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Psychometric Properties of the Alabama Parenting Questionnaire among Adolescents with Substance Use Disorder Histories

Lindsey M. Nichols, Christopher M. Fleming, Jonathan A. Pedroza, Kaitlin M. O'Brien, and Emily E. Tanner-Smith

Department of Counseling Psychology and Human Services, University of Oregon

Author Note

Correspondence concerning this article should be addressed to Lindsey M. Nichols, University of Oregon, 1215 University of Oregon, Eugene, OR 97403, United States.

Email: lnichol2@uoregon.edu

Abstract

Purpose: Psychometrically sound parenting instruments are a critical aid in guiding clinical assessments of adolescent behavioral outcomes, particularly among clinical samples of adolescents. However, there is a paucity of research on these parenting instruments among adolescents with histories of substance use disorders (SUDs) who represent a high-risk clinical population for whom parents are critical in their recovery process.

Method: This study investigated the psychometric properties of an abridged 17-item Alabama Parenting Questionnaire (APQ) in a sample of 294 adolescents (45% female, mean age = 16 years) and their parents (84% female) recruited from substance use treatment facilities as part of a longitudinal parent study. Confirmatory factor analyses established the factor fit of the abridged APQ, and path analyses assessed the predictive validity of the APQ constructs in relation to adolescent externalizing behavior symptoms 6 months later.

Results: Results suggested the hypothesized three-factor model consisting of Positive Parenting, Poor Monitoring, and Inconsistent Discipline parenting constructs represented a satisfactory fit to the data, with minor modifications in scale content for both adolescent and parent versions. All three latent factors were moderately correlated in the adolescent-reported version, but there was no evidence that Inconsistent Discipline and Poor Monitoring were significantly correlated in the parent-reported version. Additionally, results supported the predictive validity of these constructs related to adolescent externalizing behavioral outcomes.

Discussion: Overall, results of the present study support the utility of a multi-informant abridged parenting assessment. However, some items of the Parental Monitoring and Inconsistent Discipline constructs may not be strong indicators of parenting practices among youth in recovery from SUDs. We conclude with suggestions for future research efforts as well as clinical implications of parenting measures among adolescents with SUD histories.

Psychometric Properties of the Alabama Parenting Questionnaire among Adolescents with Substance Use Disorder Histories

Research has consistently demonstrated the salient associations between parenting and adolescent mental and behavioral health outcomes, particularly externalizing behaviors (Hoskins, 2014; Morris et al., 2021; Pinquart, 2017). Poor parental monitoring, for instance, is a robust risk factor for adolescent externalizing behavioral outcomes, such as substance use and delinquency (Hoeve et al., 2009; Rusby et al., 2018; Yap et al., 2017). Parenting practices like monitoring are particularly important to study because they are easily assessable and malleable; as such, these parenting behaviors can be targeted in preventive interventions that involve both parents and adolescents (e.g., Dishion & McMahon, 1998). To assess parenting practices that are most closely associated with adolescent externalizing behaviors, and subsequently to inform effective interventions, psychometrically sound parenting assessments are important and necessary for both researchers and practitioners (Hunsley & Mash, 2007).

The Alabama Parenting Questionnaire (APQ) is a widely used parenting instrument that is particularly relevant for adolescent behavioral outcomes. The multi-informant nature of the APQ permits investigation of both parents' and adolescents' perspectives of parenting. In contrast to questionnaires that rely on single-informants (e.g., parent-report only), multi-informant reports can provide more reliable and valid information regarding parenting practices, and their subsequent influence on adolescent behaviors (De Los Reyes & Ohannessian, 2016; De Los Reyes et al., 2019). However, there is a paucity of research on the validity of parenting instruments, such as the APQ, among adolescent clinical populations who are at higher risk for negative mental and behavioral health outcomes (Chan et al., 2008). Further, adolescents with histories of substance use disorders (SUDs) represent a high-risk clinical population (Tanner-Smith et al., 2018). Given that parenting can have lasting effects on adolescent outcomes into young adulthood (Aquilino & Supple, 2001; Hoskins, 2014), it is essential to address parenting factors in the assessment and prevention of adolescent externalizing behaviors. Therefore, this study aims to address these gaps in the literature by examining the psychometric properties of the APQ, including its factor structure and predictive validity, among a clinical sample of adolescents with SUD histories.

Assessing Parenting Practices

Parents are critical agents of socialization during adolescent development. Despite the increasingly important socialization role of peers, parenting practices are nonetheless strongly associated with externalizing behaviors among adolescents (Masche, 2010). Parenting practices, such as monitoring and positive discipline

techniques, are important protective factors for substance use outcomes among adolescents who have exhibited behavioral problems and patterns of risky substance use (Clark et al., 2012; Yap et al., 2017). For instance, an early study found that parenting constructs of parental monitoring, discipline consistency, and positive parental involvement were associated with conduct problems among adolescents ages 13-17, and this association was stronger among adolescents than among younger children (Frick et al., 1999). Other research has reported that parental knowledge, measured by adolescent self-disclosure and active parental monitoring, is negatively associated with antisocial behavior (Vieno et al., 2009), suggesting that parental monitoring is indeed a salient protective factor for adolescent behavioral outcomes. In contrast, poor parental monitoring has been associated with increased risk for adolescent problem behaviors, including substance use (Yap et al., 2017), delinquency (Hoeve et al., 2009; Keijsers et al., 2009; Klevens & Hall, 2014), and risky sexual behaviors (Cottrell et al., 2003). Low parent supervision and family conflict have been associated with early onset of alcohol and drug use among adolescents, and increased risk of subsequent severe substance use and related problems into adulthood (White et al., 2003). Additionally, inconsistent discipline has associated with externalizing behaviors among adolescents (Gryczkowski et al., 2010). Altogether, these findings suggest that parenting practices can either attenuate or exacerbate adolescent risk behaviors and are therefore important to study and assess to improve adolescent behavioral health outcomes.

Among adolescents with SUD histories, understanding parenting practices may be especially critical for promoting healthy developmental outcomes as well as substance use recovery and abstinence. This clinical population is at an increased risk for substance use relapse following SUD treatment (Chung & Maisto, 2006), academic problems such as school drop-out (Engberg & Morral, 2006; King et al., 2006; Roebuck et al., 2004), and comorbid mental and behavioral health problems (Chan et al., 2008; Tanner-Smith et al., 2018). Additionally, many adolescents with SUD histories also report family histories of substance use problems (Rusby et al., 2018; Tanner-Smith et al., 2018; Tomlinson et al., 2004) and higher levels of familial conflict (Rowe, 2010). Prior empirical research suggests that environmental and social contexts (e.g., peer and family relationships) are important factors in sustaining recovery and abstinence among adolescents with SUD histories (Godley et al., 2005; Sussman, 2011; Winters et al., 2018). For instance, Godley et al. (2005) found that environmental factors were both directly and indirectly related to ongoing substance use and related problems among adolescents. The family environment, including parental involvement, is an important source of recovery capital (i.e., individual, social, and structural resources to initiate and sustain recovery) for adolescents with histories of SUDs (Hennessy, 2017; White & Cloud,

2008). Thus, understanding how to best assess key parenting practices among this particular clinical population is paramount to prompting adolescents' recovery processes.

Historically, most assessments of parenting behaviors have relied heavily on direct observation or self-report by parents only. However, reliance on parent reports alone may not accurately represent or reliably predict adolescent behavior (De Los Reyes & Kazdin, 2005), especially when there are discrepancies between adolescent and parent reports of parenting practices (De Los Reyes, 2011; De Los Reyes et al., 2019). Multi-informant reports of parenting practices, from both parent and adolescent perspectives, are more predictive of adolescent outcomes compared to single-informant reports (Laird & De Los Reyes, 2013). Indeed, obtaining both parent- and adolescent-reported accounts of parenting is considered best practice when assessing adolescent behavioral health outcomes (Hunsley & Mash, 2007). However, the availability of strong, psychometric parenting measures is limited. Hurley et al. (2014) conducted a systematic review of parenting measures published between 1985 to 2009 and found that of 25 measures identified and reviewed, only five demonstrated strong psychometric properties, that is, with one or more acceptable ratings of reliability and validity. Fourteen measures in their review (56%) had either one or two acceptable psychometric categories (e.g., internal reliability, predictive validity) or no acceptable psychometric information available. Additionally, more than half (60%) of the measures reviewed were single informant responses only. These results emphasize the need for psychometrically sound, multi-informant parenting instruments to guide clinical assessment of adolescents and their parents.

Alabama Parenting Questionnaire

One of the most widely studied parenting instruments is the APQ (Hurley et al., 2014), a multi-informant parenting assessment, developed primarily to assess parenting practices and behaviors most closely associated with behavioral problems in youth ages 6-18 (Frick, 1991; Shelton et al., 1996). In its original form, the 42-item APQ measures five dimensions of parenting closely related to externalizing behaviors (e.g., conduct disorder symptoms) in children and adolescents: (1) positive parental involvement, (2) supervision and monitoring, (3) use of positive discipline techniques, (4) consistency in the use of discipline techniques and (5) use of corporal punishment. These domains capture both rearing (e.g., discipline, reward) and nurturance (e.g., involvement, warmth) constructs (Hurley et al., 2014), creating a comprehensive tool in terms of measuring a variety of parenting facets.

The APQ has demonstrated adequate to good psychometric properties among preschool and grade school age children (Dadds et al., 2003; de la Osa et al., 2014; Essau et al., 2006; Maguin et al., 2016; Shelton et al., 1996)

as well as adolescents (Florean et al., 2022; Frick et al., 1999; Gross et al., 2017; Nogueira et al., 2020; Zlomke et al., 2014; Zlomke et al., 2015). Several short forms of the APQ have been developed and validated for children and adolescents (Elgar et al., 2007; Kliem, 2019), which make this questionnaire feasible to use in both clinical and research settings governed by time or resource constraints. The APQ has also been validated cross-culturally among Australian (Hawes & Dadds, 2006), Italian (Esposito et al., 2016), German (Essau et al., 2006), Polish (Święcicka et al., 2019), and Spanish (Molinuevo et al., 2011) families as well as translated to several languages including Catalan (Molinuevo et al., 2011), Greek (Kyriazos & Stlikas, 2019), Spanish (Donovick et al., 2008; Escribano et al., 2013), and German (Essau et al., 2006). Additionally, the parenting constructs assessed in the APQ have consistently and reliably predicted behavioral disorder symptoms among children and adolescents, including attention-deficit/hyperactivity disorder (ADHD), conduct disorder (CD), and oppositional defiant disorder (ODD; Elgar et al., 2007; Essau et al., 2006; Gryczkowski et al., 2010).

Based on this extensive evidence, research and clinical use of the APQ suggest it is highly adaptable, while remaining psychometrically valid across different configurations. Specifically, prior empirical studies have found support for three-, four-, and five-factor solutions of this instrument, using various instrument lengths (e.g., 9 item, 35 item, 42 item) which have been tested among samples ranging in age and across cultural contexts. For instance, Elgar and colleagues (2007) developed and validated a 9-item short form of the APQ for youth ages 5-18 who exhibited behavioral problems; their results supported a three-factor model of parenting practices representing constructs of inconsistent discipline, positive parenting, and parental monitoring. This 9-item APQ showed high internal consistency (α ranging from 0.75 to 0.93) as well as criterion validity to the DSM-IV (internalizing and externalizing disorders; American Psychiatric Association, 2000). Similarly, several other studies found support for a three-factor fit using APQ scales ranging in length from nine to 42 items (Elgar et al., 2007; Hawes & Dadds, 2006; Hinshaw et al., 2000; Molinuevo et al., 2011; Nogueira et al., 2020).

Other studies have found support for a four-factor solution which includes different variations of parenting constructs. Zlomke et al. (2014) conducted an exploratory factor analysis of the 35-item APQ and found support for a four-factor fit to the data, including a collapsed positive and involved parenting, while retaining parental monitoring, discipline practices, and discipline processes. However, Zlomke (2015) used the same sample and a 51-item APQ scale (consisting of original 42 items plus nine father-specific items) and identified a four-factor model with the following constructs: 1) positive/involved parenting, 2) corporal punishment, 3) inconsistent discipline, and

4) parental monitoring. These findings demonstrate the inconsistencies in factor structure of the APQ among adolescents and contrasts the intended five-factor model of the original scale used in other empirical studies with samples of children and adolescents (Dadds et al., 2003; Essau et al., 2006; Russell et al., 2016; Scott et al., 2011; Święcicka et al., 2019). The documented variability in APQ factor fit and scale length hinders the ability to draw conclusions about factor structure and scale content, as well as for whom the APQ is valid and reliable.

Despite support for the broad and adapted use of the APQ, some questions remain regarding its applicability to certain populations. For instance, much of the current evidence comes from samples outside of the United States (Dadds et al., 2003; Elgar et al., 2007; Robert, 2009; Święcicka et al., 2019). Although cross-cultural validation is a strength of the APQ, the evidence may not reflect parenting practices and assessments in the United States, thus limiting the conclusions that can be drawn using U.S. youth samples. Additionally, limited research has examined the psychometric properties of the APQ among adolescent samples. Few studies, for example, have examined the factor structure of the APQ among adolescent populations exclusively. One such study examined the factor structure and psychometric properties of the original parent-reported (42-item) APQ among adolescents aged 11-18 (Zlomke et al., 2014). Their results supported the four-factor solution and accounted for 35% of the variance in responses. Another similar study conducted with German children and young adolescents (ages 10-14) reported support for the five-factor solution (Essau et al., 2006).

Finally, there is a lack of evidence surrounding the predictive validity of the APQ and adolescent externalizing behavioral symptoms. Previous studies have documented that the negative parenting constructs were positively associated with oppositional behavior and externalizing symptoms in youth, whereas the positive parenting construct was negatively associated with these outcomes (e.g., Elgar et al., 2007; Essau et al. 2006; Frick et al., 1999; Tabak & Zawadzka, 2017). Frick et al. (1999) found that inconsistent discipline predicted adolescent ODD and CD symptoms but did not find sufficient support for a relationship between poor monitoring and externalizing symptoms. Further, results of that study found that positive parenting was positively associated with these symptoms in adolescents, but not children. Magoon and Ingersoll (2006) also found that lower levels of parental monitoring and supervision were related to higher levels of adolescent gambling behaviors. Together, these findings demonstrate the flexibility of the APQ, which may maintain a consistent and cohesive factor structure measuring positive parenting, inconsistent discipline, and poor monitoring, despite reductions to the original scale. However, the demonstrated methodological and contextual variability in the prior literature may limit the ability for

researchers and practitioners to draw conclusions among certain populations, particularly adolescents with histories of SUDs. Thus, more information about the predictive validity and psychometric properties of the APQ among adolescent clinical samples is warranted.

Present Study

To date, we are not aware of any studies that have examined an abridged, multi-informant version of the APQ among high-risk clinical populations of adolescents with histories of SUDs—an important clinical population for whom parents represent a critical protective factor for preventing negative behavioral health outcomes (Hennessy, 2017). Given the lack of empirical evidence regarding the validity of the APQ as an assessment tool among adolescent clinical populations, further exploration of the factor structure and psychometric properties of the APQ is warranted. Thus, the aim of this study was to investigate whether the APQ is a valid assessment tool among adolescents with histories of SUDs. To address this aim, we examined the factor structure and psychometric properties of a 17-item parent- and adolescent-reported version of the APQ, investigating whether the items would load onto the three predicted parenting constructs (Positive Parenting, Inconsistent Discipline, and Poor Monitoring) from which the 17 items were derived. Additionally, we assessed the 17-item APQ (herein referred to as the APQ-17) for convergent, predictive, and discriminant validity, as well as internal reliability.

Method

Participants and Procedure

Data for the current study were obtained from a quasi-experimental, longitudinal investigation of the effectiveness of recovery high schools (RHSs; Finch et al., 2018), an alternative high school option for adolescents in recovery from SUDs that offer educational and therapeutic services (for more information about RHSs see Moberg & Finch, 2008; Finch et al., 2014). Adolescents and their caregivers were recruited from substance use treatment centers or continuing care facilities. Study data were collected during extensive assessments completed via in-person, computer-assisted interviews conducted by trained, master's level research assistants. At each assessment point, participants received gift cards to a large retail corporation to incentivize study participation. All data collection procedures were approved by the Institutional Review Board at the University of Minnesota and all secondary data analysis procedures were approved by the Institutional Review Board at the University of Oregon. For more information about participant recruitment and procedures, see Finch et al. (2018).

The current study analyzes baseline and 6-month follow-up data for those families where both the adolescent (N = 294; 45% female; M_{age} = 16.32 ± 1.09) and their parent (N = 304; 83.6% female) participated in baseline data collection. Approximately 81% of participating families reported an immediate family member with alcohol or drug issues and 59% of adolescents reported a biological parent with a history of mental health issues. According to parental reports, 27.6% of the sample reported family incomes ranging from $40,000 - $75,000. Adolescents self-reported their race-ethnicity to be White (74.9%), Hispanic (10.5%), African American (8.4%), and other (6.2%).

Measures

Alabama Parenting Questionnaire (APQ-17). The APQ used in the present study (APQ-17) is an abridged, 17-item version of the original 42-item validated measure and includes both child and parent versions of questionnaires (Frick, 1991). The APQ-17 measured three constructs of parenting: Positive Parenting, Poor Monitoring, and Inconsistent Discipline. These 17 items were chosen by the principal investigators as the most relevant to adolescents with histories of SUDs. Items for both the adolescent and parent forms were rated on a 5-point frequency scale ranging from 1 (never) to 5 (always). Questions on the parent form included statements that measured each of the three constructs (e.g., "You let your child know when he/she is doing a good job with something"). Similarly, items from the adolescent form included statements that measured each of the three parenting constructs (e.g., "Your parents tell you that you are doing a good job"). Previous studies have found the APQ to have good criterion validity in discriminating between clinical and nonclinical populations (Dadds et al., 2003; Florean et al., 2022; Shelton et al., 1996). Additionally, the original APQ-42 measure has been shown to have adequate internal consistency (α = .68; Frick et al., 1999), as well as the APQ-9, which showed moderate internal consistency of the three constructs (α = 0.59 to 0.79 in mothers; α = 0.63 to 0.84 in fathers; Elgar et al., 2007).

Parent-youth relationship. Two scales were used to assess parent-youth relationships: Youth Happiness with Parent Scale (YHPS; DeCato et al., 2001) and Parent Happiness with Youth Scale (PHYS; Donohue et al., 2001). The YHPS and PHYS are validated measures of youth's degree of satisfaction with parents and vice versa, which reflects parent-adolescent relationships initially developed from the Parent–Youth Happiness Scale (Besalel & Azrin, 1981). Both the YHPS and PHYS include 12 total items measuring 11 behavioral domains (communication, friends and activities, curfew, household rules, schoolwork, rewards, discipline, chores, alcohol, drugs, and illicit behavior) and one "overall happiness" item. Respondents rated each item from 0-100 to reflect the

percentage of happiness with their parent (youth version) and percentage of happiness with their child (parent version). The YHPS has demonstrated adequate internal consistency (α = 0.78) and convergent validity, as well as positive correlations with overall happiness (r = 0.56) among clinical samples of youth (DeCato et al., 2001). The PHYS has also demonstrated good internal consistency (α = 0.84) and adequate test-retest reliability (Donohue et al., 2001).

Religion and spirituality. Religion and spirituality were measured using items from the Global Appraisal of Individual Needs (GAIN; Dennis et al., 2003). The measure includes an initial question asking participants if they considered themselves to be a member of a religious group (0 = no, 1 = yes). If the respondent answered "yes," participants were asked to six subsequent yes/no questions about their religious group involvement. Therefore, the range of possible scores was 0-7. Example questions include, "Do you consider your religious or spiritual beliefs to be very strong?" (0 = no, 1 = yes) and "Do you consider your religious or spiritual beliefs to often influence your decisions?" (0 = no, 1 = yes). Answers to these seven questions were averaged to create a spirituality social support index (SSSI).

Adolescent externalizing behavior symptoms. Adolescents' self-reported symptoms of conduct disorder (CD), oppositional defiant disorder (ODD), antisocial personality disorder (APD) and attention-deficit/hyperactivity disorder (ADHD) were assessed using the M.I.N.I. Structured Clinical Interview (M.I.N.I.-SCID)—a brief structured diagnostic interview for major Axis I psychiatric disorders in DSM-IV and ICD-10 (Sheehan et al., 1999). The data were collected at the 6-month follow-up assessment. The CD index included seven dichotomous (0 = no, 1 = yes) adolescent-reported questions about past CD symptoms (e.g., skipping school, physical fights, destroying property). The ODD index included eight dichotomous (0 = no, 1 = yes) adolescent-reported items about oppositional behavior and affect (e.g., being upset at authority figures, refusing to listen to rules). ADHD was assessed through six dichotomous (0 = no, 1 = yes) adolescent-reported items about difficulty with tasks, acting before thinking, fidgeting, or been prescribed medication for hyperactivity. Finally, APD was assessed via 12 dichotomous (0 = no, 1 = yes) adolescent-reported items about illegal and violent behavior, as well as lying and manipulation. It is important to note that these behavioral problems were not a formal clinical diagnosis but were reported at the symptom level where greater values represent more symptoms per behavioral problem.

Covariates. Variables included student's age (ranging 13-19 years), sex (male = 1), race (White = 1, non-White or biracial = 0), parental education (0-5, e.g., 0 = "Less than high school", 5 = "Graduate or professional

degree"), parental income (0-7, e.g., 0 = "Less than $5,000", 7 = "More than $100,000"), and parents' sex (male = 1). In addition, to adjust for unobserved dependencies relevant to placement into the intervention, analyses adjusted for intervention condition in the larger parent study (recovery high school attendee = 1).

Analytic Plan

To answer this study's first aim, confirmatory factor analyses (CFAs) established the factor structures of both the adolescent- and parent-reported APQs. Models were initially run to mirror the expected three factor structure of Positive Parenting, Inconsistent Discipline, and Poor Monitoring reported in prior studies (e.g., Elgar et al., 2007; Hawes & Dadds, 2006; Hinshaw et al., 2000; Molinuevo et al., 2011), including expected between-factor correlations. To remain consistent with previous literature testing the factor structure of the APQ, the threshold for factor loadings was 0.30 (Essau et al., 2006; Molinuevo et al., 2011) with any loadings not meeting this threshold being selectively removed and models reassessed. Model fit was defined by the following goodness of fit indices; specifically, the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Cutoffs for good fit were based on recommendations from Hu and Bentler (1999), with a CFI $\geq .95$, a RMSEA $\leq .06$, and a SRMR $\leq .08$ indicating good model fit.

Upon selection of the final latent factor model, path analyses addressed the second aim of this paper, with the latent factors of each of the APQs individually and collectively modeling associations with several theoretically and empirically associated outcomes as a test of validity. Concurrent validity was assessed by examining associations of baseline measures of parent happiness with youth and youth's happiness with their parents (via the PHYS and YHPS measures). Discriminant validity was tested by examining the association between baseline spirituality social support and parenting factors, given that SSSI was believed to be unassociated with these parenting factors. Predictive validity was assessed by examining associations with externalizing behavior outcomes at 6 months (i.e., ADHD symptoms, APD symptoms, CD symptoms, ODD symptoms). Path analyses were estimated both with and without covariates, to specify further the unique effects of each latent factor on the outcomes after adjusting for intervention and demographic differences.

Factor indicators, covariates, and baseline measures had minimal missing data due to non-response ($\leq$ 13.3%). A greater proportion of missing data occurred among the six-month outcomes due to sample attrition (17.6% to 47.4%). To improve statistical power while maintaining unbiased parameters, all missing data were therefore multiply imputed using 20 datasets in line with recommendations by Bodner (2008) and Graham et al.

(2007). Model estimates were pooled according to Rubin's rules (1987). All analyses for the present study were conducted using Mplus 7 (Muthén & Muthén, 1998-2012).

Results

Reliability and Descriptive Findings

To assess reliability of the scales used, Cronbach's alphas were calculated for the adolescent- and parent-reported APQs, the PHYS, and the YHPS, as well as means, standard deviations, and ranges for baseline variables. Reliability and descriptive statistics of the non-imputed data are reported in Table 1.

CFA Findings

Two CFAs were conducted for the adolescent- and parent-reported APQs to determine their factor structure. Generally, the *a priori* factor structure held in the current study; however, some items failed to meet the cutoff threshold. Upon initial runs, item 17 ("You are at home without an adult being with you") did not meet the loading threshold of .30 for either the APQ (.145) or the parent-reported APQ (.142), so this item was removed from both CFA analyses. Additionally, item 13 ("You get so busy that you forget where your child is and what he/she is doing") of the parent-reported APQ did not meet the loading threshold (.232) and was removed. Factor loadings for the adolescent- and parent-reported APQs are presented in Tables 2 and 3.

Adolescent-Reported APQ

The CFA for the final 16-item adolescent-reported APQ had an acceptable, but not strong fit to the data (CFI = .910, RMSEA = .061, SRMR = .065). Although each of the 16 remaining indicators surpassed the cutoff threshold, factor loadings had a great deal of variability, ranging from low (< .50) to high (> .90) standardized factor scores. The three latent factors also correlated with one another; Positive Parenting was positively correlated with Inconsistent Discipline (r = .23, p = .01) and negatively correlated with Poor Monitoring (r = -27, p < .001). Inconsistent Discipline positively correlated with Poor Monitoring (r = .48, p < .001).

Parent-Reported APQ

The final model fit of the 15-item CFA for the parent APQ was acceptable (CFI = .925, RMSEA = .056, SRMR = .062), with similarly variable factor loadings. In contrast to the adolescent-reported APQ, the latent factors of the parent-reported APQ were not consistently correlated. There was no evidence that Positive Parenting was correlated with Inconsistent Discipline (r = -.001, p = .99), but was in fact negatively correlated with Poor

Monitoring (r = -.17, p = .03). Inconsistent Discipline and Poor Monitoring were positively correlated (r = .42, p < .001).

Validity

To assess the validity of each factor (i.e., Positive Parenting, Inconsistent Discipline, and Poor Monitoring) of the adolescent- and parent-reported APQs, associations were individually examined between each factor and each outcome. Table 4 presents these validity estimates. For clarity and due to only slight differences between the unadjusted and adjusted findings, only the adjusted findings are reported.

Concurrent Validity

Associations between the APQ factors and the PHYS and the YHPS differed between the adolescent- and parent-reported APQs. Specifically, the adolescent-reported APQ revealed significant associations between Positive Parenting (β = 0.26, p < .001), Poor Monitoring (β = -0.29, p = .002) and parent happiness with youth (PHYS). Adolescents that reported more Positive Parenting and less Poor Monitoring parenting behaviors also reported better perceived parental happiness with them. However, in the parent-reported APQ, Poor Monitoring was the only significant parenting factor associated with parent happiness with youth (β = -0.37, p < .001). There was no evidence that parent-reported Poor Monitoring was associated with parental happiness with their youth, nor Positive Parenting (β = 0.04, p = .52) or Inconsistent Discipline (β = -0.02, p = .79). Among adolescents, there was no statistical evidence that Inconsistent Discipline was associated with parent happiness (β = -0.06, p = .54).

Associations with the YHPS between the adolescent- and parent-reported APQs varied slightly, with adolescent-reported Positive Parenting being the only factor associated with youth happiness with parents (β = 0.59, p < .001). Adolescents that perceived more Positive Parenting from their parents reported higher levels of happiness with their parents. There was no evidence that adolescent-reported Inconsistent Discipline (β = -0.09, p = .35) or Poor Monitoring (β = -0.06, p = .49) were associated with youth happiness with their parents. There was also no evidence that any of the factors in the parent-reported APQ were significantly associated with YHPS (p's > .05).

Discriminant Validity

Discriminant validity was established in both the adolescent- and parent-reported APQs. As hypothesized, the three factors (i.e., Positive Parenting, Inconsistent Discipline, and Poor Monitoring) for both APQs were not significantly associated with the Spirituality Social Support Index (p's > .05).

Predictive Validity

Regression models were conducted to establish the predictive validity between the APQ subscales and adolescent externalizing disorder symptoms at the 6-month outcome assessment. Poor Monitoring was the only factor significantly associated with ADHD symptomatology in both the adolescent- (β = 0.23, p = .03) and parent-reported APQs (β = 0.24, p = .001). Specifically, greater levels of adolescent- and parent-reported Poor Monitoring predicted more ADHD symptoms in adolescents at six months. However, there was no evidence that adolescent-reported Positive Parenting (β = 0.01, p = .91) or adolescent-reported Inconsistent Discipline (β = 0.01, p = .91) predicted ADHD symptomatology. Similarly, there was no evidence of parent-reported Positive Parenting (β = 0.10, p = .15) or Inconsistent Discipline (β = -0.04, p = .58) predicting ADHD symptoms.

Differences were found in the associations between the adolescent- and parent-reported APQs in association with APD symptoms. Among adolescents, greater perceived Positive Parenting (β = -0.26, p = .002) was predictive of fewer APD symptoms at six months. However, Inconsistent Discipline (β = 0.18, p = .08) was not a statistically significant predictor of APD symptoms at six months. While there was no evidence that adolescent-reported Poor Monitoring predicted APD symptoms in adolescents (β = 0.16, p = .12), it was a significant predictor among parent reporters (β = 0.20, p = .03), whereby increases in parent-reported Poor Monitoring predicted greater levels of symptoms of APDat six months. Finally, there was no evidence that parent-reported Positive Parenting (β = 0.11, p = .12) or Inconsistent Discipline (β = -0.08, p = .37) predicted APD symptoms.

In regard to CD symptoms, none of the adolescent-reported APQ factors were statistically significant predictors CD symptoms at six months (ps > .05). Among parents, greater levels of Poor Monitoring were predictive of adolescents' CD symptoms at six months (β = 0.40, p < .001). Inconsistent Discipline was not statistically significant in predicting conduct disorder symptoms (β = -0.14, p = .08), nor Positive Parenting (β = 0.04, p = .52). Finally, as reported in Table 4, ODD symptoms were not predicted by any of the factors for both the adolescent-and parent-reported APQ scales (p's > .05).

Discussion

The present study examined the factor structure of an abridged 17-item parent- and adolescent-reported APQ among a sample of adolescents with histories of SUDs, testing the hypothesis that these items would converge onto its three supported subscales: Positive Parenting, Inconsistent Discipline, and Poor Monitoring. Additionally, we examined the discriminant, concurrent, and predictive validity of the APQ-17 among this sample. Results suggest that this parenting scale has good concurrent validity and sufficient internal reliability with this clinical

sample of adolescents. Results of the path analyses generally supported the use of these latent factors to predict externalizing behavior symptoms six months after the baseline assessment, as well as concurrent happiness with parent/happiness with youth baseline measures. Results also supported the three-factor fit of the APQ; however, one Poor Monitoring item was dropped from both parent- and adolescent-reported versions of the APQ-17, as well as one additional Inconsistent Discipline item from the parent version, creating a final measure with 16 items for the adolescent version, and 15 items for the parent version that reflect its three supported parenting constructs.

The final versions of the adolescent- and parent-reported APQ matched the factor structure observed in prior studies, but with some minor adjustments. First, item 17 ("[You are/Your child] is at home without adult supervision") was dropped from both scales. This item also demonstrated poor fit in a prior study due to low item-total correlations (Frick et al., 1999), suggesting that this item may not be relevant among clinical samples of adolescents and their parents. For instance, it may be the case that adolescents in our sample (who were on average 16 years old) did not need supervision while at home. Another Poor Monitoring item ("You get so busy that you forget where your child is and what he/she is doing") failed to load and was dropped from the parent-reported APQ-17. Based on these items showing poor fit to the data, particularly related to Poor Monitoring, we conclude that these items may not be strong indicators of relevant parenting practices among adolescents with SUDs. Future research is warranted, however, to determine whether these monitoring items were a poor fit to the data due to the older age of the adolescents in the sample, the parenting construct itself, or something unique to the sample characteristics (e.g., adolescents' mental/behavioral health histories).

It is unsurprising that these two Poor Monitoring items showed poor fit to the data in the present study given recent research on the topic of parental monitoring related to adolescents. Indeed, the three decades since the initial development of the APQ have seen a surge in research on parenting practices, particularly regarding reconceptualizing the construct of parental monitoring (Kerr et al., 2010; Stattin & Kerr, 2000). Research has shown that adolescent disclosure of information is an important and more reliable indicator of parental monitoring compared to more "active" monitoring practices employed by parents (e.g., tracking and surveilling youth's activities/whereabouts; Kerr et al., 2010; Stattin & Kerr, 2000). A more appropriate approach to studying parental monitoring may be to gather information about the level of disclosure and openness of adolescents to their parents, as opposed to solely measuring parent behaviors of monitoring, which may just represent parents' perceived knowledge of their adolescent (Stattin & Kerr, 2000). This reconceptualization of parental monitoring warrants

development and validation of questionnaires that measure these nuanced facets of monitoring adolescents. Factors in parents' and adolescents' ecology such as family climate, adolescent and parent characteristics (e.g., personality, mental health status), and socioeconomic status should be taken into consideration to more wholly understand parental monitoring in the context of adolescent behavioral health (Hamza & Willoughby, 2011; Rekker et al., 2017; Rodríguez-Meirinhos et al., 2020; Rusby et al., 2018; Weisskirch, 2009).

We also found that the final versions of each APQ showed good discriminant validity (i.e., none of the factors were significantly correlated with the SSSI), as well as internal reliability, suggesting adequate specificity and consistency across items. All three latent factors were moderately correlated in the adolescent-reported version, but there was no evidence that Inconsistent Discipline and Poor Monitoring were significantly correlated in the parent-reported version. It is noteworthy that a positive correlation was found between Positive Parenting and Inconsistent Discipline in the final adolescent-reported APQ. This is in contrast with some prior studies that have reported a negative correlation between these two constructs (Elgar et al., 2007; Maguin et al., 2016), while other studies have reported positive (Essau et al., 2006) or null correlations (Kyriazos & Stalikas, 2019; Robert, 2009; Zlomke et al., 2015). This finding may suggest a lack of specificity between Positive Parenting and Inconsistent Discipline among adolescents, such that Inconsistent Discipline was viewed positively by both parents and adolescents. For example, if a parent consistently uses positive disciplinary actions (e.g., the adolescent earns back privileges with good behavior) or inconsistently uses negative disciplinary actions (e.g., parent forgets or chooses not to deliver a punishment), either scenario may be seen as a positive event by adolescents and/or parents, and thus may be interpreted as Positive Parenting. For younger children, disciplinary tactics may be more salient (Elgar et al., 2007; Frick et al., 1999) and would thus lend more consistent support for Inconsistent Discipline in the previous scenarios, whereas adolescents may find such disciplinary strategies irrelevant or confusing. Thus, the latent factors Inconsistent Discipline and Positive Parenting may be partially conflated in this adolescent sample.

Results from the path analyses generally supported the use of these latent factors to predict subsequent behavioral outcomes. When modeling each factor separately on each outcome, we found that Poor Monitoring (both parent- and adolescent-reported) was significantly associated with later CD symptoms, and all adolescent-reported scales were predictive of subsequent APD symptoms, such that Positive Parenting was associated with fewer APD symptoms, consistent with prior research (Essau et al., 2006; Frick et al., 1999; Gryczkowski et al., 2010). Our findings also suggest the APQ was not sensitive to ODD symptoms among this sample of adolescents. These

findings, too, are consistent with Frick et al. (1999) who found that the APQ scales predicted ODD only symptoms among younger age samples and predicted more severe conduct problems among adolescents. We also found that Poor Monitoring (both adolescent- and parent-reported) was the only construct associated with ADHD symptoms in this sample. Prior research has similarly found that only Poor Monitoring predicted hyperactivity among children, but not inattention, and Inconsistent Discipline predicted ADHD symptoms (Elgar et al., 2007). Given that predictive validity was assessed against DSM-IV symptomology, future research should attempt to replicate this finding by assessing the validity using the up-to-date criteria reflected in the DSM-5 (American Psychiatric Association, 2013).

Finally, the APQ demonstrated good concurrent validity, but the associations between the APQ factors and parent-adolescent relationship scales differed between the adolescent- and parent-reported APQs. For example, the adolescent-reported APQ revealed significant associations between Positive Parenting, Poor Monitoring, and the PHYS scores, such that greater parental happiness with youth was associated with more adolescent-reported Positive Parenting and less Poor Monitoring. Additionally, adolescents who reported greater levels of Positive Parenting also reported higher levels of happiness with their parents. However, greater levels of adolescent-reported Positive Parenting were negatively associated with PHYS scores. Notably, none of the parent-reported APQ factors were significantly associated with adolescent-reported happiness with their parent (YHPS). These differences may be due to discrepancies in reporting whereby adolescents and parents perceive aspects of the relationship differently. For example, parents may report feeling lower levels of happiness with their adolescent, even if adolescents perceive high levels of Positive Parenting. Prior research suggests that these reporting discrepancies may not be due to measurement error, but in fact may represent an important clinical construct (De Los Reyes & Kazdin, 2005; De Los Reyes, & Ohannessian, 2016). Reporting discrepancies may act as a proxy for the quality of the parent-adolescent relationship, such that greater discrepancies indicate higher levels of strain or conflict in the parent-adolescent relationship (De Los Reyes, 2011; De Los Reyes & Ohannessian, 2016). An important future direction may be to examine the associations between multi-informant parenting measures of similar constructs to investigate further the nature of these discrepancies.

Limitations

It is important to interpret these findings in light of this study's strengths and weaknesses. First, the 17 items of the APQ were selected by the principal investigators with expertise in the field of adolescent substance use

and recovery, with the intent to lessen the burden on adolescents and parents who participated in the longitudinal study and completed several measures at each assessment point. An important future direction would be to examine the invariance of parenting measures, including the full 42-item APQ, among youth with and without SUD histories. It is also important to note that this study's sample consisted of mostly White families, with many youth who reported living in two-parent households with family incomes ranging from $40,000 - $75,000. This is consistent with most prior research on this scale, which has been conducted among White, middle-class families (Frick, 1991; Shelton et al., 1996). This does not accurately represent parenting practices and adolescent-parent relationships across contexts, nor generalize to other clinical samples of adolescents. Thus, these findings should not be generalized outside of these sample characteristics. Given that most of the available empirical evidence has been conducted with children and younger adolescents, as well as community samples of youth (as opposed to clinical samples), more research of the APQ is needed among adolescent clinical samples. Because the APQ has established utility for assessing parenting practices, understanding potential disparities in the validity and reliability of the APQ between the general population and clinical samples of adolescents and their parents would allow both researchers and clinicians greater capacity to draw meaningful conclusions.

Conclusion

Despite these noted limitations, findings from this study have important implications for the assessment of parenting practices. Parenting measures, such as the APQ, are widely used to study and understand parenting behaviors and parent-child relationships, although few evidence-based tools demonstrate good psychometric properties (Hurley et al., 2014). To our knowledge, this is the first study to examine the psychometric properties of a shortened multi-informant version of the APQ among a sample of adolescents with histories of SUDs and their parents. We found support for an abridged three-factor APQ among a clinical population of adolescents and their parents. Both parent- and adolescent-reported versions of the APQ demonstrated adequate psychometric properties among this clinical sample of adolescents with SUD histories. Brief yet thorough measures are imperative to decrease the burden of time and energy placed on clients and families and increase the likelihood of engagement, without sacrificing the psychometric validity and reliability of the measure. These findings can be used to inform the clinical utility of abbreviated versions of the APQ in family-based interventions and assessments among high-risk samples of adolescents. The multi-informant nature of the study also adds depth to our knowledge of parent and adolescent perceptions of parenting, which can be used to evaluate discrepancies in response patterns, yielding

useful information for comprehensive assessment of adolescent and parenting behaviors. Future assessment research should focus on studying more diverse samples of adolescent-parent dyads to further support the ecological validity of these findings regarding parent-adolescent relationships, and to ensure that parenting scales reflect the complexities of modern parent-child relationships.

Compliance with Ethical Standards

Conflict of Interest

All authors declare that they have no conflicts of interest.

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Ethical Approval

All study procedures were approved by the Institutional Review Board at the University of Minnesota and all secondary data analysis procedures were approved by the Institutional Review Board at the University of Oregon and with the Helsinki Declaration of 1975, as revised in 2000.

Informed Consent

Informed assent and parental consent were obtained from all participants included in the study.

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Table 1

Reliability Coefficients and Descriptive Statistics for Measures at Baseline

Scales/Indexes	Observed *n*	Cronbach's *α*	*M* (*SD*)	Range
Adolescent APQ		.70		
Positive Parenting	282	.85	3.31 (0.83)	1-5
Inconsistent Discipline	273	.64	2.99 (0.80)	1-5
Poor Monitoring	265	.71	2.85 (0.67)	1.1-4.7
Parent APQ		.68		
Positive Parenting	299	.78	3.96 (0.59)	1.8-5
Inconsistent Discipline	273	.70	2.70 (0.76)	1-4.8
Poor Monitoring	279	.74	2.50 (0.65)	1-4.1
Parent happiness with youth scale	98	.90	54.16 (23.27)	11.8-98.7
Youth happiness with parent scale	232	.90	57.51 (22.06)	2.7-100
Spirituality social support index	294		1.44 (2.15)	0-7
ADHD symptoms	292		3.90 (1.87)	0-6
APD symptoms	291		5.10 (2.82)	0-11
CD symptoms	271		1.28 (1.31)	0-6
ODD symptoms	288		4.14 (2.64)	0-8

Note. APQ = Alabama Parenting Questionnaire; ADHD = Attention-Deficit/Hyperactivity Disorder; APD = Antisocial Personality Disorder; CD = Conduct Disorder; ODD = Oppositional Defiant Disorder. Range represents the empirical range of scores as indicated by participants of each variable. Observed *n* represents the number of participants who responded to each item. Reliabilities and descriptive statistics are based on non-imputed data.

Table 2

Factor Loadings from Confirmatory Factor Analysis of Final Adolescent-reported Alabama Parenting Questionnaire

Alabama Parenting Questionnaire Item	Positive Parenting	Inconsistent Discipline	Poor Monitoring
Item 1: Your parents tell you that you are doing a good job.	.735 (.05)		
Item 3: Your parents reward or give something extra to you for behaving well.	.701 (.06)		
Item 7: Your parents compliment you when you have done something well.	.844 (.06)		
Item 8: Your parents praise you for behaving well.	.954 (.05)		
Item 9: Your parents hug or kiss you when you have done something well.	.834 (.06)		
Item 14: Your parents tell you that they like it when you help out around the house.	.526 (.07)		
Item 2: Your parents threaten to punish you and then do not do it.		.666 (.08)	
Item 5: You talk your parents out of punishing you after you have done something wrong.		.793 (.08)	
Item 12: Your parents let you out of a punishment early.		.816 (.08)	
Item 16: The punishment your parents give depends on their mood.		.318 (.08)	
Item 4: You fail to leave a note or let your parents know where you are going.			.712 (.08)
Item 6: You stay out in the evening past the time you are supposed to be home.			.880 (.06)
Item 10: You go out without a set time to be home.			.481 (.09)
Item 11: You go out after dark without an adult with you.			.553 (.09)
Item 13: Your parents get so busy that they forget where you are and what you are doing.			.441 (.07)
Item 15: You come home from school more than an hour past the time your parents expect you.			.877 (.06)

Note. Standard errors shown in parentheses. Estimates pooled across m=20 imputed datasets.

Table 3

Factor Loadings from Confirmatory Factor Analysis of Final Parent-reported Alabama Parenting Questionnaire

Alabama Parenting Questionnaire Item	Positive Parenting	Inconsistent Discipline	Poor Monitoring
Item 1: You tell your child that he/she is doing a good job.	.515 (.04)		
Item 3: You reward or give something extra to your child for behaving well.	.343 (.05)		
Item 7: You compliment your child when he/she has done something well.	.597 (.03)		
Item 8: You praise your child for behaving well.	.687 (.04)		
Item 9: You hug or kiss your child when he/she has done something well.	.506 (.06)		
Item 14: You tell your child that you like it when he/she helps out around the house.	.421 (.06)		
Item 2: You threaten to punish your child and then do not do it.		.703 (.07)	
Item 5: Your child talks you out of punishing him/her after having done something wrong.		.822 (.07)	
Item 12: You let your child out of a punishment early.		.656 (.06)	
Item 16: The punishment you give your child depends on your mood.		.371 (.08)	
Item 4: Your child fails to leave a note or let you know where he/she is going.			.699 (.08)
Item 6: Your child stays out in the evening past the time he/she is supposed to be home.			.953 (.06)
Item 10: Your child goes out without a set time to be home.			.403 (.08)
Item 11: Your child goes out after dark without an adult.			.669 (.06)
Item 15: Your child comes home from school more than an hour past the time you expect him/her.			.849 (.06)

Note. Standard errors shown in parentheses. Estimates pooled across m=20 imputed datasets.

Table 4

Adjusted Findings from Path Analyses of Individual Adolescent- and Parent-reported Alabama Parenting Questionnaire Factors and Outcomes

	Concurrent Validity		Discriminant Validity	Predictive Validity			
	PHYS	YHPS	SSSI	ADHD Symptoms	APD Symptoms	CD Symptoms	ODD Symptoms
Adolescent-reported							
Positive Parenting	0.26 (0.07)*	0.59 (0.06)*	0.04 (0.08)	0.01 (0.09)	-0.26 (0.08)*	-0.06 (0.07)	-0.10 (0.08)
Inconsistent Discipline	-0.06 (0.09)	-0.09 (0.10)	-0.10 (0.10)	0.01 (0.11)	0.18(0.10)*	-0.05 (0.11)	0.07 (0.11)
Poor Monitoring	-0.29 (0.09)*	-0.06 (0.09)	0.13 (0.10)	0.23 (0.10)*	0.16 (0.11)	0.18 (0.10)+	-0.02 (0.11)
Parent-reported							
Positive Parenting	0.04 (0.06)	0.05 (0.07)	-0.00 (0.06)	0.10 (0.07)	0.11 (0.07)	0.04 (0.06)	-0.04 (0.07)
Inconsistent Discipline	-0.17 (0.07)	0.10 (0.08)	-0.08 (0.08)	-0.04 (0.07)	-0.08 (0.09)	-0.14 (0.08)+	0.14 (0.08)+
Poor Monitoring	-0.37 (0.07)*	-0.13 (0.08)	0.07 (0.08)	0.24 (0.07)*	0.20 (0.09)*	0.40 (0.08)*	0.13 (0.08)+

Note. Results of the path analyses presented in this table are derived from the final 16-item version of the adolescent-reported APQ and the 15-item parent-reported APQ. Estimates are standardized coefficients. Standard errors are shown in parentheses. PHYS = Parent Happiness with Youth Scale; YHPS = Youth Happiness with Parent Scale; SSSI = Spirituality Social Support Index; ADHD = Attention-Deficit/Hyperactivity Disorder; APD = Antisocial Personality Disorder; CD =Conduct Disorder; ODD = Oppositional Defiant Disorder. Estimates pooled across m=20 imputed datasets.

*$p < .05$ +$p < .10$