



Helicopter Parenting and Adjustment Outcomes in Young Adulthood: A Consideration of the Mediating Roles of Mastery and Self-Regulation

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Abstract

Objectives The present study considered whether helicopter parenting in emerging adulthood is linked to adjustment outcomes (i.e., social competence, prosocial behavior, depression, substance use, and lifetime criminality) above and beyond other parenting practices (i.e., acceptance, psychological and firm control), and whether any associations are mediated by personal mastery and/or self-regulation.

Methods Young adults ages 18 to 24 years responded to anonymous internet surveys ($N = 302$; 64.9% female, 79.4% white, 9.1% Hispanic).

Results High helicopter parenting was linked to low mastery, self-regulation, and social competence, and to high depression. Only associations with depression were attenuated when other parenting practices were controlled. Direct effects of helicopter parenting on depression and social competence were mitigated to non-significance when self-regulation and/or mastery were modeled. Helicopter parenting and parental acceptance had indirect effects on all forms of adjustment via self-regulation, as well as indirect effects via mastery for depression.

Conclusions Collectively, the findings suggest that helicopter parenting has comparatively stronger impacts for socio-emotional versus behavioral adjustment, operating indirectly via self-regulation versus mastery.

Keywords Emerging adulthood · Helicopter parenting · Parenting practices · Adjustment · Positive development · Maladjustment

Within the past decade, the new concept of helicopter parenting has captured the attention of the media and scholars of emerging adulthood. Helicopter parents are warm and loving, yet overinvolved, intrusive, and enmeshed; they are controlling and demanding to the point of infringing upon their children's emotional and psychological autonomy (Locke et al. 2012; Padilla-Walker and Nelson 2012). Helicopter parents have strict expectations about their children's behaviors, expecting them to alter their actions according to parents' needs or desires (Locke et al. 2012). When those expectations are violated, helicopter parents

will intervene, for example by calling their adult children's university professors to negotiate grades (van Ingen et al. 2015). Such interference prevents adult children from establishing healthy boundaries with their parents and from developing the capacities necessary for independent living. At this time, questions remain about how helicopter parenting is associated with psychological (i.e., peer social competence and depression) and behavioral adjustment (i.e., prosocial behavior, substance use, and criminality) in emerging adulthood. There are similar gaps in knowledge of the developmental mechanisms implicated in these associations (i.e., personal mastery and self-regulation), particularly when other parenting covariates of these mechanisms and outcomes (i.e., parental acceptance, psychological and firm control) are controlled.

Accumulating evidence indicates that helicopter parenting has detrimental direct effects for young adults' adjustment. Emerging adults who experience elevated helicopter parenting hold negative self-perceptions, feel unsatisfied

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with lives that seem to lack purpose, demonstrate heightened personal entitlement and distress, and struggle to meet developmentally-appropriate psychological needs (Cui et al. 2018; Givertz and Segrin 2014; LeMoyne and Buchanan 2011; McGinley 2018; Schiffrin et al. 2014; Segrin et al. 2013). Young adults who viewed their parents as hovering or overly controlling were likely to experience difficulty connecting with peers and to use withdrawal when attempting to solve social conflicts or problems (Darlow et al. 2017; Segrin et al. 2015). Similarly, high helicopter parenting predicts high levels of depression and poor psychological well-being during emerging adulthood (Darlow et al. 2017; Kouros et al. 2017; LeMoyne and Buchanan 2011; Schiffrin et al. 2014). In comparison to psychological adjustment, evidence for behavioral dimensions is less consistent. Concerning prosocial behaviors, one study demonstrated that high levels of helicopter parenting were also directly linked to high involvement in public actions and to low endorsement of altruistic prosocial behaviors (McGinley 2018); helicopter parenting likely interferes with the internalization of prosocial values that motivate these behaviors (e.g., empathy). When substance use has been considered in relation to helicopter parenting, few direct effects have emerged. Earle and LaBrie (2016) allude to unpublished results demonstrating statistically significant associations between helicopter parenting and heavy episodic drinking. In the Cui et al.'s (2018) study of college women, however, there were no bivariate correlations between either maternal or paternal helicopter parenting and alcohol use. Nelson et al. (2015) revealed no associations between maternal or paternal helicopter parenting and “risk behaviors” (i.e., a composite of substance use and delinquent/criminal behaviors). Although no known studies to date have considered the outcome of criminality by itself, it is possible that the heightened entitlement and reduced empathy entrenched through helicopter parenting may lead to elevations in externalizing problems (Fix and Fix 2015).

For some forms of adjustment, helicopter parenting may operate indirectly via proximal mediators (i.e., personal mastery and self-regulation). Per self-determination theory, humans have basic needs for relatedness, competence, and autonomy (Deci and Ryan 2000). Adjustment difficulties result when parents intercede in their adult children's daily decisions and relationships, because they undermine their children's agency, personal mastery, and self-perceptions of self-efficacy (Bradley-Geist and Olson-Buchanan 2014; Reed et al. 2016). In other words, helicopter parenting leads youth to believe that they are incapable of living independently, and that their lives' outcomes are primarily shaped by external forces (i.e., hovering parents) instead of their own decisions and capabilities (Givertz and Segrin 2014; LeMoyne and Buchanan 2011). To date, studies testing this explanation have emphasized the role of self-efficacy,

which involves “judgements of how well one can execute courses of action required to deal with prospective situations” (Bandura 1982, p. 122). Personal mastery is a correlate of self-efficacy, and concerns the degree to which individuals feel that they have power over their lives versus being controlled via external forces (Pearlin and Schooler 1978). High personal mastery predicts positive adjustment in adolescence and emerging adulthood, specifically low distress and delinquency, high self-esteem and personal adjustment, and reduced likelihood of school dropout and adolescent pregnancy (Conger et al. 1999; Lewis et al. 1999; Lipschitz-Elhawi and Itzhaky 2005; Shaw and Scott 1991). The case for mastery as a mediator is bolstered by a previous study with emerging adults, revealing that the effects of overprotective parenting on social anxiety were mediated by young adults' external locus of control (Spokas and Heimberg 2009).

In addition to harming personal mastery, helicopter parenting may undermine young adults' self-regulatory capacities. Self-regulation includes individuals' abilities to activate, monitor, inhibit, persevere and/or adapt their behavior, attention, emotions and cognitive strategies in response to internal or environmental feedback and in pursuit of personally-relevant goals (Moilanen 2007). Theoretically, youth acquire regulatory capacities through interactions in the family context (e.g., through parenting practices and parent-child relational qualities), and in turn, self-regulation links such familial experiences to adjustment-related outcomes (Morris et al. 2007). Such parental intrusions communicate that adult children are incapable of managing their own lives without parental involvement, which erodes their self-confidence (Baker and Hoerger 2012; van Ingen et al. 2015). Young adults are likely to experience elevated negative affect when parents constrain their autonomy, and having to modulate distress will distract them from acquiring adaptive regulatory strategies (Morris et al. 2007). This may lead to the adoption of destructive coping techniques, such as self-medicating with alcohol in order to manage negative affect (Cui et al. 2018; Odenweller et al. 2014; Segrin et al. 2013). Further, there is abundant evidence that high self-regulation is associated with high social competence and prosocial behaviors, as well as low depression, substance use, and conduct problems in adolescence and emerging adulthood (Carlo et al. 2012; Finkenauer et al. 2005; Li et al. 2015; Loukas and Roalson 2006; Moilanen 2007). In emerging adulthood, self-regulation mediated associations between parental overcontrol and adjustment (Baker and Hoerger 2012), and between helicopter parenting and alcohol use (Cui et al. 2018).

Though helicopter parenting is distinct from other parenting practices (Padilla-Walker and Nelson 2012), relatively few prior studies have modeled any other parenting

behaviors when considering associations between helicopter parenting and outcomes (e.g., parental acceptance, psychological control, and behavioral/firm control). Accepting parenting behaviors are warm, supportive, and loving. High warmth and involvement are similarly beneficial for mastery and self-regulation, as these practices help adolescents master regulatory strategies (e.g., for managing negative affect; Baker and Hoerger 2012; Finkenauer et al. 2005; Moilanen 2007), which may help them feel in control over their lives (Moilanen and Shen 2014; Shaw and Scott 1991; Surjadi et al. 2011). In a separate analysis of the present sample, high parental acceptance was associated with high regulation and social competence with peers (Moilanen and Manuel 2017). In studies of adolescents, high maternal involvement, connectedness and acceptance also predicted high prosocial behaviors, low internalizing and externalizing problems, and alcohol use (Day and Padilla-Walker 2009; Diggs et al. 2017; Sart et al. 2016). Psychological control corresponds to emotionally-manipulative parental management practices (e.g., threatening to withhold love). High psychological control is consistently associated with low regulatory abilities (Finkenauer et al. 2005; Moilanen 2007) including in the present sample of young adults (Moilanen and Manuel 2017), as well as low mastery (Ahlin and Lobo Antunes 2015). In emerging adulthood, parental prior use of psychological control is indicative of individuals' diminished capacities in navigating peer relationships and deficiencies in resolving interpersonal conflicts (Abaied and Emond 2013). During adolescence and/or emerging adulthood, it is also linked to low involvement in prosocial behavior, and high depression, aggression, externalizing problems, and substance use (Cui et al. 2014; Diggs et al. 2017; Galambos et al. 2003; Luk et al. 2015; Yoo et al. 2013). Firm or behavioral control includes limit-setting and management of adult children's behaviors. Firm control has at best weak associations with self-regulation and social competence, which are typically mitigated to non-significance when other parenting behaviors are controlled (Moilanen 2007; Moilanen and Manuel 2017). In adolescence, high levels of behavioral control and related practices (e.g., limit-setting and monitoring) are associated with high levels of mastery, prosocial behaviors, and low internalizing and externalizing problems and substance use (Ahlin and Lobo Antunes 2015; Blustein et al. 2015; Galambos et al. 2003; Richaud et al. 2013).

Differences attributable to sex and race/ethnicity are also possible. Previous studies reveal that compared to young women, young men report higher levels of mastery, substance use, externalizing problems and criminality, and lower levels of self-regulation, prosocial behaviors, depression, and social competence (Buhrmester et al. 1988; Carlo et al. 2012; Galambos et al. 2003; Shanahan and Bauer 2004; Vasilenko et al. 2017; Wilkinson et al. 2016).

Compared to European American teens and young adults, African Americans report higher levels of mastery, self-regulation, depression and delinquency, as well as lower prosocial behavior and substance use (Gryczkowski et al. 2018; Lewis et al. 1999; López et al. 2017; Moilanen 2007; Mrug et al. 2016; Vasilenko et al. 2017). Hispanic teens report lower levels of some forms of substance use than do European American youth, though these groups tend to be statistically equivalent in terms of depression and other behavioral problems (López et al. 2017; Perou et al. 2013). Children and teens who identify as bi- or multi-racial tend to have the highest likelihood of using substances and of experiencing internalizing and externalizing problems (Perou et al. 2013).

The present investigation had three goals. The first was to extend knowledge concerning the adjustment indicators with which helicopter parenting is correlated during emerging adulthood. The present study considered five outcomes (i.e., peer social competence, prosocial behavior, depression, substance use, and lifetime criminality). Additionally, it was among the first investigation to explore two potential mediators (i.e., personal mastery and self-regulation). We anticipated that high helicopter parenting would be associated with low mastery, self-regulation, social competence and prosocial behaviors, and with high depression, substance use, and lifetime criminality. The second goal was to explore whether any effects of helicopter parenting on any of the outcomes and/or mediators persist when parental acceptance, psychological control, and firm control were controlled. We hypothesized that helicopter parenting would exert effects above and beyond these three parenting practices for at least a subset of the considered downstream variables but had no a priori predictions about the specific patterns. The third goal was to test whether mastery and self-regulation mediated the effects of helicopter parenting on the other adjustment outcomes. We hypothesized that high levels of self-regulation and/or mastery would link high helicopter parenting to the adjustment indicators (i.e., low social competence and prosocial behaviors and high depression, substance use, and criminality).

Method

Participants

Two subsamples of young adults were combined for analyses, including $n = 279$ recruited via Amazon.com's Mechanical Turk (mTurk) and $n = 85$ enlisted through the local community. Following the combination of the subsamples ($N = 364$), $n = 42$ (11.5%) were eliminated from the dataset due to skipped survey items. Cases were also removed when individuals responded to the parenting

questions without identifying a focal parental relationship ($n = 20$; 5.5%); these individuals reported significantly lower levels of parental acceptance and higher levels of psychological control than the remaining $n = 302$ participants who reported about mothers (69.9%), fathers (22.5%), or other parent-type relationships (7.6%; these responses included grandparents, aunts, cousins, and high school teachers). This final sample was 64.9% female, $M_{Age} = 21.57$ years ($SD = 1.90$, range = 18–24), 79.4% European American, 9.1% Hispanic, with 84.1% recruited via mTurk. The sample's geographic and residential contexts varied: 44.4% resided in the southern U.S., and 27.9% currently lived with parents. The sample was diverse in terms of educational attainment, in that 51% were currently seeking a college degree, 10.6% were pursuing graduate training, 17.5% had already completed a four-year degree, and 20.9% were not enrolled in college and did not have a four-year university degree.

As described in Moilanen and Manuel (2017), comparisons of the two samples revealed several significant differences, primarily in terms of demographic characteristics. Those recruited through mTurk were somewhat older ($p < 0.001$, $\eta^2 = 0.06$), and were less likely to be female ($p < 0.001$, Cramér's $V = 0.23$), European American ($p = 0.014$, Cramér's $V = 0.15$), single ($p = 0.001$, Cramér's $V = 0.19$), or currently enrolled in college ($p < 0.001$, Cramér's $V = 0.32$) than those in the local sample. Youth in the mTurk sample were more likely to live with their parents ($p < 0.001$, Cramér's $V = 0.21$), and to already have completed a four-year college degree ($p = 0.004$, Cramér's $V = 0.17$) than young adults in the local subsample. mTurk participants reported lower levels of acceptance ($p < 0.001$, $\eta^2 = 0.05$), firm control ($p = 0.03$, $\eta^2 = 0.02$), and prosocial behaviors ($p < 0.001$, $\eta^2 = 0.07$) than local respondents. Thus, sample source was controlled in the final model.

Procedure

The study protocol was approved by the West Virginia University Institutional Review Board. All respondents affirmed their informed consent prior to responding to anonymous surveys during 2013–2015. mTurk workers were eligible to participate if they lived in the United States and were ages 18 to 24 years. These respondents were compensated with US \$1.00 mTurk credit if they met the inclusion criteria and completed at least 80% of the survey. The local community sample was recruited via electronic and paper advertisements, which invited U.S. residents who were 18 to 24 years old to participate in an anonymous academic research study on personality characteristics and health behaviors. Respondents who chose to enter an optional prize raffle following survey completion were

eligible to win one of 20 \$10 gift cards for a national merchant.

Measures

Unless noted as an exception, indices were calculated through averaging, and respondents must have answered at least 75% of the measure's items in order to have that scale score calculated. When applicable, items were reverse coded so that high values correspond to high levels of each construct.

Demographics

These included sex (0 = *male*, 1 = *female*), race/ethnicity (1 = *European American*, 0 = *all other responses*), and sample source (0 = *local*, 1 = *mTurk*).

Helicopter parenting

Five items assessed helicopter parenting (Padilla-Walker and Nelson 2012; sample item: "My parent makes important decisions for me (e.g., where I live, where I work, what classes I take)"; $\alpha = 0.71$), for which respondents used a five-point response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Parenting practices

The 30-item version of the Children's Reports of Parental Behavior Inventory (CRPBI; Schludermann and Schludermann 1988) measured parental acceptance and psychological and firm control. After indicating which parent or parental alternative to which they felt the closest or spent the most time, participants responded to one set of gender-neutral items for that parent. Participants responded to each item on a three-point response scale, ranging from 1 (*not like my parent*) to 3 (*a lot like my parent*). Ten items assessed parental acceptance ($\alpha = 0.93$; Sample item: "My parent is a person who smiles at me very often"), 10 items measured psychological control ($\alpha = 0.87$; Sample item: "My parent is a person who says, if I cared for him/her, I would not do things that cause him/her to worry"), and the remaining 10 items corresponded to firm control ($\alpha = 0.86$; Sample item: "My parent is a person who lets me do anything I like to do").

Mastery

Respondents completed the seven-item Pearlin Mastery Scale (Pearlin and Schooler 1978; sample item: "I often feel helpless in dealing with the problems of life"; $\alpha = 0.84$),

using a four-point response scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*).

Self-regulation

Participants completed the revised 50-item version of the Adolescent Self-Regulatory Inventory (ASRI; Moilanen 2007; Sample item: “I stop to think about the short-term consequences of my words and actions”; $\alpha = 0.94$). Participants rated each item on a scale from 1 (*not at all true for me*) to 5 (*really true for me*).

Peer social competence

Respondents completed 40 items from the Interpersonal Competence Questionnaire (Buhrmester et al. 1988). This measure consists of five eight-item subscales, which were combined to form a single score of interpersonal competence with same-sex peers ($\alpha = 0.94$; Sample item: “Refraining from saying things that might cause a disagreement to build into a big fight”). Respondents used a five-point response scale ranging from 1 (*I’m poor at this; I’d feel so uncomfortable and unable to handle this situation, I’d avoid it if possible*) to 5 (*I’m extremely good at this; I’d feel very comfortable and could handle this situation very well*).

Prosocial behavior

Participants responded to the prosocial behaviors subscale from the Primary Prevention Awareness, Attitudes and Usage Scale (Swisher et al. 1985). Six items assessed frequency of prosocial behaviors (e.g. “Did someone a favor or lent someone money;” $\alpha = 0.76$). Response options spanned 1 (*never*) to 6 (*happens almost every day or more*).

Depression

Participants indicated the degree to which they had experienced depression symptoms in the past week via a seven-item short form of the Center for Epidemiological Studies Depression scale (Radloff 1977; sample item: “I felt sad”; $\alpha = 0.84$), using a scale ranging from 1 (*rarely, none of the time, 1 day*) to 4 (*most, all of the time, 5–7 days*).

Substance use

Respondents indicated how recently they had used tobacco, alcohol, marijuana, and other drugs (i.e., inhalants, methamphetamine, cocaine, hallucinogens, “bath salts,” heroin, prescription and over-the-counter drugs for the purpose of getting high, and any other drugs), using a six-point response scale ranging from 1 (*never*) to 6 (*in the last week*). Due to low base rates for the individual items, an

aggregate for other drugs was constructed by using the highest response for any of these drugs. Participants also answered six items assessing lifetime frequency of problematic substance use-related behaviors (Zagorsky and White 1999; “How often have you ever driven a car while you were high on drugs?”), using a response scale ranging from 1 (*never*) to 4 (*very often*). These responses were averaged (Cronbach’s $\alpha = 0.84$). Values on these five indicators were standardized prior to averaging to form the index used for preliminary analyses ($\alpha = 0.76$); a latent variable was used in path models (the factor loadings are provided in Fig. 1).

Criminality

Lifetime criminality was assessed using six *yes/no* items (Zagorsky and White 1999; sample item: “Have you ever purposefully damaged or destroyed property that did not belong to you?”). This index was a sum of the number of “yes” responses ($\alpha = 0.65$).

Data Analyses

Preliminary analyses included descriptive statistics (see Table 1) and bivariate correlations (see Table 2), which addressed the first study goal about correlates of helicopter parenting. The second study goal was met in a path analysis, in which the two mediators and five dependent variables were simultaneously regressed upon the four parenting dimensions in order to establish whether helicopter parenting exerted any effect when parental acceptance, and psychological and behavioral control were modeled (i.e., referred to below as the direct effects model; see Fig. 1). For the third study goal about mediation, hypotheses were tested in three path analyses that specified bootstrapped indirect effects of the four parenting practices on the five adjustment outcomes via mastery and/or self-regulation (i.e., owing to the moderately strong correlation between the mediators, one indirect effects model was estimated separately for each mediator; the full indirect effects model included both mastery and self-regulation). Standard errors and confidence intervals for indirect effects were generated using bootstrapping with 100 samples. Though *p*-values are also reported, conclusions about the significance of indirect effects were based on confidence intervals that did not include zero. Covariances between exogenous parenting and demographic variables (i.e., sex, race, and sample source) were permitted, as was the correlation between endogenous variables’ residual variances (note that these coefficients are provided only in the context of the full indirect model). Non-significant covariances were constrained to zero and non-significant paths for control variables were trimmed in order to maximize model fit. All path analyses were conducted in Mplus v.7.2.

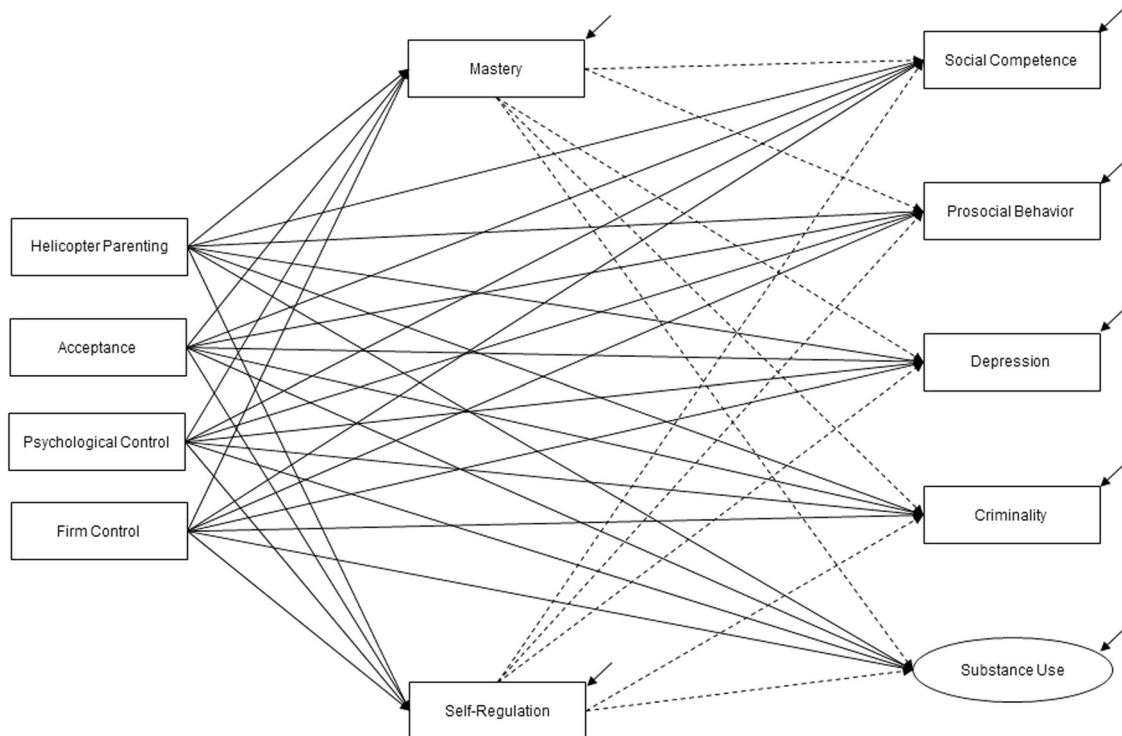


Fig. 1 The direct and full indirect effects models. Solid lines indicate paths included in all models, and dashed lines indicate paths included in the various indirect effects models (i.e., all were included in the full indirect effects model, while the paths from self-regulation were omitted in the indirect effects via mastery model, and vice versa). The figure omits the correlations between exogenous variables and between

the residual variances of the endogenous variables, which are available from the first author upon request. For the latent substance use variable, the unstandardized factor loadings and their *SEs* were as follows: marijuana use = 1.00 (0.00), tobacco use = 0.81 (0.10), alcohol use = 0.41 (0.07), use of other drugs = 0.65 (0.07), risky substance use behaviors = 0.20 (0.03)

Data were missing completely at random (MCAR), Little's MCAR $\chi^2(155) = 175.79$, $p = 0.12$. All models were estimated with full information maximum likelihood (FIML). The primary indicator of acceptable model fit was a non-significant χ^2 fit statistic. As these are sensitive to sampling fluctuation, a χ^2/df ratio smaller than 5, Comparative Fit Indices (CFI) larger than 0.95, Root Mean Square Errors of Approximation (RMSEA) smaller than 0.06 or 90% confidence intervals that contain 0.06, and Standardized Root Mean Square Residuals (SRMR) smaller than 0.08 were used to indicate sufficient fit (West et al. 2012).

Results

Bivariate Correlations

Bivariate correlations (see Table 2) indicated that women reported higher levels of parental acceptance and prosocial behaviors than men, and that white youth reported lower levels of self-regulation and mastery and higher levels of substance use than their peers from other racial/ethnic backgrounds. High helicopter parenting corresponded to high psychological control, behavioral control, and

depression, and with low mastery, self-regulation, and prosocial behavior. High mastery corresponded to high self-regulation, and both mastery and self-regulation were positively associated with most of the adjustment indicators in the expected directions.

Direct Effects Model

The results of the direct effects model are presented in the top panel of Table 3. Model fit was acceptable, $\chi^2(45) = 90.04$, $p < 0.001$, χ^2/df ratio = 2.00, CFI = 0.95, RMSEA = 0.06, 90% C. I. [0.04, 0.08], SRMR = 0.04. Controlling for parental acceptance, psychological and firm control, high helicopter parenting was significantly associated with low levels of both mediators (i.e., low mastery and self-regulation), and with low social competence. Helicopter parenting was not associated with the other four outcomes (i.e., depression, prosocial behavior, substance use, and criminality).

Indirect Effects Via Mastery Model

Model fit was acceptable, $\chi^2(83) = 158.08$, $p < 0.001$, χ^2/df ratio = 1.90, CFI = 0.91, RMSEA = 0.06, 90% C. I. [0.04, 0.07], SRMR = 0.05. Main effects are presented in the

Table 1 Descriptive statistics (*N* = 302)

| Variable | <i>N</i> | <i>M</i> (<i>SD</i>)/% | Range |
|------------------------|----------|--------------------------|------------|
| Female sex | 302 | 64.9% | |
| European American | 281 | 79.4% | |
| Helicopter parenting | 291 | 2.10 (0.78) | 1.00–4.40 |
| Parental acceptance | 295 | 2.52 (0.52) | 1.00–3.00 |
| Psychological control | 299 | 1.59 (0.51) | 1.00–3.00 |
| Firm control | 297 | 1.81 (0.50) | 1.00–3.00 |
| Mastery | 300 | 2.94 (0.59) | 1.43–4.00 |
| Self-regulation | 301 | 3.47 (0.57) | 1.94–4.90 |
| Peer social competence | 294 | 3.37 (0.66) | 1.63–5.00 |
| Prosocial behavior | 299 | 3.83 (0.77) | 1.67–5.83 |
| Depression | 301 | 2.05 (0.72) | 1.00–4.00 |
| Substance use | 304 | −0.02 (0.70) | −0.93–2.73 |
| Criminality | 301 | 0.87 (1.20) | 0.00–6.00 |

second panel of Table 3, and indirect effects in the top panel of Table 4. The associations between the parenting variables and mastery were the same as in the direct effects model. There were no direct effects of helicopter parenting on any of the outcomes. High mastery predicted high social competence and prosocial behavior, and low depression and criminality. There were indirect effects of helicopter parenting via mastery for each of these outcomes, and of parental acceptance for social competence, depression, and criminality (i.e., low helicopter parenting and high acceptance predicted high mastery, which in turn were associated with better adjustment).

Indirect Effects Via Self-Regulation Model

Model fit was acceptable, $\chi^2(83) = 145.95, p < 0.001, \chi^2/df$ ratio = 1.76, CFI = 0.92, RMSEA = 0.05, 90% C. I. [0.04, 0.06], SRMR = 0.05. Main effects are presented in the third panel of Table 3, and indirect effects in the second panel of Table 4. The paths between the parenting variables and self-regulation were the same as in the direct effects model. There were no significant direct effects of helicopter parenting on any outcomes. High self-regulation predicted high social competence and prosocial behavior, and low depression, substance use and criminality. There were indirect effects of helicopter parenting and acceptance via self-regulation for each outcome (i.e., low helicopter parenting and high acceptance predicted high self-regulation, which in turn were associated with better adjustment).

Multiple Indirect Effects Model

Model fit was acceptable, $\chi^2(89) = 159.64, p < 0.001, \chi^2/df$ ratio = 1.79, CFI = 0.93, RMSEA = 0.05, 90% C. I. [0.04, 0.06], SRMR = 0.05. The direct paths from the indirect

Table 2 Bivariate correlations (*N* = 302)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------------|--------|--------|----------|----------|----------|--------|----------|----------|----------|-------|---------|---------|-----|
| 1 Sex | | | | | | | | | | | | | |
| 2 Race/Ethnicity | 0.13* | | | | | | | | | | | | |
| 3 Helicopter Par. | 0.06 | 0.02 | | | | | | | | | | | |
| 4 Par. Acceptance | 0.20** | 0.09 | 0.09 | | | | | | | | | | |
| 5 Psych. Control | −0.10 | −0.10 | 0.30*** | −0.41*** | | | | | | | | | |
| 6 Firm Control | −0.00 | −0.07 | 0.16** | −0.28*** | 0.50*** | | | | | | | | |
| 7 Mastery | −0.11 | −0.12* | −0.26*** | 0.28*** | −0.27*** | −0.15* | | | | | | | |
| 8 Self-Regulation | 0.04 | −0.12* | −0.21*** | 0.25*** | −0.24*** | −0.09 | 0.58*** | | | | | | |
| 9 Peer Social Comp. | 0.08 | −0.01 | −0.16** | 0.24*** | −0.12* | −0.12 | 0.33*** | 0.40*** | | | | | |
| 10 Prosocial Beh. | 0.14* | 0.02 | −0.01 | 0.26*** | −0.06 | 0.07 | 0.20** | 0.30*** | 0.29*** | | | | |
| 11 Depression | 0.10 | 0.09 | 0.14* | −0.11 | 0.19** | 0.14* | −0.50*** | −0.42*** | −0.23*** | −0.01 | | | |
| 12 Substance Use | −0.09 | 0.13* | −0.03 | −0.14* | 0.12* | −0.06 | −0.11 | −0.31*** | −0.07 | −0.08 | 0.25*** | | |
| 13 Criminality | −0.11 | 0.08 | −0.06 | −0.09 | 0.09 | −0.06 | −0.17** | −0.22*** | −0.01 | −0.05 | 0.20** | 0.51*** | |
| <i>N</i> | 302 | 281 | 291 | 295 | 299 | 297 | 300 | 301 | 294 | 299 | 301 | 304 | 301 |

p* < 0.05, *p* < 0.01, ****p* < 0.001 (all tests two-tailed)

Table 3 Summary of direct and indirect effects path models

| Model | Mastery | Self-regulation | Social competence | Prosocial behavior | Depression | Substance use | Criminality |
|--------------------------------------|----------|--------------------|--------------------|--------------------|-------------------|---------------|--------------------|
| Direct effects model R^2 | 0.17*** | 0.13*** | 0.09** | 0.09** | 0.05 ⁺ | 0.08* | 0.03 |
| Helicopter parenting | −0.26*** | −0.21*** | −0.19** | −0.06 | 0.10 ⁺ | −0.03 | −0.07 |
| Acceptance | 0.27*** | 0.24*** | 0.27*** | 0.30*** | −0.05 | −0.16* | 0.06 |
| Psychological control | −0.09 | −0.12 ⁺ | 0.07 | −0.01 | 0.11 | 0.21** | 0.16* |
| Firm control | 0.01 | 0.07 | −0.05 | 0.16* | 0.05 | −0.22** | −0.15* |
| Mastery indirect model R^2 | 0.21*** | | 0.16*** | 0.15*** | 0.26*** | 0.09* | 0.06 ⁺ |
| Helicopter parenting | −0.26*** | | −0.12 ⁺ | 0.01 | −0.03 | −0.05 | 0.12 |
| Acceptance | 0.27*** | | 0.20** | 0.20** | 0.09 | −0.14 | −0.01 |
| Psychological control | −0.10 | | 0.10 | 0.02 | 0.06 | 0.20* | 0.15 |
| Firm control | 0.01 | | −0.05 | 0.11 | 0.06 | −0.22* | −0.15* |
| Mastery | | | 0.26*** | 0.17* | −0.51*** | 0.09 | −0.18** |
| Self-regulation indirect model R^2 | | 0.16*** | 0.21*** | 0.18*** | 0.19*** | 0.18*** | 0.08* |
| Helicopter parenting | | −0.20** | −0.12 ⁺ | 0.02 | 0.02 | −0.10 | −0.12 ⁺ |
| Acceptance | | 0.24*** | 0.19** | 0.19** | 0.05 | −0.08 | −0.00 |
| Psychological control | | −0.13 ⁺ | 0.11 | 0.04 | 0.06 | 0.17* | 0.14 |
| Firm control | | 0.07 | −0.08 | 0.10 | 0.09 | −0.19* | −0.13 ⁺ |
| Self-regulation | | | 0.35*** | 0.27*** | −0.41*** | −0.34*** | −0.23*** |
| Full indirect model R^2 | 0.21*** | 0.16*** | 0.21*** | 0.18*** | 0.29*** | 0.19*** | 0.08* |
| Helicopter Parenting | −0.25*** | −0.20*** | −0.10 | 0.03 | −0.05 | −0.09 | −0.14 ⁺ |
| Acceptance | 0.27*** | 0.24*** | 0.16** | 0.18** | 0.11 ⁺ | −0.10 | 0.01 |
| Psychological control | −0.11 | −0.13 ⁺ | 0.11 | 0.04 | 0.05 | 0.18* | 0.14 |
| Firm control | 0.01 | 0.07 | −0.08 | 0.10 | 0.08 | −0.19* | −0.13 ⁺ |
| Mastery | | | 0.11 | 0.04 | −0.40*** | 0.11 | −0.09 |
| Self-regulation | | | 0.30*** | 0.25** | −0.21** | −0.40*** | −0.18** |
| Sex | | | | 0.04 | | | |
| Race | −0.15* | −0.14* | | | | | |
| Sample | | | | −0.18** | | | |

All coefficients are standardized. Details about covariances can be obtained from the first author

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

effects model are presented in the lower panel of Table 3, and the indirect effects are reported in the lower panel of Table 4. High helicopter parenting and white race/ethnicity were each associated with low mastery and self-regulation. There were no direct effects of helicopter parenting for any of the outcomes. Concerning the mediators, high mastery predicted only low depression, while high levels of self-regulation corresponded to high levels of social competence and prosocial behavior, and with low levels of depression, substance use and criminality. Regarding indirect effects, mastery mediated the effects of helicopter parenting and parental acceptance for depression. High helicopter parenting was linked to high depression via low mastery, while high parental acceptance was associated with low depression via high mastery. There were indirect effects of helicopter parenting and parental acceptance via self-regulation for all outcomes. Low helicopter parenting and high acceptance each predicted high social competence and

prosocial behavior, and low depression, substance use, and criminality via high self-regulation.

We conducted supplemental analyses testing whether the direct effects of self-regulation were significantly stronger than were those for mastery (details are available upon request to the first author). The difference between these two paths' unstandardized coefficients was statistically different from zero for substance use (i.e., $p = 0.001$). Two others were at trend-level significance (i.e., social competence $p = 0.07$, depression $p = 0.09$), and two were statistically equivalent (i.e., prosocial behavior $p = 0.11$, criminality $p = 0.39$).

Discussion

Hypothetically, parents engage in helicopter parenting in order to improve their adult children's chances at success in

Table 4 Standardized indirect effects and confidence intervals from the indirect effects models

| | Social competence | Prosocial behavior | Depression | Substance use | Criminality |
|---|------------------------|------------------------|-------------------------|------------------------|------------------------|
| Indirect effects via mastery model | | | | | |
| Helicopter parenting | -0.07 [-0.11, -0.02]** | -0.04 [-0.09, -0.003]* | 0.13 [0.07, 0.19]*** | 0.02 [-0.01, 0.05] | 0.05 [0.01, 0.08]** |
| Acceptance | 0.07 [0.02, 0.12]** | 0.05 [0.00, 0.09] | -0.14 [-0.20, -0.07]*** | -0.03 [-0.06, 0.01] | -0.05 [-0.09, -0.01]* |
| Psychological control | -0.03 [-0.07, 0.02] | -0.02 [-0.05, 0.01] | 0.05 [-0.03, 0.13] | 0.01 [-0.01, 0.03] | 0.02 [-0.02, 0.05] |
| Firm control | 0.002 [-0.03, 0.03] | 0.001 [-0.02, 0.02] | -0.003 [-0.05, 0.05] | -0.001 [-0.01, 0.01] | -0.001 [-0.02, 0.02] |
| Indirect effects via self-regulation model | | | | | |
| Helicopter parenting | -0.07 [-0.12, -0.02]** | -0.05 [-0.10, -0.01]* | 0.08 [0.03, 0.13]** | 0.07 [0.02, 0.12]** | 0.05 [0.01, 0.08]** |
| Acceptance | 0.08 [0.03, 0.14]** | 0.06 [0.02, 0.11]** | -0.10 [-0.15, -0.04]*** | -0.08 [-0.13, -0.03]** | -0.05 [-0.09, -0.02]** |
| Psychological control | -0.05 [-0.10, 0.01] | -0.04 [-0.07, 0.01] | 0.05 [-0.002, 0.11] | 0.04 [-0.001, 0.09] | 0.03 [-0.00, 0.06] |
| Firm control | 0.02 [-0.02, 0.07] | 0.02 [-0.01, 0.05] | -0.03, [-0.08, 0.03] | -0.02 [-0.07, 0.02] | -0.02 [-0.05, 0.02] |
| Full indirect effects model | | | | | |
| Via mastery | | | | | |
| Helicopter parenting | -0.03 [-0.06, 0.01] | -0.01 [-0.05, 0.03] | 0.10 [0.05, 0.15]*** | -0.03 [-0.07, 0.01] | 0.02 [-0.01, 0.06] |
| Acceptance | 0.03 [-0.01, 0.07] | 0.01 [-0.03, 0.05] | -0.11 [-0.16, -0.05]*** | 0.03 [-0.01, 0.07] | -0.02 [-0.06, 0.02] |
| Psychological control | -0.01 [-0.04, 0.01] | -0.01 [-0.03, 0.02] | 0.04 [-0.02, 0.11] | -0.01 [-0.04, 0.01] | 0.01 [-0.02, 0.03] |
| Firm control | 0.001 [-0.01, 0.01] | 0.00 [-0.01, 0.01] | -0.03 [-0.04, 0.04] | 0.001 [-0.01, 0.01] | -0.001 [-0.01, 0.01] |
| Via self-regulation | | | | | |
| Helicopter parenting | -0.06 [-0.10, -0.02]** | -0.05 [-0.10, -0.01]* | 0.04 [0.01, 0.08]* | 0.08 [0.02, 0.14]** | 0.04 [0.002, 0.07]* |
| Acceptance | 0.07 [0.02, 0.12]** | 0.06 [0.01, 0.11]* | -0.05 [-0.09, -0.01]* | -0.10 [-0.16, -0.04]** | -0.05 [-0.08, -0.01]* |
| Psychological control | -0.04 [-0.09, 0.01] | -0.03 [-0.07, 0.01] | 0.03 [-0.003, 0.06] | 0.05 [-0.004, 0.11] | 0.02 [-0.01, 0.05] |
| Firm control | 0.02 [-0.02, 0.06] | 0.02 [-0.01, 0.05] | -0.02 [-0.05, 0.02] | -0.03 [-0.08, 0.02] | -0.01 [-0.04, 0.01] |

The 95% C.I.s are enclosed in brackets

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

multiple life domains, including achievement and personal relationships (Locke et al. 2012). Parents may think that they can help their children be successful through hovering or removing obstacles in the youth's pathway, but these practices deprive young adults of opportunities to learn how to manage their daily lives and personal relationships, thus producing distress. Growing alarm about the state of emerging adults' psychological health has given rise to new scholarly interest in helicopter parenting as a potential antecedent. Thus, we considered the associations between helicopter parenting, two intervening factors, and five adjustment outcomes, while controlling for three additional parenting dimensions. The first goal was to extend knowledge concerning the adjustment indicators with which helicopter parenting is correlated during emerging adulthood. High helicopter parenting was linked to low levels of two mediators and two indicators of psychological adjustment, but there were no associations with any of the behavioral adjustment outcomes. The second goal was to explore whether these effects were maintained when parental acceptance, psychological control, and firm control were controlled. Only one effect of helicopter parenting was mitigated by these controls (i.e., for depression). Finally, the third study goal was to explore whether the observed effects of helicopter parenting were mediated by personal mastery and/or self-regulation. These analyses provided comparatively stronger evidence for self-regulation than for mastery.

High helicopter parenting was associated with low mastery and self-regulation in bivariate correlations, and neither of these associations were attenuated when parental acceptance, psychological control, and firm control were controlled. The present study was among the first to explore these potential psychological mediators, and to provide empirical support for the theoretical notion that helicopter parenting leads to poor mastery in emerging adulthood. The present inquiry also informs the literature on self-regulation, confirming helicopter parenting as a covariate distinct from other forms of parenting, given its unique contribution above and beyond acceptance and psychological control. The strength of this association in emerging adulthood illustrates the importance of considering the potential impacts of overinvolved forms of parenting at earlier ages when self-regulation is comparatively malleable (Moilanen et al. 2015); theoretical models of self-regulation omit helicopter parenting, and the present investigation is among the first to consider how it may be damaged via overinvolved, oversolicitous parenting. The cross-sectional design prohibits conclusions about the directionality of effects: youth may experience regulatory difficulties and adjustment problems resulting from helicopter parenting, or young adults' may elicit helicopter parenting when they struggle with life's demands, which in turn may further undermine their adjustment (Bradley-Geist and Olson-

Buchanan 2014; Fingerman et al. 2012; Segrin et al. 2013). This latter pattern is suggested for other parenting dimensions in adolescence (Moilanen et al. 2015).

Beyond these links, helicopter parenting was associated with only two of the five outcomes in the bivariate correlations (i.e., social competence and depression) and in the direct effects model. Consistent with Segrin et al. (2015), high helicopter parenting was associated with low social competence with peers, further highlighting that youth may struggle in forming and managing relationships with peers when parents are overly involved in their lives. It was also marginally associated with high levels of depression, which may be due to resulting negative self-perceptions about their abilities to manage their lives (Darlow et al. 2017; Givertz and Segrin 2014; LeMoyné and Buchanan 2011; Schiffrin et al. 2014). This effect was mitigated by other parenting variables in the direct effects model, as were all direct effects of helicopter parenting when the indirect effects via mastery and/or self-regulation were modeled. In short, helicopter parenting may indirectly shape adjustment outcomes via such mediating psychological processes (Cui et al. 2018). There were no direct associations between helicopter parenting and the remaining three behavioral outcomes in any of the analyses.

There are two explanations as to why effects were observed for psychological but not behavioral adjustment. One is that it may be due to discrepancies in the degree to which parents are knowledgeable about their adult children's psychological versus behavioral adjustment. These focal psychological dimensions of adjustment demonstrate temporal stability, and parents are likely aware of their children's struggles even in the absence of explicit disclosure (Hamza and Willoughby 2011; Moilanen et al. 2015; Surjadi et al. 2011). Awareness of such difficulties may lead parents to engage in habitual helicopter parenting, regardless of the degree to which their mature children actively solicit parental support. In contrast, youth often deliberately keep their parents "in the dark" about their involvement in criminal behaviors or substance use in order to prevent parental intervention (Marshall et al. 2005). The second explanation concerns parents' perceptions of the appropriateness or potential effectiveness of helicopter parenting. When parents are aware of risky behaviors, helicopter parenting may not seem a suitable response: choosing adult children's college courses or settling roommate disputes will do nothing to limit youths' criminal acts or substance use. Similarly, these actions would do little to encourage prosocial behaviors such as volunteering. Yet helicopter parenting may be a comparatively natural response to young adults' socio-emotional difficulties. Parents of emerging adults with histories of depression may be particularly prone to helicopter parenting, as it would facilitate involvement even in the face of adult children's

depression-related social withdrawal (i.e., consistent with observations that adolescents' depression predicts rank-order declines in parental autonomy support; Van der Giessen et al. 2014).

Concerning the third study goal about mechanisms, bivariate correlations were consistent with mediation for self-regulation (i.e., it was associated with all dimensions of parenting except for firm control and with all outcomes) and for mastery (i.e., it was associated with all parenting practices and with all outcomes except for substance use). Across models, there were consistent indirect effects of helicopter parenting via self-regulation. Nearly all direct and indirect effects involving mastery were mitigated to non-significance in the final path model, likely due to its strong correlation with self-regulation. While the difference between the coefficients for mastery and self-regulation was only significantly different from zero for substance use, it appears that limited variance remained to be explained by mastery when self-regulation was included in the analyses. Supplemental analyses available from the first author upon request suggested that self-regulation mediated the association between mastery and adjustment for each of the outcomes; conceptually, forms of parenting such as low warmth and high control heighten children's negative emotions and undermine their sense of personal control (Morris et al. 2007). This interferes with young adults' efforts to self-regulate and to meet personal psychological needs, culminating in maladjustment (Conger et al. 1999; Cui et al. 2018; Segrin et al. 2013).

Although not the primary study focus, the associations between the adjustment outcomes and the parenting and other control variables were generally consistent with prior studies, including those involving analyses of the present dataset (Moilanen and Manuel 2017). There were relatively few sex and racial/ethnic differences, likely due to the sample's relative heterogeneity: women reported high prosocial behaviors, and relative to other ethnic groups, European Americans reported low mastery and high substance use (Carlo et al. 2012; Lewis et al. 1999; Vasilenko et al. 2017). There were relatively few associations between the other parenting behaviors and adjustment indicators. Consistent with previous investigations of warm parenting, high acceptance was predictive of high personal mastery, prosocial behaviors and low substance use (Day and Padilla-Walker 2009; Diggs et al. 2017; Moilanen and Shen 2014). The null associations between parental acceptance and depression and criminality are somewhat atypical, though the reason for this is unclear. It may be attributable to modeling three other parenting practices in addition to parental acceptance (i.e., prior investigations have typically considered up to two parenting dimensions simultaneously). Alternately, effects for depression present in early to middle adolescence may dissipate by emerging adulthood or be

present for subgroups only (Day and Padilla-Walker 2009; Sart et al. 2016). For criminality, it is likely due to limited variance, as this low-risk sample reported negligible involvement. Effects of psychological control were similarly minimal. In keeping with previous analyses of these data and other studies, high psychological control was predictive of low self-regulation and social competence with peers, and high substance use and depression, though this became non-significant when mastery was modeled (Abaied and Emond 2013; Cui et al. 2014; Diggs et al. 2017; Finkenauer et al. 2005; Luk et al. 2015; Moilanen and Manuel 2017). Young adults may remain resilient to depression in the face of parental psychological control if they have a sense of control over their external environments (Conger et al. 1999). Yet teens or young adults may consume substances in order to repair negative moods caused by intrusive or emotionally-manipulative parenting (Gould et al. 2012). Firm control correlated with only two outcomes in the preliminary analyses (i.e., high levels of firm control were linked to low mastery and high depression). Both effects were mitigated in the path analyses, which revealed new associations between firm control and prosocial behavior, substance use, and criminality. Though generally consistent with their respective literatures, these suppressor effects require replication (Blustein et al. 2015; Galambos et al. 2003; Richaud et al. 2013).

Strengths, Limitations, and Future Research Directions

The present study was augmented by several strengths. Notably, in comparison to previous investigations, it considered a wider range of outcomes and covariate parenting practices, and was among the first to examine two candidate mechanisms. A second strength was that the majority of the participants were recruited through mTurk, which produced a sample with substantial proportions of youth who had never attended college or who had already completed university degrees. Prior studies on helicopter parenting have largely relied upon university student samples; though it seems unlikely that this phenomenon is restricted only to young adults while they are attending college, whether these groups differ in terms of helicopter parenting is a question for future research. Though this introduces some ambiguity about the degree to which these findings generalize, the use of mTurk remains a benefit in that mTurk samples tend to be considerably more ethnically diverse, with participants who demonstrate superior attentiveness to study instructions than is evidenced in college student samples (Buhrmester et al. 2016; Hauser and Schwartz 2016).

The current inquiry also possessed several limitations, largely stemming from practical constraints common to anonymous, self-report surveys (e.g., observed associations

may be due to shared method bias). Future studies should involve measures of maternal and paternal parenting from the perspectives of young adults and their parents. This was not feasible in the present investigation, which utilized data collected as part of a larger study on self-regulation and adjustment in emerging adulthood (i.e., parenting was not the central study focus). This shortcoming is mitigated somewhat by prior studies demonstrating moderate agreement across reporters and by evidence indicating that adult children's responses more strongly predict their adjustment than do parental reports (Segrin et al. 2015; Segrin et al. 2013). Survey length constraints precluded including separate maternal and paternal parenting measures. This modification is vital for future studies, owing to growing awareness of differential effects of mothering and fathering (van Ingen et al. 2015). Additionally, future research should explore moderated effects: helicopter parenting in conjunction with psychological and or firm control might be particularly harmful, while high acceptance may mitigate its effects (Nelson et al. 2015). Although our interpretations emphasize parent-driven effects, longitudinal studies are needed to clarify the degree to which helicopter parenting is stable, to ascertain whether it is a cause or consequence of young adults' regulatory and/or adjustment difficulties, and to provide independent replication of the mediated effects demonstrated herein. Finally, future research should be conducted in order to ascertain the degree to which helicopter parenting may be a viable target of effective primary, secondary, and tertiary prevention efforts.

Ultimately, this inquiry demonstrated replicated prior studies' findings for social competence and depression, while providing greater support for self-regulation (versus mastery) as an intervening mechanism linking helicopter parenting to primarily psychological adjustment. This highlights the need to build integrative models of helicopter parenting, self-regulation and adjustment (Givertz and Segrin 2014; LeMoyne and Buchanan 2011; Morris et al. 2007).

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Author Contributions K.L.M. designed and executed the study, conducted data analyses, wrote and revised the paper. M.L.M. collected the data, prepared datasets, and collaborated in writing portions of the manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no potential conflicts 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.

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

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