting in feelings of being overwhelmed and helpless when confronted with stressors (Segrin et al. 2013), which in turn may result in negative adjustment. Although perceived stress has not been examined as a mediator of the relationship between helicopter parenting and adjustment, theoretical models regarding the damaging effects of stress argue that perceived stress explains the association between the environment (e.g., parenting) and personal health and behavior, such as substance use (McEwen 1998). Empirically, research has supported different pathways within the mediating model such that among college students helicopter parenting has been associated with correlates of perceived stress (e.g., coping skills, stress physiology; Segrin et al. 2013; Sideridis and Kafetsios 2008) and perceived stress has been associated with negative adjustment among college students (Chao 2012; Rice and Van Arsdale 2010). Given theory and limited research, it is important to test a mediational model to understand the role that perceived stress may exert in models examining helicopter parenting.

In addition to examining potential explanations as to why helicopter parenting is associated with adjustment, it is important to examine for whom helicopter parenting may be most problematic. As such, gender, ethnic, and age differences also were explored as moderators in the association between helicopter parenting and emerging adults' adjustment. Past research on helicopter parenting has generally failed to take into account how effects may differ based on individual characteristics of youth despite the fact that research during other developmental periods has found that the effects of parenting may differ based on gender (Davies and Lindsay 2004; Rueth et al. 2017), ethnicity (Pinquart 2016), and age of participants (Fagan et al. 2011). Although this past research has been mixed, it generally suggests that girls may be more prone to maladjustment due to controlling parenting (Werner et al. 2016). Furthermore, there is limited support during emerging adulthood that females may be more at risk of depression and substance use problems as a result of authoritarian parenting (overly controlling parenting; Barton and Kirtley 2012; Patock-Peckham and Morgan-Lopez 2006) and report lower levels of well-being due to helicopter parenting (Kouros et al. 2017). Theoretically, these findings are supported by the gender intensification hypothesis, which suggests that females are more oriented toward interpersonal relationships making them more vulnerable to their negative effects (Davies and Lindsay 2004).

In regards to ethnic differences, there is some suggestion that during adolescence youth who are Caucasian appear to be more negatively affected by parenting that restricts autonomy than youth from other ethnic backgrounds (Mousavi et al. 2016). Furthermore, parents from Hispanic and African American homes are more likely to use high levels of behavioral control and less likely to be negatively affected by this control (Chao and Kanatsu 2008; Gutman et al. 2002). To date, research has generally neglected ethnic differences in helicopter parenting's associations with adjustment, as most samples are largely Caucasian. One exception is Kouros et al (2017) who found no ethnic differences among a sample of college students. The sample size in that study was relatively small ($N = 118$) potentially making it difficult to uncover important ethnic differences that might be uncovered in larger samples.

Research has not explicitly looked at age differences in the effect that over parenting has on adjustment but given the need to be independent grows with age; one might expect older students to be more adversely affected by parental control attempts. Furthermore, as youth transition through emerging adulthood they face new challenges that require the development of different skills to transition into adulthood successfully (Cohen et al. 2003). Parents who restrict the normative development of these skills by using helicopter parenting may undermine competence in youth that has stronger effects over time as accomplishing age-graded tasks becomes more important with age (Alonso-Stuyck et al. 2018; Cohen et al. 2003). This general idea is supported by research during adolescence, which has suggested that as adolescents' autonomy needs increase, behavioral control attempts by parents should naturally decrease (Keijsers and Poulin 2013) and control attempts that may undermine autonomy by parents become less effective in regulating adolescents' behaviors (Criss et al. 2015). Furthermore, parenting practices associated with overly restrictive parenting (e.g., authoritative parenting, psychological control) become more detrimental to adjustment during adolescence (Rogers et al. 2020). Uncovering potential age differences in the association between helicopter parenting and adjustment is an important next step in this area of research.

Hypotheses

Understanding the mechanisms (i.e., mediators) by which a seemingly well-intentioned parenting practice may be associated with emerging adults' adjustment is critical in identifying points of intervention that can be addressed within the college population. The current study focuses on three important outcomes that are of developmental concern during emerging adulthood: depression, substance use, and

relationship competence (Arnett 2000; Roisman et al. 2004) and two theoretically driven mediators, psychological needs and perceived stress that might explain relationships. Additionally, to contribute to the literature, the current study examines if the associations among helicopter parenting on adjustment and the processes by which this occurs differs based off individual characteristics. Specifically, it is hypothesized that helicopter parenting will be associated with increased substance use problems and depressive affect, and decreased friendship competence and dating competence among college students. Furthermore, undermining of basic psychological needs and/or perceived stress will fully explain the associations among helicopter parenting and adjustment. Moreover, the associations among helicopter parenting and adjustment will be stronger for females, youth of a Caucasian background, and emerging adults who are older.

Method

Participants

Participants were 637 college students between the ages of 18–25 ($Mage = 20.03$, $SD = 2.11$) living in the Northeastern United States. The sample was predominately female (67%) and Caucasian (63 %) with fewer participants self-identifying as other races/ethnicities (14.6% Hispanic, 8% African American, 7.7% Mixed Race, 4.7% Asian American, and 2% Native American). Students were recruited through various methods that included use of a psychology participant pool, advertisements on Facebook and word of mouth recruitment on campuses. Participants were excluded from the study if they were not between the ages of 18–25, were not currently enrolled in classes at a community college or four-year college, and were not enrolled in an undergraduate curriculum.

Procedures

Participants completed a survey either in paper/pencil format or on Survey Monkey (online) in fall 2016 to fall 2017. Consent was obtained before survey administration. This survey took participants roughly 20 min.

Measures

Helicopter parenting

Helicopter parenting was measured with four separate scales that were used as manifest indicators of a latent construct in structural equation models. These four scales included: (a) Overparenting scale (Bradley-Geist and

Olson-Buchanan 2014; 5 items; $\alpha = 0.88$), (b) Helicopter parenting scale (Padilla-Walker and Nelson 2012; 5 items; $\alpha = 0.80$), (c) Maternal helicopter parenting (Schiffirin et al. 2014; 14 items; $\alpha = 0.73$), (d) Father helicopter parenting (Schiffirin et al. 2014; 14 items; $\alpha = 0.65$). Higher scores on each of these scales indicated higher helicopter parenting. Scales were moderately to highly correlated ($r = 0.32$ – 0.60) and each indicator strongly loaded on the latent factor (*betas* = 0.61 – 0.78). Model fit for the measurement model was adequate, $\chi^2 = 8.16$ (1), $p < 0.05$, CFI = 0.99, RMSEA = 0.08.

Psychological needs

Twenty-one items from The Basic Psychological Needs Scale (Deci and Ryan 2000) were used to measure participants' autonomy, relatedness, and competence needs on a scale from 1 (*not true at all*) to 7 (*very true*). Higher scores on the psychological needs scale indicated that participants psychological needs were being met ($\alpha = 0.90$). Due to the high correlation between the scales (*rs* ranged = 0.66 – 0.75) and a factor analyses that extracted only one factor the decision was made to create a latent variable with the three scales acting as indicators of psychological needs (*betas* = 0.79 – 0.93).

Perceived stress

The perceived stress scale was used to measure participants' level of perceived stress during the last month with items such as "how often have you felt that you were unable to control the important things in your life?" on a scale from 1 (*Never*) to 5 (*Very Often*) (Cohen et al. 1983). Higher scored indicated more perceived stress in daily life ($\alpha = 0.84$).

Adjustment

Emerging adults self-reported on various aspects on adjustment. To measure substance use problems, 11 items from the CORE alcohol and drug survey that assessed problems that might occur with drinking or drug use were asked (Presley et al. 1994). Participants responded to the prompt "Please indicate how often you have experienced the following due to your drinking or drug use during the last year" with a sample item including "had a hangover." Response options ranged from 1 (*Never*) to 6 (*10 or more times*) with higher scores indicating more substance use problems ($\alpha = 0.84$). Depressive affect was assessed with participants' self-report on 20 items designed to assess frequency of depressive symptoms within the last week (CES-D; Radloff 1977). Participants responded on a scale ranging from 1 (*rarely or none of the time*) to 4 (*most or all of the time*) to items such as "I felt depressed" with higher scores indicating more depressive symptoms ($\alpha = 0.91$).

Participants reported on their competence in friendships and dating relationships on two separate scales. To assess dating competence 13 items were used, which reflected participants balancing of independence and closeness in relationships with dating partners (Sanderson and Cantor 1995). All participants responded to the dating competence scale as it asked about how participants act in dating relationships in general as opposed to a specific relationship. Participants responded to sample items such as "In my dating relationships, I try to share my most intimate thoughts and feelings" on a 1 (*strongly disagree*) to 5 (*agree strongly*) scale with higher scores indicating more dating competence ($\alpha = 0.91$). To assess friendship competence 13 items from the *Emotional Support* and *Conflict Management* subscales from the Interpersonal Competence Scale were used to create an overall composite score, which reflected an individual's ability to provide emotional support and manage conflict in their close friendships (Buhrmester et al. 1988). Participants responded on a 1 (*I'm poor at this*) to 5 (*I'm extremely good at this*) scale to items such as "helping a close friend work through his or her thoughts and feelings about a major life decision." ($\alpha = 0.92$).

Moderators

Gender was measured with a single item that asked youth to report on their gender and males were coded 0 and females as 1. To measure ethnicity, participants were asked what ethnicity they considered themselves to be and could check all ethnicities that applied. For purposes of the current study we compared youth who considered themselves to be Caucasian (coded as a 0) to youth who considered themselves to be another ethnicity (coded as a 1). Age also was dichotomized to test models. Age was coded such that underage participants (18–20; 60%) were coded as a 0 and youth identifying as 21–25 (40% of the sample) were coded as a 1.

Data Analyses

Structural equation models were estimated in AMOS (Vers 25.0) to examine the association between helicopter parenting and emerging adults' adjustment and if basic psychological needs and perceived stress mediated these associations. Before testing for mediation, the direct effects model was examined to assess if helicopter parenting was significantly associated with adjustment outcomes. Next, the two mediators were added to separate direct effects models. To test whether a direct association was significantly mediated, 95% confidence intervals for indirect effects were examined with confidence intervals not including a 0 being statistically significant at less than 0.05. To test the relative associations of multiple mediators in the

model Sobel's test was used, as only an overall indirect effect for both mediators is estimated in the AMOS model. Although Sobel's test has been criticized, it does provide a good estimate of whether significant mediation is present when sample sizes are larger (Preacher and Hayes 2008). Model fit for the direct effect and mediating models also was examined using the chi-square goodness of fit statistic, the comparative fit indices (CFI), and the root mean square error of approximation (RMSEA). A nonsignificant chi-square indicated a good model fit. However, because of the large sample size, a significant chi-square was expected (Byrne 2001). The significance threshold for all models was set at $p < 0.05$.

Models also were examined to see if relationships between variables differed for males and females, Caucasian youth and youth from other ethnic backgrounds, and youth of different ages. To test for these moderating effects, multiple-group SEM analyses were used and two models were compared, one in which all parameters were constrained to be equal and the other in which the structural loadings were allowed to vary across the two groups (e.g., males and females). Measurement invariance for all models was also tested. To assess if these differences across groups were statistically significant, the change in the chi-square was examined at the $p < 0.05$ level. A significant change in chi-square between the models suggested that group differences in the freed pathways exist, and critical ratios above 1.96 were examined to locate specific, significant group differences (Byrne 2001).

The full information maximum likelihood estimation procedure (FIML) was used to address missing values (between 0–3% of data were missing). All models controlled for living arrangements given past research suggesting that college students who live at home and who do not live at home may differ in adjustment outcomes, as well as levels of helicopter parenting (Fingerman et al. 2012; Gfroerer et al. 1997). Additionally, the disturbance terms for the adjustment outcomes were allowed to correlate.

Results

Correlations, means, and standard deviations of study constructs are presented in Table 1. Relationships were generally in the expected direction and indicated small to moderate correlations between key study variables. In support of the measurement model, the intercorrelations among the indicators for the two latent constructs were moderate to large in magnitude.

Associations among Helicopter Parenting and Adjustment

To examine the first hypothesis, the direct association of helicopter parenting on college students' adjustment was

tested. Model fit for the direct effects model was adequate, $\chi^2 = 66.49$ (20), $p < 0.001$, CFI = 0.96, RMSEA = 0.06. Helicopter parenting was significantly associated with increased substance use problems ($\beta = 0.14$, $p < 0.05$), increased depressive symptoms ($\beta = 0.20$, $p < 0.01$), decreased friendship competence ($\beta = -0.26$, $p < 0.01$), and decreased dating competence ($\beta = -0.35$, $p < 0.01$), with the strongest associations seen between helicopter parenting and dating competence (Figs. 1 & 2). Helicopter parenting was associated with 2% of the variability in substance use problems, 4% of the variability in depressive symptoms, 7% of the variability in friendship competence, and 14% of the variance in dating competence. Results indicated that although helicopter parenting is associated with adjustment it explains a small amount of the variability in these outcomes suggesting the need to examine additional variables.

Examining Explanations

To examine the hypothesis that psychological needs and perceived stress explained the association between helicopter parenting and adjustment, the latent construct of psychological needs and manifest variable of perceived stress were tested in separate models given the high correlations between the variables (Figs. 1 & 2). Psychological needs significantly mediated the association between helicopter parenting and the outcomes of depressive symptoms, social competence, and dating competence (Table 2). The addition of psychological needs to the model significantly improved model fit as indicated by a change in chi square, $\Delta\chi^2 = 94.47$, $df = 22$, $p < 0.001$. For the perceived stress model, the addition of that variable did not significantly improve model fit as indicated by a change in chi square, $\Delta\chi^2 = 7.3$, $df = 4$, $p < 0.10$. Perceived stress significantly mediated the association between helicopter parenting and adjustment but only in regards to depressive symptoms (Table 2).

To examine the relative associations of the mediators, a final model was estimated that only examined the outcome of depressive symptoms given it was the only outcome that was mediated by both psychological needs and perceived stress. When both mediators were included in the model, both were statistically significant mediators of the association between helicopter parenting and depressive symptoms as indicated by Sobel's test (perceived stress: $z = 2.95$, $p = 0.003$ & psychological needs: $z = 3.78$, $p = 0.000$). Taken together this model explained 54% of the variability in depressive symptoms and the indirect effect of both mediators was statistically significant ($b = 0.15$; 95% CI = 0.05–0.20)

Gender, Ethnic, and Age Differences

Moderating analyses suggested few significant differences across the structural models (Table 3). There were no

Table 1 Correlations among study variables

VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Helicopter Parenting	–															
2. Over Parenting Scale	0.47**	–														
3. Mom Helicopter Parenting	0.58**	0.48**	–													
4. Dad Helicopter Parenting	0.50**	0.32**	0.62**	–												
5. Autonomy Subscale	–0.22**	–0.37**	–0.26**	–0.26**	–											
6. Relatedness Subscale	–0.15**	–0.25**	–0.18**	–0.23**	0.75**	–										
7. Competence Subscale	–0.15**	–0.27**	–0.16**	–0.20**	0.72**	0.66**	–									
8. Perceived Stress	0.06	0.20**	0.08*	0.05	–0.52**	–0.44**	–0.54**	–								
9. Substance Use	0.13**	0.12**	0.06	0.02	–0.03	0.03	–0.01	0.12**	–							
10. Depressive Symptoms	0.12**	0.21**	0.13**	0.09*	–0.48**	–0.43**	–0.50**	0.72**	0.22**	–						
11. Friendship Competence	–0.14**	–0.24**	–0.12**	–0.13**	0.32**	0.36**	0.31**	–0.13**	–0.03	0.10*	–					
12. Dating Competence	–0.29**	–0.24**	–0.21**	–0.29**	0.31**	0.26**	0.27**	–0.05	–0.14**	–0.05	0.37**	–				
13. Gender	–0.09*	–0.02	–0.01	–0.06	0.01	0.02	0.03	0.19**	0.02	0.17**	0.09	0.18**	–			
14. Ethnicity	–0.23**	–0.12*	–0.26**	0.02	0.09*	0.12**	0.06	–0.01	0.08	–0.01	0.06	0.13*	–			
15. Age	–0.10*	–0.10*	–0.22**	–0.16**	0.11*	0.04	0.05	0.03	0.10*	0.02	–0.04	–0.07	–0.04	0.06	–	
16. Living Situation	0.15**	0.18**	0.18**	0.11**	–0.05	0.01	–0.01	0.01	–0.02	0.00	0.02	–0.08	–0.06	0.02	–0.16**	–
<i>M</i>	1.99	2.22	2.64	2.48	4.46	4.73	4.66	2.94	1.66	1.85	3.85	4.09	N/A	N/A	N/A	N/A
<i>SD</i>	0.82	0.84	0.71	0.66	0.84	0.83	0.76	0.68	0.68	0.56	0.71	0.69	N/A	N/A	N/A	N/A

* $p < 0.05$; ** $p < 0.01$

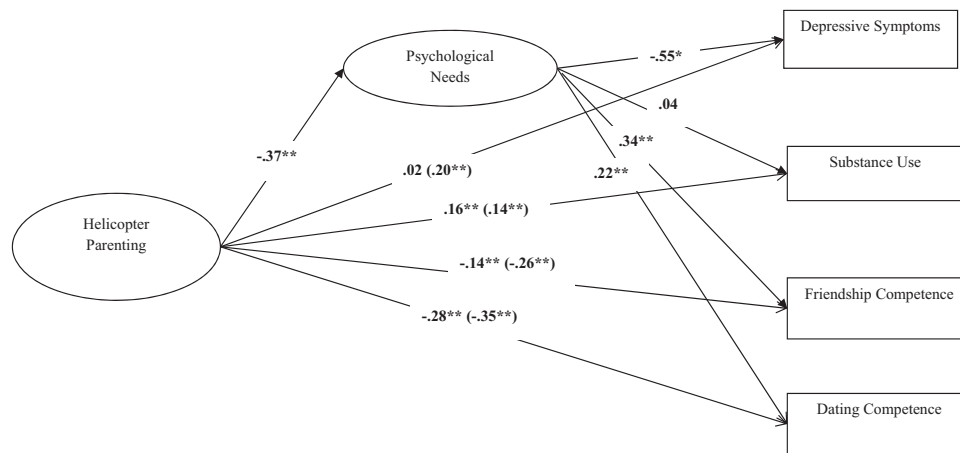


Fig. 1 Mediating Effects of Psychological Needs. The direct effects from the model without the mediator are included in the figure in parentheses. Variables in the model explained 2% of the variability in substance use problems, 29% of the variability in depressive symptoms, 17% of the variability in friendship competence, and 17% of the

variance in dating competence. This model controls for whether the student lives at home, as well as the correlations between disturbance terms for dependent variables. $\chi^2 = 165.34$ (42), $p < 0.001$, CFI = 0.95, RMSEA = 0.06. * $p < 0.05$, ** $p < 0.01$

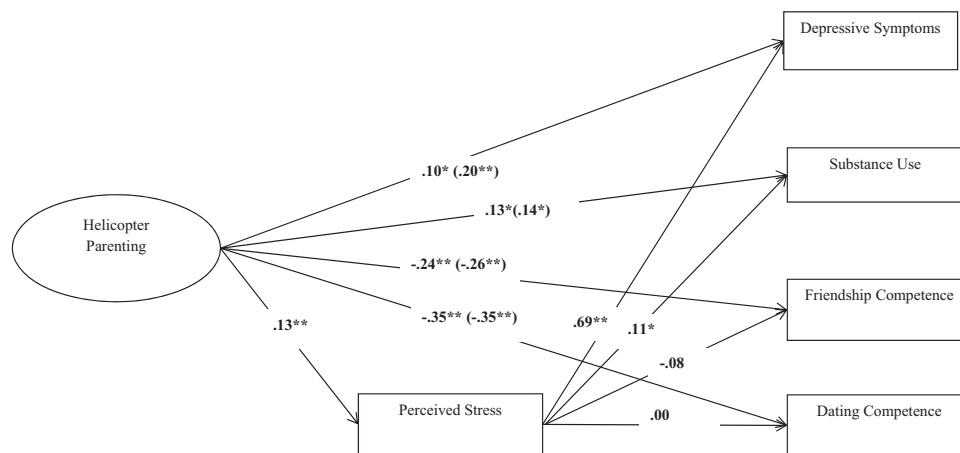


Fig. 2 Mediating Effects of Perceived Stress. The direct effects from the model without the mediator are included in the figure in parentheses. Variables in the model explained 3% of the variability in substance use problems, 52% of the variability in depressive symptoms, 7% of the variability in friendship competence, and 14% of the

variance in dating competence. This model controls for whether the student lives at home, as well as the correlations between disturbance terms for the mediators and dependent variables. $\chi^2 = 73.79$ (24), $p < 0.001$, CFI = 0.97, RMSEA = 0.05. * $p < 0.05$, ** $p < 0.01$

significant differences among male and female college students or Caucasian youth and youth who identified as other ethnicities. Results from the omnibus group difference test indicated that there was a significant difference for older adolescents when compared to younger adolescents such that the association of helicopter parenting and substance use problems was stronger for older youth ($b = 0.29$, $p < 0.001$) when compared to younger youth ($b = 0.15$, $p = 0.06$).

Discussion

Emerging adulthood is a transitional period where youth continue to grow and develop as they take on adult roles. Parents may affect the transition by utilizing parenting practices that are developmentally inappropriate, such as helicopter parenting. Despite the recent attention on helicopter parenting, we know little about why helicopter parenting may be harmful to adjustment and for whom it might

Table 2 Evaluating significance of indirect effects for mediation models

	Adjustment Outcomes							
	Depressive Affect		Substance Use		Friendship Competence		Dating Competence	
	Parameter	95 % CIs	Parameter	95% CIs	Parameter	95% CIs	Parameter	95% CIs
Pathway								
Direct Effect of Helicopter Parenting in Psychological Needs Model	0.02	-0.10, 0.06	0.16*	0.06, 0.29	-0.14*	-0.29, -0.07	-0.28*	-0.42, -0.21
Indirect Effect through Psychological Needs	0.20*	0.14, 0.27	-0.02	-0.06, 0.02	-0.13*	-0.13, -0.05	-0.08*	-0.11, -0.04
Pathway								
Direct Effect of Helicopter Parenting in Perceived Stress Model	0.10	-0.03, 0.13	0.13*	0.07, 0.32	-0.24*	-0.27, -0.05	-0.35*	-0.39, -0.17
Indirect Effect through Perceived Stress	0.10*	0.01, 0.14	0.01	-0.001, 0.02	-0.01	-0.02, 0.001	-0.001	-0.01, 0.01

Note. Mediators were estimated in separate models. Parameter values represent standardized regression weights. Confidence intervals were obtained from Bayesian Estimation in AMOS. When the 95% CI does not include 0 then it is considered significant at <0.05 and is indicated by *

Table 3 Gender, ethnicity, and age differences in the effect of helicopter parenting on adjustment

Moderator	Measurement Model		Structural Model	
	Chi Square difference Test	Pathways of difference	Chi Square difference Test	Pathways of difference
Gender	$\Delta\chi^2 = 24.77, df = 5, p < 0.001$	Stronger factor loadings for males than females	$\Delta\chi^2 = 21.26, df = 14, p = 0.09$	No significant pathways of difference
Ethnicity	$\Delta\chi^2 = 12.26, df = 5, p < 0.05$	Stronger factor loadings for Non-Caucasian youth than Caucasian youth	$\Delta\chi^2 = 21.57, df = 14, p = 0.09$	No significant pathways of difference
Age	$\Delta\chi^2 = 15.23, df = 5, p < 0.01$	Stronger factor loadings for older adolescents	$\Delta\chi^2 = 45.61, df = 17, p < 0.001$	Stronger effect of helicopter parenting on substance use for older adolescents

be most problematic. This study contributed to research by indicating that perceived stress and the undermining of basic psychological needs may be two potential explanations as to why helicopter parenting may be associated with maladjustment among the emerging adult population. Understanding the mechanisms that explain helicopter parenting's associations with adjustment and for whom these associations are most detrimental is important for targeting mechanisms of change for at-risk emerging adults.

Associations of Helicopter Parenting with Adjustment

Results indicated that higher helicopter parenting was associated with increased depressive symptoms and substance use problems and decreased friendship and dating competence. These findings support a growing body of research suggesting that restrictive and controlling parenting will have negative associations on adjustment even among adult children (Nelson et al. 2015; Padilla-Walker and Nelson 2012; Segrin et al. 2015). The current study extends previous research by focusing on the important outcomes during emerging adulthood of substance use problems, friendship competence, and dating competence, which have generally not been examined in previous studies. Results demonstrated that the associations of helicopter parenting and adjustment were particularly strong in the areas of friendship competence and dating competence, which is not surprising given the importance of establishing relationship competence during adolescence and emerging adulthood (Roisman et al. 2004).

Explanations for the Associations among Helicopter Parenting and Adjustment

Findings support theoretical explanations (Segrin et al. 2015) and previous research (Schiffrrin et al. 2014), which has suggested that the undermining of basic psychological needs explains why helicopter parenting is problematic for emerging adults' development. Findings suggested that youth who reported more helicopter parenting in turn reported decreased fulfillment of basic psychological needs and more depressive symptoms and less relationship competence. It is important to note that results differ slightly from Schiffrrin et al. who found differential associations between psychological needs and depression and life satisfaction, with competence being the strongest mediator of helicopter parenting effects. Preliminary analyses in the current data set did not generally suggest differential associations between basic psychological needs and adjustment. Furthermore, analyses suggested that these needs loaded on one factor suggesting that it was better to create a latent construct representing basic psychological needs as

opposed to modeling these needs as individual predictors. Nevertheless, future research should consider the best way to represent psychological needs within a given study and evaluate if there are differential associations between needs and helicopter parenting, as well as outcomes.

Perceived stress was only a significant mediator of the association between helicopter parenting and emerging adults' depressive symptoms suggesting that perceived stress did not play an important role in the associations of helicopter parenting with other indicators of adjustment. It is not surprising that perceived stress was an important explanatory variable for depressive symptoms as past research has found that stress is a critical element in the development of depression (Hammen 2005). This past research has posited several reasons why stress is associated with depression ranging from biological dysregulation (Harris et al. 2000), stress generation (Liu and Alloy 2010), learned helplessness resulting in a lack of perceived control over the environment (Maier and Seligman 1976), and fewer coping skills (Segrin et al. 2015). Perceived stress as measured in the current study reflects a lack of control in participants' lives and is most consistent with theories linking stress and depression that focus on learned helplessness and lack of coping skills. It will be important in future studies to uncover the specific reasons that helicopter parenting, stress, and depressive symptoms are associated, which will be aided by employing multiple measures associated with stress (e.g., perceptions, physiology, coping) to ascertain the specific mechanism that helps explain this relationship. In regards to the lack of findings for relationship competence, there are theoretical reasons for why one might expect perceived stress to affect relationship competence (e.g., developmental cascades, Masten and Cicchetti 2010) but past research on this association has been scant. In contrast, theory and research has consistently suggested that stress may affect skills needed in relationships through the impact it has on behavioral health (e.g., Cook et al. 2012; Herd et al. 2018) and mental health problems (e.g., Compas et al. 2001; Johnson et al. 2015). As such, one possible pathway of interest for future studies will be to examine the effect of helicopter parenting on perceived stress, which in turn affects depressive symptoms that may impair relationship competence for emerging adults.

Finally, the relationship between helicopter parenting and substance use problems was not affected by psychological needs or perceived stress suggesting that helicopter parenting has a direct association with substance use outcomes that is not explained by these variables. This study is one of the few studies (for exceptions see Lemoyne and Buchanan 2011; Nelson et al. 2015) that has explicitly examined substance use as an outcome. The two studies that examined helicopter parenting associations with substance

use focused on frequency of use for marijuana and prescription drugs, as opposed to the current study that focused on problems associated with use. Frequency of use may represent more normative use patterns during emerging adulthood, as compared to substance use problems, which may be more indicative of addiction. These two outcomes may have different etiologies (Newcomb and Bentler 1989). As such, one might expect that different processes could explain associations between helicopter parenting and substance use problems, which are more indicative of abuse when compared to frequency of use. One potential variable that past research has found to be an important mediator of the relationship between parenting more generally (e.g., parenting style) and substance use problems is self-regulation (King and Chassin 2004; Patock-Peckham et al. 2001). Self-regulation represents a level of behavioral under control that has been found to be important in addiction (Baumeister 2003). Thus, self-regulation should be assessed in future studies as a mediator. Interestingly, in the one study that examined psychological needs as a mediator of the association between helicopter parenting and substance use, no mediating relationship was found but an indirect effect was found such that helicopter parenting was associated with the undermining of psychological needs, which was associated with less self-control and in turn associated with a higher frequency of alcohol use (Cui et al. 2019). Results from that study provide support for our lack of findings regarding mediation and clearly suggest that self-regulation is an important variable to consider. Taken together these findings demonstrate the importance of future studies examining multiple mediating explanations that are associated not only with frequency of use but problems associated with use.

Individual Differences in the Associations of Helicopter Parenting and Adjustment

In the current study, the associations between helicopter parenting and adjustment and the processes that explain these associations generally did not differ based on background characteristics of youth. The only significant difference found across group was in regards to age differences, with older adolescents showing stronger associations between helicopter parenting and higher self-reported substance use. This finding is not surprising given that interfering with adult children's decision-making and autonomy becomes more developmentally inappropriate as youth age. Furthermore, research has consistently shown that successful transition into adult roles is associated with decreasing substance use problems (Schulenberg et al. 2005) and helicopter parenting may be interfering in this successful transition more as youth get older. It is important to note that older students were significantly more

likely to report substance use problems, perhaps because they were typically of legal age and thus, able to more easily access alcohol. These differences in use across groups may have contributed to why there were differential associations of helicopter parenting with substance use problems.

Gender and ethnic differences were not found in the association of helicopter parenting to youths' adjustment; there are potential substantive and methodological reasons for this lack of findings. Although recent research has uncovered gender differences in the effect of over parenting on adjustment (Kouros et al. 2017; Werner et al. 2016); gender difference research has been mixed. Results from the current study align with research suggesting that gender differences in how children are parented, particularly in regards to psychological control and autonomy granting, are minimal (Endendijk et al. 2016; Wray-Lake et al. 2010) and that the effects of parenting do not differentially affect girls' and boys' adjustment (Patock-Peckham and Morgan-Lopez 2006). One explanation for these mixed findings is that gender intensification theory and the proposed effects on development may be less relevant to more recent cohorts of youth and that gender intensification theory may be most likely to occur during the transition to adolescence (Endendijk et al. 2016; Priess et al. 2009). There also may be methodological reasons for the lack of gender findings. The sample in the current study was 70% female so it is possible that differences were not found because of unbalanced groups. It will be important in future studies to recruit equal numbers of males and females to better address gender differences. Furthermore, this study did not uncover ethnic differences in the associations. Although some previous research has found ethnic differences in the effect of parenting on youth outcomes (Chao and Kanatsu 2008), other studies have not found differences (Bean et al. 2003; Deutsch et al. 2012). Consistent with our findings past research has suggested that although parenting practices that support autonomy granting and involve less control may be more prevalent among European American families these practices do not appear to differentially affect children's development (Vazsonyi and Belliston 2006). Furthermore, the only other study on helicopter parenting among college students also did not find ethnic differences (Korous et al. 2017). In both the Korous et al. study and the current study, the measurement of ethnicity is somewhat limited as it compared two ethnic groups of youth and did not take into account comparisons across multiple ethnic groups nor did either analysis examine within-group differences. As such, it will be important in future research to recruit large enough samples of diverse adolescents to examine both within and between group differences, as well as differences that may be related to relevant cultural variables (e.g., individualism/collectivism) and socioeconomic status.

Limitations

This study is not without limitations. Most notably, data were collected at one-point in time and thus, claims about mediation and causality are limited. Furthermore, collecting cross-sectional data does not allow assessment of reciprocal relationships. It is possible, given research suggesting reciprocal effects between parenting and adjustment during adolescence (Burke et al. 2008) that parents may employ helicopter parenting in response to a child who is already showing signs of maladjustment. Research on helicopter parenting in general is limited by examining relationships at one point in time and longitudinal studies starting in adolescence and following youth through the college years are needed.

This study relied solely on self-report from participants and did not use multiple reporters to assess study constructs. Thus, associations between variables may be affected by shared method variance. Future studies should consider employing multiple methods and reporters. Finally, this study only sampled college students and did so by using convenience methods that included a small percentage of snowball sampling, which restricts the generalizability of the results. The majority of research on helicopter parenting focuses on college students and utilizes convenience sampling techniques. Future studies need to utilize probability sampling and be extended to others who are not enrolled in college classes.

Despite limitations, this study contributed to the growing body of research on parenting during emerging adulthood and the mechanisms that help explain why helicopter parenting may be associated with four very important indicators of adjustment during this developmental period. Emerging adulthood is a period of transitions that must be successfully navigated in order to become a well-functioning adult. Parents have an important role in the emerging adult transition and their behaviors may make this transition more or less difficult for their emerging adult children. These results have implications for informing outreach with parents of college students on parenting behaviors that should be avoided. Furthermore, results can inform higher educations' response to behavioral and mental health problems and suggest areas of intervention that include both environmental factors (e.g., parenting) and individual factors such as promoting basic psychological needs and reducing perceived stress.

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standards. This study was approved by Rhode Island College IRB and informed consent was obtained from all individual participants included in the study.

Compliance with Ethical Standards

Conflict of Interest The author declares that there is no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by Rhode Island College IRB.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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