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Helicopter Parenting and Emotion Regulation in U.S. College Students

Susan J. Wenze* , Anna B. Pohoryles , and Jennifer M. DeCicco*
Lafayette College

ABSTRACT. Most research has suggested that helicopter parenting is associated with negative outcomes. Few studies have explored underlying mechanisms. The present study examined the mediating role of emotional processing. Participants (n = 104 U.S. college students) completed measures of helicopter parenting behaviors, emotional processing, depression, and anxiety. Relationships between helicopter parenting and depression (95% BCa CI = .01 to .33; R^2 = .23, f^2 = .30) and helicopter parenting and anxiety (95% BCa CI = .01 to .13; R^2 = .14, f^2 = .17) were mediated by experiential avoidance. The relationship between autonomy support and depression was mediated by expressive suppression (95% BCa CI = -.27 to -.01; R^2 = .08, f^2 = .08), cognitive reappraisal (95% BCa CI = -.36 to -.03; R^2 = .09, f^2 = .10), psychological flexibility (95% BCa CI = -.59 to -.04; R^2 = .46, f^2 = .86), and experiential avoidance (95% BCa CI = -.39 to -.03; R^2 = .24, f^2 = .31). The relationship between autonomy support and anxiety was mediated by cognitive reappraisal (95% BCa CI = -.17 to -.02; R^2 = .09, f^2 = .10), psychological flexibility (95% BCa CI = -.28 to -.02; R^2 = .49, f^2 = .97), and experiential avoidance (95% BCa CI = -.16 to -.01; R^2 = .14, f^2 = .17). This was one of the first studies to identify mechanisms underlying links between helicopter parenting and negative outcomes. Results have implications for parent education and psychotherapy with college students.

Keywords: helicopter parenting, college students, depression, anxiety, emotional processing

Helicopter parenting refers to a distinct form of parental control (Padilla-Walker & Nelson, 2012) best characterized by a tendency to hover over one's child(ren), resolve potential problems for them, and rescue them from difficulties and challenges in a developmentally inappropriate way (Cline & Fay, 1990). Helicopter parents generally have benevolent intentions. As such, they have a parenting style that is typically (but not always) high on warmth and support but which is also universally high on control (Nelson, Padilla-Walker, & Nielson, 2015) and low on granting autonomy (Padilla-Walker & Nelson, 2012). In other words, helicopter parents not only hover but also do not support (or even actively discourage) autonomous behaviors in their offspring. Vinson (2013) argued that American ideas about what constitutes "good parenting" might have shifted in recent decades such that hovering and discouraging autonomy are now the accepted norms, and parents who resist this trend are sometimes judged negatively by other parents. Indeed, helicopter parenting behaviors have increased in the United States in recent years due to a variety of factors including increased safety concerns, ubiquitous technology permitting constant contact with one's children, greater economic insecurity, and rising costs of college tuition (Vinson, 2013).

Although some have argued that helicopter parenting can begin during pregnancy and continue through graduate school and beyond (Vinson, 2013), academic research on the prevalence and

*Faculty mentor

correlates of helicopter parenting has largely focused on traditional (i.e., 18 to 22-year-old) college students. This may in part be because of the unique problems that this parenting style can pose for young adults. That is, the major developmental tasks of this period (i.e., exploring identity, developing a sense of independence, assuming adult responsibilities; Tanner, 2006) may become complicated if one's parents seek to maintain control and do not promote autonomy. Further, compared with their noncollege-enrolled peers, young adults who are attending college may be at elevated risk for helicopter parenting for financial or logistical reasons (e.g., parents are contributing to college tuition, students live at home or return home during summer or winter breaks).[1]

Some studies have identified adaptive correlates of helicopter parenting for college students under certain conditions. For example, Nelson et al. (2015) found that, when parents also showed high warmth, helicopter parenting was associated with fewer risk-taking behaviors (e.g., marijuana use, recreational prescription medication use, shoplifting) in undergraduate students. Other studies have found that specific aspects of helicopter parenting may be associated with positive outcomes. For example, Luebbe et al. (2018) reported that, when other facets of helicopter parenting (i.e., academic and personal management, direct interventions, and autonomy-limiting behaviors) were not present, parents' information-seeking behaviors (e.g., keeping tabs on one's children and helping them make decisions) were associated with better decision-making and better academic functioning in college student offspring.

However, most published research has suggested largely maladaptive correlates of helicopter parenting. For example, helicopter parenting has been associated with lower life satisfaction (Schiffrin et al., 2014), worse physical health (Reed, Duncan, Lucier-Greer, Fixelle, & Ferraro, 2016), a sense of entitlement (Segrin, Woszidlo, Givertz, Bauer, & Murphy, 2012), maladaptive academic motivations (Schiffrin & Liss, 2017), low self-efficacy, and poor peer relationships (van Ingen et al., 2015) in college students. It is interesting to note that the adaptive outcomes that have been linked with helicopter parenting are mostly behavioral in nature, whereas the maladaptive outcomes are largely psychological. Although one cannot assume cause-and-effect relationships from correlational studies, perhaps there are specific conditions under which helicopter parenting, information-seeking in particular, fosters positive behaviors in college students, while simultaneously creating longer term psychological challenges.

One area that has received less research attention (but where the literature is perhaps most consistent) concerns links between helicopter parenting behaviors and poor mental health outcomes in college students. College students who report that their parents engage in high levels of helicopter parenting endorse more symptoms of generalized anxiety (Darlow, Norvilitis, & Schuetze, 2017; Reed et al., 2016), social anxiety (Kouros, Pruitt, Ekas, Kiriaki, & Sunderland, 2017), depression (Darlow et al., 2017; Reilly & Semkovska, 2018; Schiffrin et al., 2014), as well as greater psychotropic medication use for anxiety and depression (LeMoyne & Buchanan, 2011). However, only three published studies have examined potential mediators of these associations, meaning that the mechanisms by which helicopter parenting may be associated with poor mental health outcomes for college students have not been largely explored. Reed et al. (2016) found that helicopter parenting and autonomy support have indirect relationships with anxiety and depression through lower self-efficacy. Schiffrin et al. (2014) reported that relationships between helicopter parenting/autonomy support and depression were mediated by college students' perceived violation of their need for autonomy and competence. Finally, Reilly and Semkovska (2018) found that the relationship between perceived helicopter parenting and depression was explained by decreased resilience.

Lower self-efficacy, poor resilience, and thwarted psychological needs (e.g., need for autonomy, competence, independence) are probably not the only mechanisms that help explain relationships between helicopter parenting behaviors and negative mental health outcomes in college students. In particular, when considering depression and anxiety, one might expect that difficulties in processing and regulating one's emotions are relevant; such difficulties are fundamental to the development and maintenance of internalizing disorders. Emotion regulation has been defined as, "the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions . . . to accomplish one's goal" (Thompson, 1994, pp. 27–28). Maladaptive emotion regulation strategies have robust associations with depression and anxiety. For example, lower use of cognitive

[1] In this manuscript, we use "college student" to signify traditional age, residential college students.

reappraisal (i.e., re-interpreting a potentially emotionally challenging event in a way that alters the emotional impact; Gross & John, 2003) and higher use of expressive suppression (i.e., inhibiting expressions of emotion; Gross & John, 2003) have been linked with lower positive emotion, lower well-being, and higher negative emotion (Gross & John, 2003), and with more symptoms of depression and anxiety (Dryman & Heimberg, 2018; Loevaas et al., 2018).

Psychological flexibility, "the ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends" (Hayes, Luoma, Bond, Masuda, & Lillis, 2006, p. 7), is a related construct that has also been strongly linked with depression and anxiety. Those who score lower on measures of psychological flexibility show greater symptoms of depression and anxiety (e.g., Roemer, Salters, Raffa, & Orsillo, 2005). Experiential avoidance (i.e., rigid attempts to alter the form, frequency, or intensity of unwanted internal experiences; Hayes, Strosahl, & Wilson, 1999) is one aspect of psychological inflexibility that may play a particularly central role in the development and maintenance of depressive and anxiety disorders. For example, trait-level experiential avoidance prospectively predicts diagnoses of major depression, persistent depressive disorder, and generalized anxiety disorder (Shallcross, Troy, Boland, & Mauss, 2010; Spinhoven, Drost, Rooij, van Hemert, & Penninx, 2014), and reducing experiential avoidance can lead to improvement in depressive symptoms (Berking, Neacsiu, Comtois, & Linehan, 2009). Importantly, because of the conceptual similarities between emotion regulation and psychological flexibility and the fundamental role that both play in the etiology of depression and anxiety, some have proposed a unified treatment for emotional disorders that focuses on increasing cognitive reappraisal, decreasing emotional avoidance, and facilitating action that is not associated with the dysregulated emotions (i.e., targeting emotion regulation and psychological flexibility as the key treatment components for depression and anxiety; Barlow, Allen, & Choate, 2016).

The importance of adaptive emotion regulation skills and psychological flexibility for reducing risk of depression and anxiety is clear. A parenting style that is over-controlling and discourages autonomy (i.e., high on helicopter parenting behaviors) might prevent offspring from encountering and successfully coping with adversity, thereby robbing the child of experiences that foster healthy emotion-processing tendencies. Indeed, some have argued that parental over-involvement is driven by a desire to prevent child distress (Creswell, O'Connor, & Brewin, 2008) but that it has the effect of hindering development of coping mechanisms, leaving offspring feeling anxious, less competent, and more vulnerable to stress (Bronson & Merryman, 2009; Creswell et al., 2008; Gibbs, 2009; Hofer & Moore, 2010; Marano, 2008). Thus, the relationship between helicopter parenting behaviors and poor mental health outcomes in college students may be mediated by poor emotion processing skills.

In the current study, we aimed to add to the small but growing body of literature on the mechanisms by which helicopter parenting behaviors are associated with negative mental health outcomes in college students by examining the potential mediating role of emotional processing. Specifically, we tested the mediating role of expressive suppression, cognitive reappraisal, psychological flexibility, and experiential avoidance on the relationships between helicopter parenting/autonomy support and depression/anxiety symptoms. We expected that the (negative) relationships between autonomy support and anxiety/depression would be mediated by better emotion regulation (i.e., lower expressive suppression, lower experiential avoidance, higher cognitive reappraisal, higher psychological flexibility). In contrast, we expected that the (positive) relationships between helicopter parenting and anxiety/depression would be mediated by worse emotion regulation (i.e., higher expressive suppression, higher experiential avoidance, lower cognitive reappraisal, lower psychological flexibility).

Method

Participants

Participants were 104 undergraduate students at Lafayette College, a private, mid-Atlantic, small American liberal arts college, including 81 (77.88%) women and 23 (22.12%) men. No participants identified as gender nonbinary. The most commonly identified major course of study was psychology (n = 28, 26.92% of the sample). Thirty-eight participants (36.54%) were first-year students, 32 (30.77%) were sophomores, 23 (22.12%) were juniors, 10 (9.62%) were seniors, and 1 (0.96%) was beyond their fourth (i.e., senior) year but had not yet graduated. The average age was 19.15 (SD = 1.12) years, and the average self-reported GPA was 3.36 (SD = 0.41) on a 4-point scale. Racial identification was 64.42% White, 21.15%

Asian/Asian American, 9.62% Black or African American, and 2.88% biracial or another race. Just over 10% (10.58%) of the sample identified as Hispanic. Two participants did not report their racial identity and 2 participants did not report their ethnic identity.

Procedure

The current study reflects secondary analyses of an earlier dataset, collected to examine questions unrelated to the present work (Wenze, Gaugler, Sheets, & DeCicco, 2018). None of these data have been previously published. Sample size was determined by the previous study but guidelines suggest 115 participants would be needed to achieve .80 power for our models, given small-to-medium-sized *a* paths and medium-sized *b* paths, while 53 would be needed for medium and large paths, respectively (Fritz & MacKinnon, 2007). No data were excluded from analyses. There were 5 missing data points, for which we substituted the average item score for the relevant (sub)scale. One participant did not complete the Helicopter Parenting Behaviors measure (HPB).

The Lafayette College Institutional Review Board approved all study procedures (proposal # AY1516-66, first author served as study PI). Participants were recruited via daily emailed announcements about a range of campus-wide events, as well as posts to the College's first-year, sophomore, junior, and senior Facebook pages. The project was described as a study of mood, stress, and coping. All procedures for the current paper were completed individually, in person, in paper and pencil format, in the first author's lab. After the informed consent process, participants completed measures of helicopter parenting, emotion regulation, psychological flexibility, experiential avoidance, depression, and anxiety, as well as other procedures not relevant to this report. Compensation for this part of the study was $10 cash, which participants received after they completed all study procedures. Participants were informed in the study advertisement and during informed consent procedures that they would be compensated.

Measures

We used the HPB (Schiffrin et al., 2014), a 15-item self-report scale, to assess perceived helicopter parenting behaviors. Intended respondents are college students, rating their mother's behaviors. The HPB yields two subscale scores, one measuring helicopter parenting (9 items, 1 = *strongly disagree* to 6 = *strongly agree*) and one assessing autonomy support (6 items, 1 = *strongly disagree* to 6 = *strongly agree*). Higher scores reflect higher levels of the measured constructs. Scale developers reported acceptable reliability (e.g., helicopter parenting Cronbach's $\alpha = .77$, autonomy support Cronbach's $\alpha = .71$) and validity (e.g., helicopter parenting was positively correlated with depression and negatively correlated with life satisfaction, autonomy, and competence; Schiffrin et al., 2014).

We used the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), a 10-item self-report scale, to assess emotion regulation. The ERQ yields two subscale scores, one measuring expressive suppression (4 items, 1 = *strongly disagree* to 7 = *strongly agree*) and one measuring cognitive reappraisal (6 items, 1 = *strongly disagree* to 7 = *strongly agree*). Higher scores reflect higher levels of the measured constructs. Scale developers reported acceptable reliability (expressive suppression Cronbach's $\alpha = .73$, cognitive reappraisal Cronbach's $\alpha = .79$) and validity (e.g., reappraisal was positively related to reinterpretation, $\beta = .43$, and negatively related to rumination, $\beta = -.29$; suppression was positively related to rumination, $\beta = .19$, and negatively related to venting, $\beta = -.43$; Gross & John, 2003).

We used the Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011), a 7-item self-report measure (1 = *never true* to 7 = *always true*), to assess psychological flexibility. Higher scores reflect higher levels of psychological flexibility. The AAQ-II has good internal consistency (Cronbach's αs ranged from .86 to .89) and correlates with the longer scale from which the AAQ-II was derived at .97 (Bond et al., 2011).

We used the Brief Experiential Avoidance Questionnaire (BEAQ; Gamez et al., 2014), a 15-item self-report measure (1 = *strongly disagree* to 6 = *strongly agree*), to assess experiential avoidance. Higher scores reflect higher levels of experiential avoidance. The BEAQ has good reliability (mean Cronbach's α across 3 samples = .86) and moderate to high average correlations ($r = -.39$ to $r = .83$) with the subscales of the longer scale from which the BEAQ was derived (Gamez et al., 2014).

We used the Center for Epidemiologic Studies Depression Questionnaire (CESD; Radloff, 1977), a 20-item self-report measure (0 = *rarely or none of the time, <1 day* to 3 = *most or all of the time, 5–7 days*), to assess symptoms of depression over the past week. Higher scores reflect more symptoms of depression. Radloff (1977) reported good reliability

(Cronbach's α = .85, test-retest reliability ranging from 0.48 to 0.67) and validity (correlations with clinician-administered depression ratings in the .69 to .75 range).

We used the Generalized Anxiety Disorder 7-item scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), a 7-item self-report measure (0 = *not at all* to 3 = *nearly every day*), to assess symptoms of anxiety over the past 2 weeks. Higher scores reflect more symptoms of anxiety. The GAD-7 has strong reliability (Cronbach's α = .92, one-week test-retest reliability = .83) and validity (intraclass correlation = .83; Spitzer et al., 2006).

Overview of Analytic Approach

We used SPSS version 25 for all analyses. For mediation analyses, we used a nonparametric bootstrapping approach (Preacher & Hayes, 2004, 2008). This approach is preferred to earlier methods for examining mediation (e.g., Baron & Kenny, 1986) because it does not require distributional assumptions about the data, it is appropriate for smaller samples such as ours (see "Procedure," above), it formally tests whether the difference between the *c* and *c'* paths is significant, and it simultaneously tests the significance of the *a* and *b* paths. Mediation is significant if the confidence intervals for the *a*b* values (derived from 5,000 datasets created by randomly drawing participants and sampling them with replacement) do not contain zero. See Figure 1 for a conceptual model of mediation and the *a*, *b*, *c*, and *c'* pathways. Of note, the significance of the *a* and *b* paths is inconsequential in this approach, nor must a total effect or direct effect of *X* on *Y* be demonstrated. Instead, an indirect effect is significant, and mediation is demonstrated if the confidence interval for the *a*b* product does not include zero (Hayes & Rockwood, 2017; Zhao, Lynch, & Chen, 2010). In the current study, we examined whether expressive suppression, cognitive reappraisal, psychological flexibility, and experiential avoidance (Ms) mediated relationships between helicopter parenting and autonomy support (Xs) and depression and anxiety (Ys). Although there is no consensus about the optimal measure of effect size for mediation, the mediation ratio (P_M) is commonly reported and the index of mediation (ab_{cs}) offers certain statistical and conceptual advantages (Preacher & Kelley, 2011). Therefore, in addition to R^2 and Cohen's f^2, we report P_M and ab_{cs} for all significant effects.

FIGURE 1

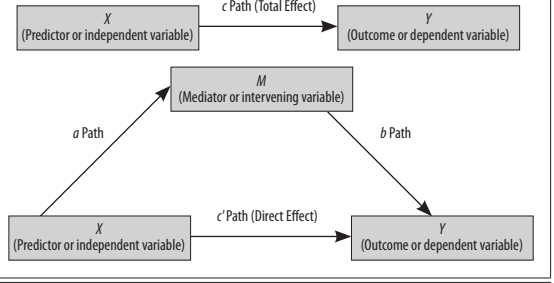

Figure 1. Conceptual model of mediation. *a*b* = *c* – *c'* = indirect effect, or the measure of the amount of mediation.

Results

Table 1 presents means, standard deviations, and Cronbach's αs of all study variables, as well as intercorrelations between variables. Table 2 presents bootstrapped regression results for the mediation of the effect of helicopter parenting on depression symptoms. The relationship between helicopter parenting and depression was mediated by experiential avoidance (95% bias-corrected and accelerated [Bca] confidence interval [CI] = .01 to .33, P_M = 15, ab_{cs} = .09, R^2 = .23, f^2 = .30). Higher helicopter parenting was associated with higher experiential avoidance and, in turn, higher depression symptoms.

Table 3 presents bootstrapped regression results for the mediation of the effect of helicopter parenting on anxiety symptoms. The relationship between helicopter parenting and anxiety was mediated by experiential avoidance (95% Bca CI = .01 to .13, P_M = 1, ab_{cs} = .07, R^2 = .14, f^2 = .17). Higher helicopter parenting was associated with higher experiential avoidance and, in turn, higher anxiety symptoms.

Table 4 presents bootstrapped regression results for the mediation of the effect of autonomy support on depression symptoms. The relationship between autonomy support and depression was mediated by expressive suppression (95% Bca CI = -.27 to -.01, P_M = .30, ab_{cs} = .06, R^2 = .08, f^2 = .08), cognitive reappraisal (95% Bca CI = -.36 to -.03, P_M = .41, ab_{cs} = .08, R^2 = .09, f^2 = .10), psychological flexibility (95% Bca CI = -.59 to -.04, P_M = .76, ab_{cs} = .15, R^2 = .46, f^2 = .86), and experiential avoidance (95% Bca CI = -.39 to -.03, P_M = .46, ab_{cs} = .09, R^2 = .24, f^2 = .31). Higher autonomy support was associated with lower expressive suppression and experiential avoidance, and higher cognitive reappraisal and psychological flexibility; in turn, these factors were associated with lower depression.

Table 5 presents bootstrapped regression results for the mediation of the effect of autonomy

TABLE 1

Means, Standard Deviations, Reliability, Coefficients, and Intercorrelations Between Study Variables

				Intercorrelations							
	Sum total *M*(*SD*)	Average item score *M*(*SD*)	α	1	2	3	4	5	6	7	8
1. Helicopter parenting (HPB)	20.20 (7.00)	2.24(0.78)	.74	–	-.11	-.04	-.08	-.18	.19	.01	.08
2. Autonomy support (HPB)	27.26 (5.93)	4.54(0.99)	.71		–	-.27**	.32**	.22*	-.20*	-.20*	-.13
3. Expressive suppression (ERQ)	13.99 (5.20)	3.50(1.30)	.76			–	-.19	-.38***	.42***	.24*	.23*
4. Cognitive reappraisal (ERQ)	29.54 (5.31)	4.92(0.89)	.72				–	.32**	-.13	-.27**	-.30**
5. Psychological Flexbility (AAQ)	35.68 (8.80)	5.10(1.26)	.89					–	-.47***	-.67***	-.70***
6. Experiential Avoidance (BEAQ)	46.32 (9.31)	3.09(0.62)	.80						–	.48***	.38***
7. Depression symptoms (CESD)	17.35 (11.18)	0.87(0.56)	.92							–	.76***
8. Anxiety symptoms (GAD-7)	6.76 (5.02)	0.97(0.72)	.89								–

Note. HPB = Helicopter Parenting Behaviors measure; ERQ = Emotion Regulation Questionnaire; AAQ = Acceptance and Action Questionnaire – II; BEAQ = Brief Experiential Avoidance Questionnaire; CESD = Center for Epidemiologic Studies Depression Scale; GAD-7 = Generalized Anxiety Disorder 7-item scale.
*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 2

Bootstrapped Regression Results for the Mediation of the Effect of Helicopter Parenting on Depression Symptoms

Pathway	Estimate	*SE*	*p*	LLCI	ULCI
Mediator = Experiential Avoidance					
HP → Depr (*c*)	.01	.16	.95	-.31	.33
HP → EA (*a*)	.25	.13	.06	-.01	.51
EA → Depr (*b*)	.59	.11	< .001	.38	.80
HP → Depr (*c'*)	-.14	.14	.34	-.42	.15
Indirect effect (*a*b*)	.15*	.08		.01	.33
Mediator = Psychological Flexibility					
HP → Depr (*c*)	.01	.16	.95	-.31	.33
HP → PsyFlex (*a*)	-.22	.12	.07	-.47	.02
PsyFlex → Depr (*b*)	-.90	.09	< .001	-1.08	-.71
HP → Depr (*c'*)	-.19	.12	.11	-.43	.05
Indirect effect (*a*b*)	.20	.11		-.02	.43
Mediator = Expressive Suppression					
HP → Depr (*c*)	.01	.16	.95	-.31	.33
HP → ExpSupr (*a*)	-.03	.07	.70	-.18	.12
ExpSupr → Depr (*b*)	.53	.21	.01	.11	.94
HP → Depr (*c'*)	.02	.16	.87	-.28	.33
Indirect effect (*a*b*)	-.02	.05		-.15	.07
Mediator = Cognitive Reappraisal					
HP → Depr (*c*)	.01	.16	.95	-.31	.33
HP → CogReapr (*a*)	-.06	.07	.43	-.20	.09
CogReapr → Depr (*b*)	-.61	.21	.005	-1.03	-.19
HP → Depr (*c'*)	-.03	.15	.87	-.33	.28
Indirect effect (*a*b*)	.04	.05		-.04	.14

Note. * Significant at the .05 level. LLCI = lower bound of a 95% confidence interval; ULCI = upper bound of a 95% confidence interval; HP = helicopter parenting; Depr = depression symptoms; EA = experiential avoidance; PsyFlex = psychological flexibility; ExpSupr = expressive suppression; CogReapr = cognitive reappraisal.

TABLE 3

Bootstrapped Regression Results for the Mediation of the Effect of Helicopter Parenting on Anxiety Symptoms

Pathway	Estimate	*SE*	*p*	LLCI	ULCI
Mediator = Experiential Avoidance					
HP → Anx (*c*)	.05	.07	.45	-.09	.20
HP → EA (*a*)	.25	.13	.06	-.01	.51
EA → Anx (*b*)	.20	.05	< .001	.10	.30
HP → Anx (*c'*)	.004	.07	.95	-.13	.14
Indirect effect (*a*b*)	.05*	.03		.01	.12
Mediator = Psychological Flexibility					
HP → Anx (*c*)	.05	.07	.45	-.09	.20
HP → PsyFlex (*a*)	-.22	.12	.07	-.47	.02
PsyFlex → Anx (*b*)	-.41	.04	< .001	-.49	-.33
HP → Anx (*c'*)	-.04	.05	.49	-.14	.07
Indirect effect (*a*b*)	.09	.05		-.01	.19
Mediator = Expressive Suppression					
HP → Anx (*c*)	.05	.07	.45	-.09	.20
HP → ExpSupr (*a*)	-.03	.07	.70	-.18	.12
ExpSupr → Anx (*b*)	.23	.09	.02	.04	.41
HP → Anx (*c'*)	.06	.07	.39	-.08	.20
Indirect effect (*a*b*)	-.01	.02		-.06	.03
Mediator = Cognitive Reappraisal					
HP → Anx (*c*)	.05	.07	.45	-.09	.20
HP → CogReapr (*a*)	-.06	.07	.43	-.20	.09
CogReapr → Anx (*b*)	-.29	.09	.002	-.48	-.11
HP → Anx (*c'*)	.04	.07	.59	-.10	.17
Indirect effect (*a*b*)	.02	.02		-.02	.07

Note. * Significant at the .05 level. LLCI = lower bound of a 95% confidence interval; ULCI = upper bound of a 95% confidence interval; HP = helicopter parenting; Anx = anxiety symptoms; EA = experiential avoidance; PsyFlex = psychological flexibility; ExpSupr = expressive suppression; CogReapr = cognitive reappraisal.

TABLE 4

Bootstrapped Regression Results for the Mediation of the Effect of Autonomy Support on Depression Symptoms

Pathway	Estimate	*SE*	*p*	LLCI	ULCI
Mediator = Experiential Avoidance					
AS → Depr (*c*)	-.37	.18	.05	-.74	-.003
AS → EA (*a*)	-.32	.15	.04	-.62	-.01
EA → Depr (*b*)	.55	.11	< .001	.33	.76
AS → Depr (*c'*)	-.20	.17	.25	-.53	.14
Indirect effect (*a*b*)	-.17*	.09		-.39	-.02
Mediator = Psychological Flexibility					
AS → Depr (*c*)	-.37	.18	.05	-.74	-.003
AS → PsyFlex (*a*)	.33	.14	.02	.05	.62
PsyFlex → Depr (*b*)	-.86	.10	<.001	-1.05	-.67
AS → Depr (*c'*)	-.09	.14	.55	-.37	.20
Indirect effect (*a*b*)	-.28*	.14		-.59	-.04
Mediator = Expressive Suppression					
AS → Depr (*c*)	-.37	.18	.05	-.74	-.003
AS → ExpSupr (*a*)	-.24	.08	.01	-.41	-.07
ExpSupr → Depr (*b*)	.44	.21	.04	.02	.87
AS → Depr (*c'*)	-.26	.19	.17	-.64	.11
Indirect effect (*a*b*)	-.11*	.07		-.27	-.01
Mediator = Cognitive Reappraisal					
AS → Depr (*c*)	-.37	.18	.05	-.74	-.003
AS → CogReapr (*a*)	.28	.08	.001	.11	.44
CogReapr → Depr (*b*)	-.53	.22	.02	-.96	-.09
AS → Depr (*c'*)	-.22	.19	.24	-.60	.15
Indirect effect (*a*b*)	-.15*	.08		-.36	-.03

Note. * Significant at the .05 level. LLCI = lower bound of a 95% confidence interval; ULCI = upper bound of a 95% confidence interval; AS = autonomy support; Depr = depression symptoms; EA = experiential avoidance; PsyFlex = psychological flexibility; ExpSupr = expressive suppression; CogReapr = cognitive reappraisal.

TABLE 5

Bootstrapped Regression Results for the Mediation of the Effect of Autonomy Support on Anxiety Symptoms

Pathway	Estimate	*SE*	*p*	LLCI	ULCI
Mediator = Experiential Avoidance					
AS → Anx (*c*)	-.11	.08	.20	-.27	.06
AS → EA (*a*)	-.32	.15	.04	-.62	-.01
EA → Anx (*b*)	.20	.05	< .001	.10	.30
AS → Anx (*c'*)	-.05	.08	.58	-.20	.11
Indirect effect (*a*b*)	-.06*	.04		-.16	-.01
Mediator = Psychological Flexibility					
AS → Anx (*c*)	-.11	.08	.20	-.27	.06
AS → PsyFlex (*a*)	.33	.14	.02	.05	.62
PsyFlex → Anx (*b*)	-.41	.04	< .001	-.49	-.32
AS → Anx (*c'*)	.03	.06	.66	-.10	.15
Indirect effect (*a*b*)	-.13*	.07		-.28	-.02
Mediator = Expressive Suppression					
AS → Anx (*c*)	-.11	.08	.20	-.27	.06
AS → ExpSupr (*a*)	-.24	.08	.005	-.41	-.07
ExpSupr → Anx (*b*)	.21	.10	.04	.01	.40
AS → Anx (*c'*)	-.06	.09	.51	-.23	.11
Indirect effect (*a*b*)	-.05	.04		-.13	.001
Mediator = Cognitive Reappraisal					
AS → Anx (*c*)	-.11	.08	.20	-.27	.06
AS → CogReapr (*a*)	.28	.08	.001	.11	.44
CogReapr → Anx (*b*)	-.29	.10	.005	-.48	-.09
AS → Anx (*c'*)	-.03	.09	.74	-.20	.14
Indirect effect (*a*b*)	-.08*	.04		-.17	-.02

Note. * Significant at the .05 level. LLCI = lower bound of a 95% confidence interval; ULCI = upper bound of a 95% confidence interval; HP = helicopter parenting; Anx = anxiety symptoms; EA = experiential avoidance; PsyFlex = psychological flexibility; ExpSupr = expressive suppression; CogReapr = cognitive reappraisal.

support on anxiety symptoms. The relationship between autonomy support and anxiety was mediated by cognitive reappraisal (95% Bca CI = -.17 to -.02, P_M = .73, ab_{cs} = .09, R^2 = .09, f^2 = .10), psychological flexibility (95% Bca CI = -.28 to -.02, P_M = 1.18, ab_{cs} = .15, R^2 = .49, f^2 = .97), and experiential avoidance (95% Bca CI = -.16 to -.01, P_M = .55, ab_{cs} = .07, R^2 = .14, f^2 = .17). Higher autonomy support was associated with lower experiential avoidance and higher cognitive reappraisal and psychological flexibility; in turn, these factors were associated with lower anxiety.

Supplemental Analyses

As one way to correct for the possibility of Type I error, we reran mediational analyses using 99% confidence intervals. The relationship between autonomy support and depression was mediated by cognitive reappraisal (99% Bca CI = -.43 to -.002, P_M = .39, ab_{cs} = .08, R^2 = .09, f^2 = .10). The relationship between autonomy support and anxiety was also mediated by cognitive reappraisal (99% Bca CI = -.19 to -.003, P_M = .72, ab_{cs} = .09, R^2 = .09, f^2 = .10). The other mediational relationships were no longer significant.

Another way to correct for Type I error, while also allowing us to examine the *unique* effects of each proposed mediator on these relationships, is to re-run analyses of the effects of helicopter parenting and autonomy support (Xs) on depression and anxiety (Ys), including all 4 proposed mediators in each of these four analyses. Controlling for expressive suppression, cognitive reappraisal, and psychological flexibility, experiential avoidance

mediated the relationship between helicopter parenting and depression (95% Bca CI = .01 to .20, P_M = 7.72, ab_{cs} = .05, R^2 = .53, f^2 = 1.12); higher helicopter parenting was associated with higher experiential avoidance, which predicted greater depression. None of the proposed variables independently mediated the relationship between helicopter parenting and anxiety. Controlling for expressive suppression and cognitive reappraisal, psychological flexibility and experiential avoidance mediated the relationship between autonomy support and depression (95% Bca CI = -.52 to -.05, P_M = .72, ab_{cs} = .13 and 95% Bca CI = -.25 to -.01, P_M = .26, ab_{cs} = .05, R^2 = .51, f^2 = 1.02); higher autonomy support was independently associated with higher psychological flexibility and lower experiential avoidance, both of which in turn predicted lower depression. Controlling for expressive suppression, cognitive reappraisal, and experiential avoidance, psychological flexibility mediated the relationship between autonomy support and anxiety (95% Bca CI = -.26 to -.02, P_M = .77, ab_{cs} = .15, R^2 = .51, f^2 = 1.04); higher autonomy support was associated with higher psychological flexibility, which predicted lower anxiety.

Discussion

The current study was one of the first to examine mechanisms behind the link between helicopter parenting behaviors and negative mental health outcomes in college students. Such analyses are important for a full understanding of the psychological correlates of this parenting style, and crucial for considering ways to educate parents and maximize college student well-being. In the current sample, helicopter parenting was not directly related to depression or anxiety symptoms. Likewise, autonomy support was not correlated with anxiety symptoms. However, autonomy support was negatively associated with depression symptoms, and even for those total effects that were not significant, we found support for the notion that aspects of emotional processing mediate links between helicopter parenting/autonomy supportive behaviors and depression/anxiety symptoms. In particular, psychological flexibility and experiential avoidance emerged as uniquely and independently important in explaining these relationships.

It is important to underscore that the current study was correlational in nature, so cause-and-effect relationships cannot be presumed. Indeed, a college student who is depressed or anxious (and who demonstrates the poor emotional processing that often accompanies these states) might prompt helicopter parenting behaviors in his or her parents. However, it is also possible that, without experience independently managing stressful events and their (oftentimes difficult) emotional sequelae, one does not develop optimal coping strategies. Helicopter parenting and discouraging autonomous behaviors might prevent offspring from having direct contact with such events and mastering adaptive coping skills. For example, a mother who immediately intervenes at the first sign of her daughter's struggles in a difficult course or who does not encourage her daughter to resolve interpersonal conflicts on her own prevents her daughter not only from solving these problems herself, but also from figuring out how to manage the anxiety, sadness, or frustration that might come from such experiences. Further, the mother models for her daughter that difficult experiences and negative emotions are dangerous, intolerable, and to be avoided or suppressed because she probably cannot handle them. Conversely, the mother also misses an opportunity to model persistence in the service of valued life goals and positive reappraisal of adversity. If the daughter develops emotional coping strategies and habits in line with these ideas (e.g., experiential avoidance, psychological inflexibility, expressive suppression, inability to cognitively reappraise negative emotions and triggers), she is at elevated risk for depression and anxiety (Gross & John, 2003; Hayes et al., 2006; Woodruff et al., 2014).

Implications

Our findings have implications for counseling college students. First, they underscore the importance of assessing and discussing students' perceptions of their parents' styles of parenting. For students who are struggling with depression or anxiety and who perceive low autonomy support from their parents, techniques drawn from Emotion Regulation Therapy (Renna, Quintero, Fresco, & Mennin, 2017) or Acceptance and Commitment Therapy (Hayes et al., 2006) might be helpful; such approaches aim to improve emotion regulation and increase psychological flexibility. Importantly, the current findings should also be disseminated to parents of college students. Having a child leave home can be a challenging experience for parents (Bouchard, 2014), and some may have a difficult time encouraging their college student's developing independence. Knowing that autonomy-supportive behaviors are associated with better emotional processing and lower risk of depression and anxiety may help parents adjust their behavior.

Limitations

This study was not without limitations. Data were based solely on self-report, which introduces the potential for self-presentation biases and assumes that respondents' statements reflect reality. In the current study, participants might have been hesitant to report psychiatric symptoms or maladaptive emotion regulation strategies, and their perceptions of their parents' behaviors might differ from the judgements that an impartial, trained observer might make. Demographic restrictions (especially regarding sex and ethnicity) and the nonclinical nature of our sample may limit generalizability of the findings. Similarly, our results might not extend to other subsamples of emerging adults. For example, college students who elect to attend larger universities or graduate degree-granting institutions might have better coping skills, desire more independence, or have been parented in a manner that is more supportive of autonomy than students who are drawn to the individualized attention and smaller class sizes often touted by small liberal arts colleges. Emerging adults who are not in college may be parented differently than their college-enrolled peers. Indeed, young adults who attend college tend to come from higher socioeconomic status households (Pell Institute, 2005), and socioeconomic status has, in turn, been linked with parenting style (Hoff, Laursen, & Tardif, 2002). Of note, our measure of helicopter parenting is specific to the college experience, with questions asking about parent involvement in students' choice of major and courses, interactions with professors and roommates, and grades. Finally, the present findings may not extend to non-U.S. samples. Social norms for amount and type of parental involvement vary by culture, as may the impact of such involvement on children's development (McElhaney & Allen, 2012). In comparison to their Western peers, for example, Asian students may rely more on parental support when transitioning to college (Dmitrieva et al., 2008). Future studies should address these limitations and build upon this work by testing cause-and-effect relationships between helicopter parenting, emotional processing, and mental health in U.S. college students.

Conclusion

This study added to a small but growing body of literature on the mechanisms by which helicopter parenting behaviors may be associated with poor mental health outcomes in U.S. college students. We found that expressive suppression, low cognitive reappraisal, psychological inflexibility, and experiential avoidance explained various relationships between helicopter parenting/low autonomy support, and depression/anxiety symptoms. Psychological inflexibility and experiential avoidance emerged as independent mediators of helicopter parenting-mental health links. Our findings have implications for counseling college students who are struggling with depression and anxiety. Future studies should build on this work by testing targeted treatment strategies, using other methods of assessment (e.g., behavioral measures or clinical interviews), and examining these processes in non-U.S. and/or noncollege samples.

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Author Note. Susan J. Wenze, https://orcid.org/0000-0002-4180-8642, Department of Psychology, Lafayette College; Anna B. Pohoryles, https://orcid.org/0000-0003-4938-2073, Department of Psychology, Lafayette College; Jennifer M. DeCicco Department of Psychology, Lafayette College

Jennifer M. DeCicco is now at the Department of Psychology at Holy Family University.

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Corresponding concerning this article should be addressed to Susan J. Wenze, Department of Psychology, Lafayette College, Oechsle Hall of Psychology, 350 Hamilton Street, Easton, PA 18042, United States of America.

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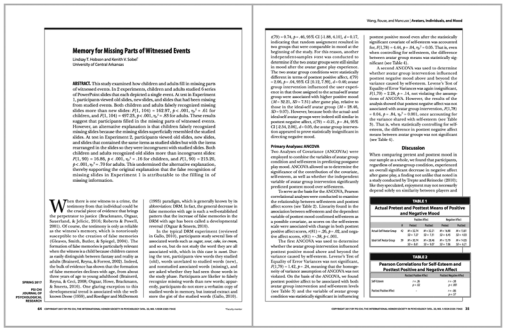

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