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Highly Involved Parenting of Adolescents with ADHD: Examination of the Psychometric Properties of a Measure of "Helicopter Parenting"

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Abstract

Objective—The concept of the "helicopter parent" was popularized in the 2000s and 2010s by Western culture, and it has recently begun to be examined by researchers to describe parental over-involvement and intrusive behavior that impedes transition into adulthood. Research has yet to investigate the viability of this construct for adolescents when parenting is needed to facilitate the development of autonomy. The present study examined the psychometric structure of a modified version a "helicopter parenting" measure adapted for use in a sample with increased likelihood of highly involved parenting: adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD).

Methods—Adolescents (n=333; age 13-18; 25% female) and their parents (n=341, 91% female) completed a survey for a study on provider training in stimulant diversion prevention in 2016 and 2017. We modified a previously validated measure of "helicopter parenting" for young adults. Other previously established parenting measures were included. We conducted principal component analysis for both informants' reports of the modified measure. We examined

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associations between the components and informants' demographic characteristics and parenting measures to begin to examine convergent and discriminant validity.

Results—Two components were identified for adolescent and parent reports and labeled parental Intervention and Day-to-day Monitoring and Planning. These components were differentially associated with demographic characteristics and other measures of parenting. For example, across reporters, parents exhibited less Day-to-Day Monitoring and Planning for older adolescents. Racially/ethnically minoritized parents and male adolescents reported more Intervention parenting. Modest-sized statistically significant associations were found between these indicators of highly involved parenting and the other measures of parenting.

Conclusion—Findings provide initial evidence of construct validity. Future work with more heterogeneous samples should examine if this measure captures adaptive parenting, or behaviors that interfere with developing independence, for adolescents with ADHD and neurotypically developing adolescents.

Keywords

parenting; helicopter parenting; ADHD; adolescents; component structure

"Helicopter parenting" is a term first coined in western popular culture to describe parental over-involvement in their children's lives (i.e., constantly hovering to minimize problems and ensure success; Padilla-Walker & Nelson, 2012). The term increased in visibility in the late 2000s to early 2010s, when stories of parental overinvolvement increasingly surfaced in the media (e.g., Anderson, 2011). These behaviors (e.g., directly intervening to solve a child's problems) are thought to be intrusive and to inhibit the development of independence, particularly in emerging adulthood, and thereby impede full transition to autonomous functioning (LeMoyne & Buchanan, 2011; Schiffrin et al., 2014). Several researchers have now developed and examined the validity of instruments meant to measure this popularized construct (LeMoyne & Buchanan, 2011; Padilla-Walker & Nelson, 2012; Schiffrin et al., 2014). For instance, Padilla-Walker & Nelson (2012) developed and examined the psychometric properties of a measure of "helicopter parenting" in college students. Using factor analysis, they identified a single factor that was reliable (alphas ranged from .77-.87) and related to but distinct from other indices of parenting (Padilla-Walker & Nelson, 2012). Although there was some evidence from zero-order correlations that associations might differ by informant, derived latent variables leveraging information across informants suggested that higher scores on their measure were related to less autonomy-granting but more parental involvement, guidance, and emotional support, as well as more disclosure by young adults (Padilla-Walker & Nelson, 2012). Using the same data, they also found that "helicopter parenting" was associated with lower self-worth and higher risk-taking (e.g., such as substance use and shoplifting) in the presence of lower maternal warmth (Nelson et al., 2015), suggesting possible negative outcomes from this combination of parenting characteristics that included potentially over-involved parenting. A small body of research has related overly-involved parenting to lower academic motivation, lower school engagement (LeMoyne & Buchanan, 2011; Padilla-Walker & Nelson, 2012; Schiffrin & Liss, 2017), and poorer mental health outcomes (i.e., depression, anxiety,

emotional dysregulation, health-risk behaviors; Cui et al., 2019; LeMoyne & Buchanan, 2011; Nelson et al., 2015; Schiffrin et al., 2014) for young adults.

There is, however, very limited understanding of this type of parenting and its measurement in adolescence -- a time that is particularly salient for beginning development of independence. Shifting responsibility for behavior from parents to their adolescent is a delicate balance, as too much and not enough oversight may have ramifications for adolescent development (Hadiwijaya et. al, 2017; Sessa & Steinberg, 1991). As adolescents become more independent, parents are tasked with adapting by pulling back to scaffold the development of problem-solving skills needed for adulthood, but close supervision and monitoring of behavior is still necessary. Although measures of autonomy granting have been developed (Steinberg et al., 1992), measures of the opposite have not – in this case, measures developed to capture over-stepping in line with the notion of "helicopter parenting" studied for young adults. Studies have not investigated the measurement of such highly involved parenting for adolescents.

This parent-adolescent relationship transition may be more complicated for parents of adolescents with Attention Deficit/Hyperactivity Disorder (ADHD) as there is increased need for parent involvement to provide structure and support to counter symptoms and strengthen daily functioning (Laugesen & Groenkjaer, 2015; Modesto-Lowe et al., 2008; Montes & Montes, 2021), while supporting compensatory skill-building (Sibley et al., 2016). Although ADHD symptoms, particularly hyperactivity and impulsivity, often decline with age, the higher demand on self-regulatory skills and independence as youth enter middle school is often associated with more difficulties related to ADHD (Langberg, et al., 2008; Nigg et al., 2020). In accord with this idea, and in the only study to date of "helicopter parenting" in the context of ADHD, Buchanan and LeMoyne (2019) found that this form of highly involved parenting was related to greater self-efficacy in college-aged men with ADHD, suggesting surprisingly that a very high degree of parental involvement may be adaptive in this population. Although no research has examined this directly, it remains an open question whether such parenting behaviors are adaptive for adolescents with ADHD as well, regardless of whether adolescents perceive them to be intrusive or not. Other parenting behaviors (e.g., parental supervision, positive involvement, and warmth) are established as adaptive for adolescents (Kerr & Stattin, 2000; Klevens & Hall, 2014; Walther et al., 2012). Examining associations between these well-known parenting behaviors and "helicopter parenting" in adolescence should aide interpretation of these highly involved parenting behaviors and help set the stage for future research, the results of which can provide guidance to parents.

The present study examined the psychometric properties of a measure of "helicopter parenting," herein referred to as "highly involved" parenting of adolescents with ADHD, using a measure adapted from the original Padilla-Walker and Nelson (2012) questionnaire. Specifically, we adjusted the wording of some items and also expanded the questionnaire to improve its suitability for use with adolescents with ADHD. (We also use the term "highly involved" parenting given the lack of evidence supporting this presumed overly-involved parenting behavior as maladaptive.) We examined the component structure of our measure as a first step toward determining construct validity. We then examined associations between

these components and other established parenting variables to investigate the convergent and discriminant validity of our measure. Because our study is exploratory in nature, we did not have strong hypotheses. Rather, we sought to understand 1) whether our measure performs well psychometrically in consideration of the adaptations we undertook for application to a new population, and 2) whether and how the behaviors we identify from this measure are associated with established measures of parenting known to be adaptive for adolescents. Finally, we also explored associations between the components and demographic variables given the lack of data on this topic.

Methods

Participant Recruitment and Characteristics

We recruited adolescents with ADHD through seven pediatric primary care provider (PCP) practices enrolled in a randomized controlled trial of provider training in stimulant diversion prevention. Adolescent participants were identified through electronic medical records. Eligible participants were between the ages of 13 and 18 years old, prescribed stimulant medication to treat ADHD, able to complete surveys independently, and with one parent agreeing to participate in electronic surveys. Practice staff first contacted parents, and research staff confirmed adolescent and parent enrollment. Two cohorts of participants were recruited, one year apart, in 2016 and 2017. Only two adolescents were excluded due to inability to complete surveys independently.

A total of 357 family dyads originally enrolled; 333 adolescents and 341 parents who provided baseline survey data served as the participants for the current study (we did not limit inclusion to both dyad participants completing the parenting measures). As shown in Table 1, most of the adolescent participants reported being born male (75.1% male, 24.9% female, 0% other). Most adolescents identified as “boy/man” (75.1% boy/man, 24.6% girl/woman, 0.3% other). The mean and median age in years was 15 (SD = 1.54). Adolescent participants’ racial identities were 10.5% Black/African American, 85.2% White, and 3.9% multi-racial; 5.1% of the adolescents identified as Hispanic and/or Latino/a/é. Most parent participants reported being assigned female sex at birth (90.6%) and being the adolescent’s biological parent (92.7%). Parents’ racial and ethnic identities were similar to adolescents’ (0.6% Asian, 8.2% Black/African American, 90% White, 1.2% multi-racial, and 1.5% Hispanic and/or Latino/a/é). Half of the parents had received a bachelor’s degree or more education (50.3%), and both the mean and median annual household income were $75-$99K/year.

Procedure

Participants and parents completed electronic surveys in Qualtrics (Provo, UT) at the baseline phase of the study before any interventions (i.e., physician training in clinical practice strategies to prevent stimulant diversion; see McGuier, 2022) were implemented. Surveys, which included a range of variables pertinent to the larger study, were completed within an eight-week window of time in the fall of 2016 and 2017. (Parental income for cohort 1 was taken from the 6-month follow-up survey, assuming continuity of income, due to its exclusion from the baseline survey.) Study staff texted and emailed unique survey links

to participants (adolescents and parents separately), including standard informed consent and assent to participate. Privacy of survey responses was protected through a National Institute of Drug Abuse Certificate of Confidentiality. The University of Pittsburgh's Human Research Protection Office approved this study.

Survey Measures

Highly Involved Parenting—Our 11-item measure was adapted from the previously validated 5-item Helicopter Parenting questionnaire developed for young adults by Padilla-Walker and Nelson (2012). For the current study, original items were modified to be appropriate for adolescents (e.g., "My parents intervene in solving problems with my employers or professors" revised to "My parents take over when I have problems with my teachers, coaches, or other adults in my life"). Six new items were also added to capture parenting behaviors that relieve adolescents of responsibilities that are typically and gradually being acquired during this phase of development (e.g., My parents do my homework for me). All 11 items may be seen in Supplement Table 1.) Adolescents completed the questionnaire reflecting on their parents' actions, whereas parents completed the questionnaire about their own behaviors with their adolescent in the study. Response options ranged from "*Not at all like them/me*" (1) to "*A lot like them/me*" (5). Table 2 provides reliability and descriptive statistics for the full set of items prior to PCA in our data, where it can be seen that Cronbach's alpha was > .80 for adolescent and parent report for all 11 items.

Parental Knowledge and Monitoring of Adolescent Activities and Whereabouts—Parental knowledge was measured with the Behavioral Supervision and Strictness subscales of the Authoritative Parenting Questionnaire (Lamborn et al., 1991; Steinberg, et al., 1992). These subscales assessed perceptions of parental attempts to obtain knowledge, as well as parental actual knowledge, about behaviors and activities in their adolescent's life over the last 6 months. Each subscale included response options ranging from "*Didn't try to know/Didn't know"* (1) to "*Tried to know/Knew all of the time*" (5). Adolescents and parents completed the same questionnaire with appropriate pronouns to reflect the informant. An example item is "How much did either of your parents (or you) try to know who your (or their) friends were" and "How much did either of your parents (or you) really know who your (or their) friends were" (Table 2). This measure demonstrates good reliability (Cronbach's alpha ranging from .76-.89 across several studies; test-retest r=.83; Lamborn et al., 1991; Steinberg et al., 1992; Walther et al., 2012); consistent factor structure (Lamborn et al., 1991; Steinberg et al., 1992; Walther et al., 2012); and invariance across informant (Walther et al., 2012).

Alabama Parenting Questionnaire—The Alabama Parenting Questionnaire (APQ) measured general parenting practices and behaviors (Zlomke et al., 2015; Shelton et al., 1996). The APQ included 15 items with response options ranging from "*Never"* (1) to "*Always"* (5). Adolescents and parents completed this questionnaire with appropriate pronouns to reflect the informant. Two subscales were included in our analyses. Positive/involved parenting included 9 items, and example items are "Your parents praise you for behaving well" and "You have a friendly talk with your teen." Inconsistent discipline

included 6 items, and example items are "Your parents threaten to punish you and then do not do it" and "You threaten to punish your teen and then do not do it," (Table 2). The Alabama Parenting Questionnaire displays adequate reliability (Shelton et al., 1996), including for the subscales used in the present study (i.e., Cronbach's alphas generally at or above .66, though sometimes lower given the low number of items for inconsistent discipline; Essau et al., 2006; Molinuevo et al., 2011; Shelton et al., 1996; Wells et al., 2000; Zlomke et al., 2014), among adolescent and parent report (Zlomke et al., 2014), and among youth with ADHD (Wells et al., 2000). The factor structure of this measure has differed to some extent across culture and age (i.e., range from 3-5 factor solutions; Shelton et al., 1996), though the available data in adolescents supports the use of the two subscales above (Zlomke et al., 2014).

Additional Warmth Items from the Conflict Behavior Questionnaire—Five items from the Conflict Behavior Questionnaire (CBQ) that measure parental warmth over a 6-month period were selected to capture behaviors not covered by the Alabama Parenting Questionnaire (Robin & Foster, 1989). Only adolescents completed these items with response options ranging from "*Strongly agree*" (1) to "*Strongly disagree*" (5). All items were reverse scored so that higher item scores reflected greater parental warmth. An example item is "My parents listen when I need someone to talk to" (Table 2).

Data Analytic Strategy

All analyses were performed using SPSS version 27. We first tested the suitability of our data for principal component analysis (see results below). We conducted basic parametric statistical tests (skewness/kurtosis), Pearson's correlations between items, Kaiser-Meyer-Olkin test, and Bartlett's test of sphericity (Yong & Pearce, 2013).

Principal Component Analysis (PCA)—In order to understand 1) the dimensional structure of the highly-involved parenting measure and 2) how our added and revised items function amidst the original Padilla-Walker and Nelson (2012) items, we conducted PCAs for the adolescent and parent reports (separately) using oblique rotation, as we expected our components to be correlated with each other. We selected PCA rather than other data reduction techniques (e.g., exploratory factor analysis) because 1) it seeks to capture the maximum amount of variance with the fewest number of items of redundancy, which suited our needs given our addition of items, and 2) this approach allows one to interpret some degree of dimensionality and clustering in observed variables without the assumptions of modeling the underlying latent constructs, which we deemed to be most appropriate with the current sample (e.g., lack of comparison group, developmental and age considerations; Yong & Pearce, 2013). We determined the components using guidelines described by Yong and Pearce (2013), e.g., eigenvalues greater than 1 and break in scree plot. Although there is no consensus on acceptable total levels of variance for component models, researchers have often reflected that a range of acceptable variance is between 50% to 60% for psychological research (Hair, 2018; Merenda, 1997). To achieve optimum interpretability of the components and support analysis of associations between parent and adolescent report, we iteratively conducted PCAs, dropping items with low component loadings and items with loadings varying across reporters (see results for more details). This approach prioritized

convergent solutions across reporters. We conducted Pearson's r bivariate correlations to examine the strength of the relations between the derived components and between reporters.

Relations Between Components and Other Variables—Next, we examined the degree to which the components were associated with demographic variables and the remaining parenting variables. We first conducted Pearson's correlations and independent sample t-tests with demographics variables: parent and adolescent racial and ethnic identity (non-minoritized defined as White non-Hispanic and minoritized defined as Asian, Black/African American, multi-racial, and/or Latino/Hispanic), sex at birth, adolescent age, and parental college education (bachelor's degree or no bachelor's degree), parental relationship status (single or living with a romantic partner), and household annual income. Any demographic characteristics related to component scores at $p<0.05$ were subsequently included in a multiple linear regression to estimate the unique variance contributed by each demographic variable to the association with each component. Finally, we calculated bivariate correlations between the components and parental knowledge subscales, CBQ, and APQ subscales from the same informant to understand how the PCA-derived components functionally related to other validated parenting questionnaire variables.

RESULTS

Principal Component Analysis

Tests of PCA Assumptions—Most adolescent and parent report items met basic assumptions of parametric statistical tests (e.g., skewness/kurtosis below 3, see supplement). Most items within each informant were significantly correlated at $p<.05$, with statistically significant correlations ranging from .12 to .54 for adolescents and .14 to .65 for parents (see supplement for all inter-item correlations). Finally, our data demonstrated good sampling adequacy, adolescent Kaiser-Meyer-Olkin (KMO) = .84; parent KMO = .85, and Bartlett's test of sphericity suggested that the data were suitable for reduction, adolescent X^2 (36) = 721.24, $p<0.001$; parent X^2 (36) = 1067.55, $p<0.001$. Thus, our data met the assumptions required to perform PCA.

Component Solutions for Adolescent Report—Our initial PCA for adolescent reports suggested three components (57.76% of variance). Two items were subsequently removed: 1) "My parents fill out forms for me (e.g., driver's license application, college applications, job applications)" had relatively low component loadings (.23 - .55) and 2) "My parents keep track of when my homework is due or tests are coming up," loaded most strongly onto different components for the different reporters. Our final PCA solution, with nine items, is shown in Table 3. It included two components with eigenvalues above 1, explaining 4% more of the total variance than the prior model that included item 2 listed above (52% versus 48% of the variance). Seven of the nine items did not cross-load onto multiple components with a value greater than 0.4. Two items ("My parents select activities for me…" and "My parents take over when I have problems with my friends") cross-loaded on both components but with stronger loadings for the first component. Cronbach's alphas for the first and second components, respectively, were .79 (5 items) and .61 (4 items).

Component Solution for Parent Reports—Our initial PCA for parent reports also suggested two components (56% of variance). As described above, two items were subsequently removed for low component loadings (<.5) and loading differently across reporters. After removal of these items, we retained a two-component solution for nine items and achieved a 3% increase in the variance over the initial solution for 11 items (59% versus 56% of the variance). Two of the nine items cross-loaded onto multiple components with a value greater than 0.4. One item ("I select activities for my teen…") loaded more strongly onto Component 1 (see Table 3), whereas the other item ("I manage my teen's money for him/her…") loaded more strongly onto Component 2. Cronbach's alphas for the first and second components, respectively, were .86 (5 items) and .67 (4 items).

Component Interpretation and Inter-component Associations—Across the adolescent and parent report solutions, Component 1 included items 1-5 (original items from Padilla-Walker & Nelson, 2012, adapted for adolescents) and Component 2 included items 8-11 (newly added items; see Table 3). We labeled the first Intervention parenting, as these items reflected high levels of parental intervention or "take over," (language used in some of the items) in their adolescent's lives and decisions. We labeled Component 2 Day-to-day Monitoring and Planning (DMP) parenting, as these items capture behaviors likely to reflect daily opportunities for parent-adolescent interaction (see discussion for further component interpretation). We observed moderate correlations between components within each reporter, r=.48 (adolescent), r=.49 (parent), p<.001, suggesting that the individual components likely reflect distinct, but related, groups of parenting behaviors.

Although statistically significant, cross-informant correlations were generally smaller in magnitude than within-informant correlations (see Table 4). Greater adolescent-reported Intervention parenting was related to greater parent-reported Intervention parenting (r=.31, p<.001). Greater adolescent-reported DMP was associated with greater parent-reported DMP parenting (r=.43, p<.001).

Components by Demographic Characteristics

Bivariate Relations—Table 4 shows the results of t-tests examining the associations between binary demographic variables and each of the components. Zero-order correlations are reported in text.

Small but statistically significant correlations between adolescent age and DMP parenting indicated that older adolescents experienced less DMP parenting, r=−.15, p<.01 for adolescent reports; r=−.21, p<.001 for parent reports. However, adolescent age was not significantly correlated with Intervention parenting for adolescent or for parent report (p's>.16). Adolescent sex at birth was related to only one component: parent-reported Intervention parenting. Parents of male adolescents reported greater Intervention HP than parents of female adolescents. Parent reports of Intervention parenting varied by racial and ethnic identity. Parents whose adolescents identified with a minoritized race or ethnicity reported greater Intervention parenting than parents whose adolescents did not. Other parent and teen components did not vary substantively by adolescent racial/ethnic identity. We observed the same pattern of results for parents' racial/ethnic identity.

Parent reports on both Intervention and DMP parenting were related to the relationship status of the parent. Specifically, single parents reported greater levels of both components than parents with a live-in partner. Neither of the adolescent-reported components were related to parental relationship status. Parental education level was only related to one component: adolescent-reported Intervention parenting. Adolescents whose parent did not receive an undergraduate degree reported greater Intervention parenting than adolescents whose parent received an undergraduate degree. Annual household income was not significantly correlated with either component for adolescent or parent report (p's>.29).

Multivariate Statistics—We estimated four multiple linear regression models to predict adolescent and parent reported Intervention and DMP from adolescent age, adolescent sex at birth, informant race, parent college degree status and parent relationship status. A post-hoc power analysis suggested that our sample sizes for adolescents (n=333) and parents (n=341) provided adequate power (.89) to detect small effects (f^2 = .03). No variables significantly predicted adolescent-reported Intervention parenting, b= −.05, b=.14, b= −.06, b= −.18, b= −.07, p>.05. Only adolescent age, b=−.14, p<.01, b=−.21, p<.001, predicted adolescent- and parent-reported DMP parenting, respectively (remaining p's>.20, p's>.07, respectively). The parent report DMP model explained more variance in its relation with age, F(5,331)=4.80, p<.001, R^2=.07, than the adolescent report DMP model, F(5,327)=2.23 p=.05, R^2=.03. More parent-reported Intervention parenting was significantly predicted by adolescent male sex at birth, b=−.24, p<.05, and racial and ethnic minoritized identity, b=−.39, p<.05; p-values for the remaining associations were greater than .20.

Associations between Components and Other Measures of Parenting

Table 5 shows statistically significant correlations between the components and other parenting behavior variables, showing positive but modest associations and suggesting discriminant validity of our measure from these other constructs.

Parental Knowledge—For both adolescent and parent reports, greater Intervention and DMP parenting were associated with greater parental knowledge of the adolescent's activities and whereabouts, r=.25 and r=.13, and r=.19 and r=.12, respectively. Likewise, greater Intervention parenting was associated with parents trying to know about their adolescent's life more frequently, r=.33 and r=.10. However, only adolescent reports, but not parent reports, indicated DMP parenting was associated with parental attempt at knowledge, such that greater adolescent-reported DMP parenting was associated with greater parental attempts at knowledge, r=.17 and r=.04, respectively.

APQ—Intervention parenting was positively associated with positive/involved parenting, r=.24, p<.001 and r=.14, p<.05, and inconsistent discipline, r=.13, p<.05 and r=.19, p<.001, for both adolescent and parent reports. Adolescent-reported DMP parenting was positively associated with greater positive/involved parenting, r=.20, p<.001, and inconsistent discipline, r=.12, p<.05, but parent-reported DMP parenting was not significantly associated with positive/involved parenting, r=.07, p>.05, or inconsistent discipline, r=.09, p>.05.

CBQ Warmth Subscale—Adolescent-reported Intervention parenting, r=.18, but not DMP parenting, r=.07, was significantly positively associated with CBQ warmth. Specifically, greater Intervention parenting was associated with greater parent warmth.

Discussion

To our knowledge, this is the first study to investigate the psychometric properties of a measure of parenting meant to capture over-involvement believed to thwart adolescent development of independent functioning. We examined the component structure of an adapted version of a measure originally designed for college-aged students that had early evidence of reliability and validity (Nelson et al., 2015; Padilla-Walker & Nelson, 2012), and we explored its associations with demographic characteristics and other established indices of parenting (Padilla-Walker & Nelson, 2012). We conducted these analyses in a sample of adolescents with increased potential for heavily involved parenting: adolescents with ADHD actively engaged in treatment. Our PCA resulted in a two-component solution consistent across adolescent and parent reports. Though more research is needed to examine the latent structure of our adapted measure, our findings provide some initial evidence that these components may reflect distinct subscales of a broader construct, as we observed moderate inter-component correlations that were stronger than correlations with other indices of parenting, as well as differential relations with indices of parenting between components (Neal & Carey, 2005).

The first component that we identified, “Intervention parenting,” consisted of the five items adapted from the Padilla-Walker and Nelson (2012) questionnaire, further supporting that these items load together even at younger ages and in a different population with an increased likelihood of heavy parental involvement (i.e., adolescents in treatment for ADHD). These items captured how likely a parent is to intervene (e.g., “…take over when I/they have problems with my/their friends”) and make decisions (e.g., “…make important decisions for me/them…”) for actions that may occur infrequently yet raise concern about long-term negative consequences if not balanced with the development of autonomy in adolescents. Indeed, the phrasing of these items (e.g., “take over”) may suggest that these parenting behaviors reflect low levels of autonomy-granting, which was found to be negatively associated with the original measure developed by Padilla and Nelson (2012).

The second component, “DMP parenting,” reflected the new items added to the measure to capture additional parenting behaviors with frequent opportunities for parent-adolescent engagement, including those with ADHD. We interpreted this component as reflecting monitoring and planning activities more likely to happen on a daily or near-daily basis (e.g., “correct my homework” and “keep track of my cash”). Compared to Intervention parenting, DMP parenting behaviors may reflect parenting behaviors more likely to occur in the context of parenting an adolescent with ADHD, although our lack of a comparison group precludes testing this hypothesis. Although the original generation of these items was meant to capture over-reach, with the exception of one item (“my parents do my homework for me”), the remaining items may capture parenting behaviors that allow for partial autonomy. For example, adolescents may complete their homework first before parents correct it. Additionally, based on their experience with their child, parents may

intervene proactively as a short-term solution based on their assessment of the child's ability to manage the responsibility (i.e., "manage money for me," "make plans for me to hang out with friends"). It is unclear whether these parenting behaviors, as currently worded, are necessarily maladaptive for this sample.

Another distinction between the two components may have to do with different developmental norms for each component, particularly in the context of ADHD. The Intervention parenting items index actions with larger-impact consequences, such as important life decisions and conflicts with others, whereas the DMP parenting items index actions with potentially smaller-impact consequences, such as parents fixing their child's homework or making plans with friends for them. Thus, DMP parenting behaviors may reflect reactions to lower stakes situations, where it would be normative for parents to lessen these behaviors with increasing age to aid the development of their adolescent's autonomy as they approach adulthood (Steinberg & Morris, 2001; Steinberg & Silk, 2002). In fact, this interpretation is supported by our finding that DMP parenting was lower for older adolescents across both reporters. Although our data are cross-sectional, these findings suggest that DMP is not as common at older ages, which could also reflect parents' reduced opportunity to engage in these daily behaviors due to less time spent around their children (Dubas & Gerris, 2002; Larson & Richards, 1991). Alternatively, parents may be proactively (or reactively, in response to adolescent pressure) allowing more autonomy as adolescents age.

Broadly speaking, the two-component solution was consistent with our finding of modest correlations between Intervention and DMP parenting which were differentially associated with other variables. Moreover, with limited item deletion to prioritize parsimony of our measure and consistency across informants, we were able to achieve well-fitting solutions across adolescent and parent report. Investigation of the structure and function of this questionnaire in other populations and using more heterogeneous samples is important to further examine construct validity (see limitations and future directions). We also note that our two-component solution may be an artifact of the modification of the original measure, and future research will be helpful to test this possibility.

Associations with Demographic Variables

In regression models, we observed greater highly-involved parenting of adolescents where monitoring/management is expected to be higher: for younger adolescents and for male adolescents. Developmentally, younger adolescents require more parental monitoring and assistance, and this increased need is often magnified with ADHD symptoms (Langberg, et al., 2008). However, age was only related to parent- and adolescent-reported DMP parenting, perhaps reflecting the addition of these items to specifically capture behaviors pertinent to parenting of adolescents—especially adolescents with ADHD. Our result showing higher parent-reported Intervention parenting of male adolescents may reflect the greater preponderance of behavioral problems associated with ADHD, which is likely to elicit parent management of behavior (Gaub & Carlson, 1997; Lee et al., 2012). Alternatively, some research has found that sons receive greater intrusive parental support (Bhanot & Jovanovic, 2005), again highlighting the need for follow-up research to further examine the

function of this parenting behavior across contexts and populations. Finally, there is also evidence that girls are generally perceived to be better with organization, time management, and planning compared to boys (Liu et al., 2009), including among youth with ADHD (Hinshaw et al., 2022).

We also observed greater Intervention parenting in families from minoritized racial or ethnic identities. Research has shown that Black or African American parents (which represented the largest proportion of our minoritized groups), display higher levels of control and lower levels of autonomy support with their adolescents (Clark, et al., 2015; Dearing, 2004; Goldstein et al., 2005). These parenting behaviors, which align with elevated Intervention parenting, have been linked to different socialization goals, such that culturally, Black or African American parents are more likely than White parents to have filial piety (i.e., respecting seniors and having pride for religion, culture, and ethnicity) and success goals (i.e., obtain social, economic, and educational achievement; Richman & Mandara, 2013). In addition to being more normative in Black communities, greater parental control in Black families may be associated with better youth outcomes such as reduced alcohol use (Clark et al., 2015) and may be needed in the context of frequently occurring experiences of discrimination (Lei et al., 2021). Future research would benefit from studying whether distinct forms and levels of parental control function differently across groups with varying racial identities.

Relations with Other Indices of Parenting

We examined associations between the two components derived from our PCA analyses and variables from other measures of parenting meant to capture conceptually distinct aspects of parental behavior. Overall, we observed low to moderate magnitude, yet statistically significant, correlations with most of these other parenting indices. We observed greater adolescent- and parent-reported highly-involved parenting (both kinds) in relation to greater parental knowledge (actual, both reporters) of their adolescents' lives, providing evidence of convergent validity. A similar association was found by Padilla-Walker and Nelson (2012) and is consistent with general findings of parental knowledge (Stattin & Kerr, 2000). These associations may reflect healthy and balanced communication between adolescents and caregivers or parental intrusion. Ultimately, testing prediction to outcomes from combinations of these variables (e.g., highly involved parenting, high knowledge, low versus high warmth, level of respect for parents) may reveal the most adaptive collections of parenting behaviors. The strongest correlation (.33) that we observed between the components and other parenting variables was between Intervention parenting and parental *attempts* at knowledge, adolescent report. Adolescents may distinguish parental involvement behaviors less than their parents which may explain the lack of association between these variables for parent report.

Somewhat surprisingly, we also observed that highly-involved parenting was associated with higher scores on two measures of parenting known to be associated with positive adolescent adjustment: positive/involved parenting and warmth. Greater parent- and adolescent-reported Intervention parenting was associated with more positive/involved parenting and adolescent-reported parental warmth, whereas adolescent-reported (but not parent-reported) DMP was

associated with more positive/involved parenting only. Rather than indicating intrusive, over-controlled parenting, our measure may have captured perceptions of parental involvement that are experienced as adaptive in the context of adolescent ADHD, though additional data from a typically-developing comparison group is needed to test this possibility. Our findings are largely consistent with Padilla-Walker and Nelson (2012) and Nelson et al. (2015), as higher scores on their Helicopter parenting measure were related to more parental emotional support and guidance (Padilla-Walker & Nelson, 2012), but maternal warmth moderated the relation between highly- or overly-involved parenting and emerging adult functioning in their sample (Nelson et al., 2015). Some researchers theorize that over-involved parenting emanates from parental affection or warmth and a desire for child success and/or avoidance of distress (Creswell et al., 2008; Padilla-Walker & Nelson, 2012). Thus, Intervention parenting may at times be motivated by worry and, in the presence of ADHD, perceived need.

We found that Intervention parenting was positively associated with inconsistent discipline, which is the only result that aligns with our initial conceptualization of highly involved parenting as over-involved and putatively maladaptive. Thus, this association may be reflecting aspects of heavy involvement that are less healthy for the parent-adolescent relationship. Inconsistent discipline is well-established as maladaptive for adolescents (Balan et al., 2017; Halgunseth et al., 2013). Some parents of children with ADHD may be inconsistent in their discipline for similar reasons that they might engage in more hovering or intrusive behavior (e.g., worry; Ellis & Nigg, 2009; Mokrova et al., 2010; Wells et al., 2000). For instance, self-regulation may be difficult for these parents because they also have ADHD symptoms (Mokrova et al., 2010; Murray & Johnson, 2006), have increased parenting demands (Murray & Johnson, 2006), have elevated stress or chaos in the home (Mokrova et al., 2010; Wells et al., 2000), or they have some combination of these and other factors. The implications of these highly-involved parenting behaviors in adolescence, and in particular for adolescents with ADHD, will be important to understand. For example, inconsistent discipline in the context of heavy involvement may be another worrisome combination for supporting the healthy development of adolescent autonomy including for adolescents with ADHD.

Limitations and Future Directions

First, longitudinal research is needed to examine measurement invariance and predictive validity with regard to whether these parenting behaviors are adaptive or constraining (i.e., hindering the development of autonomy) over time, particularly for adolescents with ADHD. Second, the DMP parenting component, in particular, measures some parenting behaviors that may be more adaptive for adolescents with ADHD, especially those with co-occurring learning, medical, and developmental conditions (i.e., fill out forms for me) or organization problems (i.e., keep track of when homework is due), though we did not collect information on these comorbidities in the present study. DMP parenting may have some level of autonomy built into parental oversight hierarchically (i.e., corrects homework) for these adolescents who need it, though one item in particular is likely more intrusive (e.g., “My parents do my homework for me”). As such, research is needed that integrates our findings into existing frameworks for understanding how parents can provide the support

and structure as needed while empowering their children in developing autonomy over time (Sibley et al., 2022). Future attempts to discern whether adolescents and parents interpreted our items as-intended would also be valuable. Qualitative interviews (e.g., cognitive interviewing; Boness et al., 2020) may be instructive in this regard.

In addition to a lack of a comparison group (without ADHD) and a lack of information on or inclusion of certain populations (e.g. ASD, specific learning disability, epilepsy) in the present study, adolescents were predominately White, male, and socioeconomically more advantaged, which similarly limits the generalizability of our findings. For race and ethnicity, for instance, we combined minoritized identities for the sake of power, though it should not be assumed that parenting practices are the same across these groups. Furthermore, girls with ADHD may evoke different parenting and may be perceived differently than boys by their parents (Hinshaw et al., 2022; Liu et al. 2009), such that more work will be needed to examine the structure and function of this measure in a sample with more female representation. Another limitation is that associations we observed between adolescent and parent report may have been underestimates. Parents answered about interactions with the adolescent in the study, but adolescents answered about one or both parents. Whereas adolescent and parent reports typically have low to moderate inter-rater associations in general (Achenbach et al., 1987, Hartung, et al., 2005), this limitation may explain some of the discrepancies between adolescent and parent reports. Fourth, the parenting measures were self-reported as opposed to direct observation. Fifth, given the strong tendency to stop taking medication with increasing age (McCarthy et al., 2009), families in our data may reflect those with especially involved parents since all adolescents in the current study were receiving stimulant treatment. Therefore, we may have missed scores in the lower range of our parenting variables (i.e., less involved parenting) which might weaken associations among the variables in the current study. The adolescents themselves may reflect more or less impaired individuals with ADHD given the tendency for treatment to index both need for treatment as well as reduced symptoms (Wells et al., 2000; Wolraich et al., 2019). Finally, although our analytic decision to use PCA was the most appropriate for the present study due to the early stages of the current measure's development and the limited representativeness of our sample, future work should prioritize examination of the latent factor structure of this measure, especially how this measure loads along with or distinctly from other parenting measures thought to capture the same or similar constructs.

Conclusions

The current study found support for a two-component model of highly-involved parenting of adolescents and adds to a small literature investigating the measurement and utility of this measure. Using multiple reporters (adolescent and parent), support for the distinctiveness of the two components, Intervention and DMP parenting, was supported, though more work is needed to determine underlying latent structure and associations with adaptive and adverse outcomes. More research is also needed to determine if these parenting behaviors have adaptive or maladaptive implications for adolescents with ADHD, particularly as they age toward adulthood.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sociodemographic Characteristics of Adolescent (n=333) and Parent (n=341) Participants

Variable	n	%
Adolescent Sex		
Female	83	24.9
Male	250	75.1
Adolescent Racial Identity		
Asian	0	0
Black/African American	35	10.5
White/European American	284	85.2
Multi-racial	13	3.9
Adolescent Ethnicity		
Hispanic and/or Latino/a/é	17	5.1
Not Hispanic and/or Latino/a/é	316	94.9
Parent Sex		
Female	309	90.6
Male	32	9.4
Parent Racial Identity		
Asian	2	0.6
Black/African American	28	8.2
White/European American	307	90
Multi-racial	4	1.2
Parent Ethnicity		
Hispanic and/or Latino/a/é	5	1.5
Not Hispanic and/or Latino/a/é	336	98.5
Parental Status		
Biological Parent	319	92.7
Adoptive Parent	18	5.3
Step-parent	1	0.3
Adult relative	6	1.8
Parent Education Status		
8th grade or lower	2	0.6
Partial High School	4	1.2
High school or GED	36	10.6
Technical training	17	5.0
Partial college	66	19.4
Associate degree	45	13.2
College/University graduate	102	29.9
Graduate professional training	69	20.2
	Mean	
Annual Household income	75,000-99,999	

Table 2

Characteristics and Descriptive Statistics of Parenting Measures for Adolescents (n=333) and Parents (n=341)

	Adolescent Report Mean (SD)	Parent Report Mean (SD)	# of items	Scale	Adolescent Report α	Parent Report α
Highly Involved Parenting	2.53 (.71)	2.58 (.68)	11	1= Not at all like me; 5= A lot like me	.82	.85
Parental Knowledge-Actual	4.24 (.85)	4.53 (.47)	5	1= Didn't know; 5=Knew All of the time	.88	.88
Parental Knowledge-Attempt	3.69 (1.13)	4.56 (.62)	5	1= Didn't try to know; 5=Tried All of the time	.89	.89
CBQ Warmth Subscale	4.01 (.84)	N/A	5	1= Strongly agree; 5= Strongly disagree	.90	N/A
APQ-Positive Parenting/ Involvement	3.69 (.79)	4.13 (.55)	9	1= Never; 5= Always	.89	.85
APQ- Inconsistent Discipline	2.88(.73)	2.75 (.58)	6	1= Never; 5= Always	.63	.72

Table 3

Structural Component Loadings for Adolescent (n=333) and Parent (n=341) Report

	Adolescent Report		Parent Report	
Item	**Component 1**	**Component 2**	**Component 1**	**Component 2**
1. My parents make important decisions for me (e.g., which classes I take, what activities I do, if and where I work)	**.69**	.38	**.75**	.31
2. My parents take over when I have problems with my friends	**.78**	.45	**.83**	.30
3. My parents take over when I have problems with my teachers, coaches, or other adults in my life	**.81**	.24	**.80**	.31
4. My parents solve any crisis or problem I might have	**.77**	.21	**.80**	.33
5. My parents select activities for me (e.g., clubs or youth programs, volunteer experiences, internships, jobs)	**.60**	.51	**.80**	.45
6. My parents correct my homework (e.g., fix errors for me, rewrite my sentences)	.34	**.53**	.37	**.79**
7. My parents do my homework for me	.17	**.69**	.15	**.75**
8. My parents manage my money for me (e.g., keep track of my cash or bank balance)	.33	**.68**	.44	**.60**
9. My parents make plans for me to hang out with friends	.32	**.76**	.38	**.68**

Note. Items are those presented adolescents; item for parents are similar but rephrased for self-behaviors. Primary component loadings were bolded.

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Table 4

Associations Between Highly Involved Parenting Components and Demographic Variables, Separately by Adolescent (n=333) and Parent (n=341) Reports.

	Adolescent Race/ Ethnicity			Parent Race/ Ethnicity			Adolescent Sex at Birth			Parental Education Level			Parental Relationship Status		
	Minoritized	**Non-minoritized**	**t (df)**	**Minoritized**	**Non-minoritized**	**t (df)**	**Female**	**Male**	**t (df)**	**Bachelor's Degree**	**No Bachelor's Degree**	**t (df)**	**Living with partner**	**Single**	**t (df)**
Adolescent Report															
Intervention	2.94 (.84)	2.82 (.86)	1.00 (331)	3.06 (.80)	2.82 (.86)	1.62 (331)	2.95 (.87)	2.81 (.86)	−1.29 (331)	2.74 (.84)	2.95 (.87)	2.23 * (331)	2.82 (.85)	2.94 (.90)	1.07 (331)
DMP	2.24 (.77)	2.05 (.79)	1.76 (331)	2.20 (.78)	2.07 (.79)	.98 (331)	1.99 (.92)	2.11 (.73)	1.08(119)	2.06 (.81)	2.10 (.76)	.45 (331)	2.06 (.79)	2.17 (.76)	1.00 (331)
Parent Reports															
Intervention	3.15 (.92)	2.83 (.83)	2.74 ** (335)	3.31 (.86)	2.83 (.84)	3.27 ** (339)	2.68 (.78)	2.96 (.87)	2.63 ** (335)	2.82 (.81)	2.96 (.90)	1.66 (339)	2.82 (.84)	3.11 (.89)	2.50 * (339)
DMP	2.08 (.74)	1.92 (.69)	1.62 (335)	2.07 (.76)	1.93 (.69)	1.12 (339)	1.83 (.66)	1.99 (.71)	1.83 (335)	1.91 (.70)	1.99 (.70)	1.04 (339)	1.91 (.67)	2.10 (.79)	2.07 * (339)

Note. Mean (SD) are reported for each group.

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 5

Correlations Between Highly Involved Parenting Components and Established Parenting Measures, Separately by Adolescents (n=333) and Parents (n=341).

	Actual Knowledge	Attempted Knowledge	Positive/Involved Parenting	Inconsistent Discipline	Warmth
Adolescent Reports					
Intervention	.25***	.33***	.24***	.13*	.18**
DMP	.13*	.17**	.20***	.12*	.07
Parent Reports					
Intervention	.19***	.10	.14*	.19***	
DMP	.12*	.04	.07	.09	

Note. The warmth scale was completed by adolescents only. Correlations were completed within the same reporter.

* $p < .05$;

** $p < .01$;

*** $p < .001$