

Discrepant Parent-Adolescent Reports of Parenting Practices:
Associations with Adolescent Internalizing Disorders

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Introduction

Parenting significantly influences adolescent mental health outcomes (e.g., Steinberg, 2001). For instance, parenting practices such as monitoring (i.e., the level of knowledge or awareness a parent has regarding the whereabouts of their adolescent) have been shown to predict adolescent mental health and behavioral outcomes such that more parental monitoring is associated with decreased delinquency and substance use (Dishion & McMahon, 1998; Kerr, Stattin, & Burk, 2010). Further, parenting during adolescence has been shown to impact mental health outcomes into young adulthood (Aquilino & Supple, 2001), highlighting the importance of studying modifiable parenting practices during adolescence, as these can be addressed in preventive interventions involving families and adolescents (Dishion & McMahon, 1998).

Historically, these reports of parenting practices have been collected from the perspectives of parents (i.e., self-reported), however, reliance on parent reports alone may not accurately represent or reliably predict adolescent behavior (Stattin & Kerr, 2000). Extant literature regarding multi-informant reports and assessments supports the notion that using both parent and adolescent reports can be more predictive of adolescent outcomes (Achenbach, McConaughy, & Howell, 1987). Further, recent research on this topic suggests that discrepancies in these reports represent a meaningful construct in predicting negative mental health outcomes among adolescents (De Los Reyes, 2011; De Los Reyes & Kazdin, 2005). The current study explores the utility of these discrepant parent-adolescent reports of parenting practices in longitudinally predicting adolescent internalizing disorders.

Parenting Practices and Adolescent Mental Health

Theoretical models (e.g., Darling & Steinberg, 1993) highlight the significant role of parents in influencing youth's socialization and well-being, even throughout adolescence. These parenting models suggest that parenting practices are important constructs to consider when addressing adolescent mental health outcomes. For example, poor parental monitoring has consistently been linked to increased adolescent problem behaviors like substance use (Yap, Cheong, Zaravinos-Tsakos, Lubman, & Jorm, 2017) and delinquency (Dishion & McMahon, 1998; Keijsers, Frijns, Branje, & Meeus, 2009), as well as risky sexual behaviors (DiClemente et al., 2001).

Although much of this research has focused on links between parenting and adolescent externalizing outcomes, recent empirical evidence suggests that parenting is also associated with adolescent internalizing disorders. A study conducted by Smokowski and colleagues (2015) explored how adolescent-reported perceptions of parenting practices are associated with adolescent mental health outcomes, specifically internalizing disorders. They found that positive parenting was longitudinally associated with less depression among adolescents, and that parent-adolescent conflict was positively related to anxiety and depression. Similarly, recent meta-analytic evidence suggests that parental factors are associated with internalizing outcomes in adolescents, suggesting that negative parenting practices, poor monitoring, and aversiveness may increase the risk for youth internalizing disorders (Pinquart, 2017; Yap, Pilkington, Ryan, & Jorm, 2014).

Together, these findings suggest that negative parenting practices may be a significant risk factor for later adolescent internalizing outcomes, but more research on this topic is warranted. One major limitation of previous parenting research is the reliance on single informant reports, as research on clinical assessments suggests that obtaining multiple

informants' reports should be considered the best standard of practice when studying adolescent outcomes (Achenbach, McConaughy, & Howell, 1987; Hunsley & Mash, 2007).

Discrepant Reporting of Parenting Practices

Multi-informant reports (i.e., parent and adolescent reports) have been widely recognized for their clinical relevance and utility in the assessment of emotional, social, and behavioral problems in youth (Achenbach et al., 1987). Parents' self-reports represent behaviors they perceive themselves to have engaged in (e.g., monitoring their adolescents' whereabouts), whereas youth reports represent those parental behaviors as they (the adolescent) perceive them. However, youth and parents often disagree in reports of parenting behaviors, reflected by low correlations (i.e., greater discrepancies) in reports of parenting practices between adolescents and their parents (Achenbach et al., 1987), especially as children mature and gain more independence from their parents during adolescence (Masche, 2010). For example, parental monitoring and knowledge of their child's whereabouts greatly decreases in adolescence, suggesting that adolescent self-reported behaviors may be more accurate than parent-reports of those behaviors (Stattin & Kerr, 2000). Further, discrepant reports between parents and adolescents offer a unique perspective to studying the association between parenting and adolescent mental health.

Research on the utility and reliability of multi-informant reports suggests that these discrepant reports are not a mere measurement error, but instead are an important construct to study in relation to adolescent outcomes (De Los Reyes & Kazdin, 2005; De Los Reyes, & Ohannessian, 2016). Greater discrepancies in parent-adolescent reports of parenting have been linked to negative behavioral, emotional, and psychological outcomes in adolescents, over and beyond single-informant reports (De Los Reyes, Goodman, Kliwer, & Reid-Quinones, 2008; Korelitz & Garber, 2016; Laird & De Los Reyes, 2013). Specifically, empirical evidence suggests that discrepancies in parent-adolescent reports are associated with adolescent substance

use (Abar et al., 2015), delinquency (De Los Reyes, Goodman, Kliever, & Reid-Quinones 2010) and depression (Laird & De Los Reyes, 2013).

These reporting discrepancies may serve as a proxy for the quality of the parent-adolescent relationship such that greater discrepancies in their reports indicate strain or conflict in the relationship, which may in turn increase the risk for negative outcomes among adolescents (Abar, Jackson, Colby, & Barnett, 2015; De Los Reyes & Ohannessian, 2016; De Los Reyes et al., 2010). Together, these findings support the notion that both adolescent and parent perspectives of parenting practices are meaningful in understanding youth outcomes and that discrepancies in these reports may represent a unique risk factor for adolescent risk behaviors and mental health.

Although the topic of discrepant parent-adolescent reports has largely been studied in terms of parenting practices and adolescent externalizing behaviors (e.g., Abar, Jackson, & Wood, 2014; De Los Reyes et al., 2010; Dishion & McMahon, 1998; Keijsers et al., 2009; Kerr et al., 2010), there is also reason to believe that these reporting discrepancies may also be related to adolescent internalizing disorders. Recent empirical findings suggest that discrepancies in reports of parenting practices are associated with adolescent internalizing outcomes (Laird & De Los Reyes, 2013). Specifically, discrepant parent-adolescent reports of adolescent rule-breaking, parental acceptance, parental monitoring, and mother-adolescent conflict, were found to be predictive of adolescent depression (Laird & De Los Reyes, 2013).

Despite these demonstrated associations between informant discrepancies and adolescent internalizing disorders, the empirical research on this topic is sparse. Meta-analytic evidence suggests that parenting dimensions related to parental warmth and control are concurrently and longitudinally related to internalizing outcomes in adolescents (Pinquart, 2017; Yap et al., 2014), but few studies have assessed reports from multiple informants. Additionally, internalizing

disorders and substance use disorders (SUDs) are highly comorbid among adolescents and may share common risk factors, including familial factors (O’Neil, Conner, & Kendall 2011). For this reason, it may be particularly important to study internalizing disorders among adolescents who have already experienced issues with substance use. However, the paucity of empirical evidence on this topic precludes any conclusive interpretations regarding the predictive utility of discrepancies of parenting practices and subsequent adolescent internalizing disorders. Given the variability in parenting assessments (i.e., assess differing parenting dimensions and constructs), further exploration of this topic is warranted to understand the nature of discrepancies in informant reports and adolescent internalizing disorders.

Study Overview and Hypotheses

The purpose of the present study is to explore the association between the discrepancies in parent-adolescent reports of parenting practices and adolescent internalizing disorders among adolescents with a history of an SUD. Specifically, this manuscript uses existing data from a larger longitudinal study to examine whether discrepancies in adolescents’ and parents’ reports of positive parenting practices, inconsistent discipline, and parental monitoring measures are longitudinally associated with subsequent adolescent internalizing disorders. Based on prior theory and research, I hypothesize that parents and adolescents will show discrepancies in reports of three domains of parenting practices—parental monitoring, positive parenting, and inconsistent discipline—and that these discrepancies will longitudinally predict internalizing disorders. The findings from this study will increase our understanding of how parent-adolescent relationships relate to adolescent mental health, knowledge that can assist in the development of more effective preventive interventions for adolescents with internalizing disorders and co-occurring SUDs.

Method

The present study utilizes data collected from a large-scale longitudinal investigation of the effectiveness of Recovery High Schools (RHSs), an alternative high school option for adolescents in recovery from SUDs that offers educational and therapeutic continuing care services (for more information about RHSs see Moberg & Finch, 2008). That study used a quasi-experimental comparison group design to evaluate the effectiveness of RHSs on substance use and academic outcomes among students (Finch, Tanner-Smith, Hennessy, & Moberg, 2018).

Sample and Procedure

Adolescent participants were initially recruited from 10 SUD treatment facilities in Minnesota, Texas, or Wisconsin; those facilities were selected as recruitment sites given their proximity to RHSs. Adolescents were free to enroll in RHSs or non-RHSs after discharge from the SUD treatment program. Study data were collected during extensive youth assessments completed via in-person, computer-assisted interviews conducted by trained, master's level research assistants (Finch et al., 2018). Participating students and their families were assured that all responses would be kept confidential, and following student assent and parent consent procedures, all participants received gift cards at each assessment. The Institutional Review Board at the University of Minnesota approved all data collection procedures. For more information about participant recruitment and procedures, see Finch et al. (2018).

A total of 294 adolescents (171 in RHSs, 123 in non-RHSs) and their families were enrolled in the study at the baseline assessment (i.e., upon discharge from formal SUD treatment), 238 of whom participated at the 6-month follow-up. The sample was predominately White (72.1%; 10.2% Hispanic, 3.4% Asian, 9.2% Black, 3.1% Native American) with approximately even numbers of boy and girl respondents (55.1% boys). The age range of adolescents at the time of baseline assessments was 13-19 ($M = 16.32$, $SD = 1.09$). A majority of adolescents (64.6%) met criteria for an SUD (abuse or dependence) at baseline, based on criteria

from the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV; American Psychiatric Association, 1994). Over three-quarters of the adolescent sample (88.8%) reported having received treatment for mental health at some point in their life.

Baseline data from a total of 304 parent respondents were obtained for analysis of demographic information in the present study. A majority of parent respondents were women (89.1%)¹, and most (76.3%) were the biological mothers of the participating adolescents. Most indicated that they were presently married/living as married (50.7%) or divorced (25.3%). Approximately one-fifth of parent respondents indicated receiving some college education, 28.6% reported having a 4 year degree (B.A. or B.S.), and 14.8% had a professional or graduate degree. Approximately one-third of the parent respondents (N = 301) reported family income ranges from >\$40,000 to \$75,000, 42.2% indicated an average family annual income of greater \$75,000 and approximately one-third reported an average household income of less than \$40,000.

Approximately one-third of parent respondents (N = 302) indicated that their child currently lived with a birth mom and dad (33.1%) or birth mom alone (28.8%). A majority of the sample indicated that someone in the immediate family had a problem with alcohol or drug use (80.5%), and over half of adolescent respondents (59.2%) indicated that a biological parent had a history of mental health problems.

Measures

Discrepancy items. Discrepancies between parent and adolescent reports on three constructs from the *Alabama Parenting Questionnaire* (APQ; Frick, 1991) were tested as predictors of adolescent internalizing disorders. The three constructs of interest were positive

¹ Parent gender percentage calculated from N = 302 parent respondents

parenting techniques, disciplinary consistency, and parental monitoring. The APQ has previously demonstrated good psychometric properties² (Shelton, Frick, & Wootton, 1996).

Parents and adolescents both completed the APQ during the baseline assessment. Although this scale was initially developed primarily for the assessment of externalizing disorders in children and adolescents, several studies examining the relationship between parenting and internalizing outcomes in adolescents have demonstrated associations between parenting constructs of the APQ and internalizing disorders (e.g., Pinquart, 2017; Yap et al., 2014).

For this study, I used a 17-item version of the APQ - Youth Form ($\alpha = 0.77$), completed by adolescents, and parent reports from the APQ - Parent Form (PAPQ; $\alpha = 0.78$), a matched form with parent-focused questions. These 17-item versions included measures of positive parenting practices, inconsistent discipline, and poor parental monitoring.

Positive parenting. Positive parenting was assessed using six items from the APQ and PAPQ (e.g., "Your parents compliment you when you have done something well"). This APQ subscale showed good reliability ($\alpha = 0.96$), as did the PAPQ subscale ($\alpha = 0.93$). For each item, adolescents and parents reported the "typical" frequency of positive parenting received or given at home using a 5-point scale that ranged from never (1) to always (5). Adolescent-reported and parent-reported positive parenting index scores were computed as the mean of the respective six items. Higher scores indicate more frequent positive parenting practices.

Inconsistent discipline. Inconsistent discipline was assessed using four items from each of the APQ and PAPQ (e.g., "The punishment your parent gives depends on their mood"). For each item, adolescents and parents reported the "typical" frequency of inconsistent discipline

² In past research, the internal consistency reliability of the five scales has been moderate ($\alpha = 0.63$ to 0.80 ; Shelton, Frick, & Wootton, 1996).

received or given at home using a 5-point scale ranging from never (1) to always (5). This APQ subscale showed good reliability ($\alpha = 0.80$), as did the PAPQ subscale ($\alpha = 0.85$). Adolescent-reported and parent-reported inconsistent discipline parenting index scores were computed as the mean of the four items. Higher scores indicate more frequent inconsistency in discipline.

Lack of monitoring. Lack of parental monitoring was assessed using seven items from each of the APQ and PAPQ (e.g., "Your parents get so busy that they forget where you are and what you are doing"). For each item, adolescents and parents reported the "typical" frequency of monitoring behaviors received or given at home using a 5-point scale ranging from never (1) to always (5). Adolescent-reported and parent-reported poor monitoring index scores were computed as the mean of the respective seven items. This APQ subscale showed good reliability ($\alpha = 0.83$), as did the PAPQ subscale ($\alpha = 0.86$). Higher scores indicate more frequent lack of parental monitoring or supervision.

Outcome variable. The outcome variable of interest was a binary measure indicating the presence of an internalizing disorder diagnosis at the 6-month follow-up assessment.

Adolescents were assessed for whether or not they met DSM-IV criteria for a diagnosis of Major Depressive Disorder (MDD) or Generalized Anxiety Disorder (GAD) at the 6-month follow-up. An internalizing disorder variable was computed to indicate a diagnosis of MDD and/or GAD, coded yes (1) or no (0).

Covariate controls. The following baseline measures were included as covariate controls: RHS enrollment (for at least 28 days by the 6 month follow-up), receipt of mental health treatment (over lifetime), parent mental health history (i.e., biological parent reported a history of mental illness), baseline internalizing disorder (lifetime diagnosis estimate), baseline SUD, adolescent ethnicity, socioeconomic status (SES), and adolescent gender. These covariates were chosen based on prior research among RHS samples (e.g., Botzet, McIlvaine, Winters,

Fahnhorst & Dittel, 2014; Tanner-Smith & Lipsey, 2014) and past literature which suggests these covariates may be related to adolescent internalizing disorders (e.g., Reef et al., 2011), particularly among those with SUDs (O’Neil et al., 2011), and thus may be important to include as covariates in the outcome analyses.

Analysis Plan

All statistical analyses for the present study were conducted using R (Version 3.5.1). Missing data were handled using listwise deletion, which yielded a final analytic sample size of 172 respondents (i.e., adolescent/parent dyads). A series of three polynomial logistic regression analyses were conducted to analyze the relationship between discrepancies in parent- and adolescent-reported parenting practices at baseline and internalizing disorders at the 6-month follow-up. This technique, following recommendations proposed by Laird and De Los Reyes (2013), has emerged as the modern, preferred analytic strategy for examining informant discrepancies (see also Edwards, 1994). This polynomial regression modeling technique overcomes the numerous limitations of more traditional approaches for examining discrepancies such as computing simple difference scores or correlations between scores (see Laird & De Los Reyes, 2013 for more information).

For the polynomial logistic regression models used to address the study research questions, each outcome was paired with each predictor variable in three separate logistic regression analyses in the form of:

$$\text{logit}(Y) = b_0 + b_1A + b_2P + b_3A^2 + b_4AP + b_5P^2 + e$$

where Y represents the probability of the adolescent having a diagnosed internalizing disorder, A are the adolescent reports of parenting from the APQ, and P are the parent reports of parenting from the PAPQ. The adolescent and parent reports were both mean centered, such that b_1 and b_3 represent the linear and quadratic effects of adolescent reports at the mean value of adolescent

reports; b_2 and b_5 represent the linear and quadratic effects of parent reports at the mean value of parent reports; and b_4 is used to test whether the relationship between the adolescent reports and the outcome are moderated by the parent reports. Thus, the b_4 interaction term is the key parameter estimate of interest given that it directly tests the discrepancy hypothesis that associations between the internalizing diagnosis outcome and reports of parenting by one type of informant (adolescents) vary as a function of the reports of parenting by the other type of informant (parents).

Models that included a higher order polynomial (i.e., cubic) term were also tested, but the AIC fit statistic indicated that the above quadratic model was the best fit to the data. Thus, I retained the quadratic model form for all analyses.

Results

Three separate logistic polynomial regression equations were conducted to test for associations between discrepant parent-adolescent reports of the three parenting constructs — inconsistent discipline, poor monitoring, and positive parenting — on adolescents' internalizing outcomes at the 6-month follow-up. To facilitate interpretability, all outcomes are reported here as odds ratios (OR), indexing the odds that a predictor variable is associated with the odds that an adolescent has a diagnosis of an internalizing disorder at 6 months post-baseline.

Table 1 reports the demographic information of all the variables used in the three separate logistic polynomial regression models. Some demographic information was only available for adolescents (adolescent-reported), or the parent, and other information was available for both. These demographic estimates are reported for the final analytic sample ($N = 172$), following listwise deletion of missing data.

Table 2 reports the means associated with adolescent and parent reported measures, as well as the correlations, reported as Pearson product-moment correlation coefficients. The

correlation between adolescents' and parents' reports of parental monitoring was statistically significant, but moderately small in magnitude, $r = 0.26, p < 0.001$. This suggests that as parents report greater poor parental monitoring, adolescents are also reporting this. Bivariate correlations between parenting and adolescent reported inconsistent discipline revealed that these two were moderately positively correlated, $r = 0.37, p < 0.001$. The correlation between parent- and adolescent-reported positive parenting styles was not significant, $r = 0.11, p = 0.16$.

Inconsistent Discipline

Next, the results from the three outcome models are reported in Table 3, including the odds ratios and 95% confidence intervals for the key parameter estimates of interest. There was no significant effect of parent x adolescent reported inconsistent discipline on the odds of having an internalizing disorder at 6 months (OR = 0.99, $p = 0.98$, 95% CI [0.43, 2.36]), after adjusting for the other covariate controls included in the model. This interaction term represents the association between one report (parent or adolescent) and the outcome variable (internalizing disorder) and the moderation of one report by other. Thus, for the inconsistent discipline outcome, the results provide no evidence that the parent report moderated the effect of adolescent reports on the odds of an internalizing disorder (or vice versa). There was a significant effect of gender (OR = 0.23, $p < 0.001$, 95% CI [0.10, 0.51]), such that girls had higher odds of an internalizing diagnosis than boys. There was also a significant effect of baseline internalizing disorder (OR = 13.61, $p < 0.001$, 95% CI [4.38, 50.15]), such that adolescents with a diagnosis of an internalizing disorder at the baseline assessment had significantly higher odds of an internalizing disorder at the 6-month assessment, relative to those without an internalizing disorder diagnosis at baseline. However, as can be seen in Table 3, the confidence intervals indicated that, while statistically significant, there was considerable

uncertainty in this parameter estimate, with the 95% confidence interval ranging from 0.10 to 50.15.

Poor Monitoring

There was no significant effect of parent x adolescent reported poor monitoring on the odds of having an internalizing disorder at 6 months ($OR = 0.34, p = 0.08, 95\% CI [.01, 1.06]$), after adjusting for all other variables in the model. There was a significant effect of gender ($OR = 0.25, p < 0.001, 95\% CI [0.11, 0.55]$), such that boys had lower odds of an internalizing diagnosis than girls. Similar to the findings for the inconsistent discipline outcome, for the poor monitoring outcome, there was again a significant effect of baseline internalizing disorder ($OR = 12.70, p < 0.001, 95\% CI [4.11, 47.11]$), such that adolescents with a diagnosis of an internalizing disorder at the baseline assessment had significantly higher odds of an internalizing disorder at the 6-month assessment (compared to those students without a diagnosis at baseline).

Positive Parenting

There was no significant effect of parent x adolescent reported positive parenting on the odds of having an internalizing disorder at 6 months ($OR = 1.36, p = 0.61, 95\% CI [0.40, 4.59]$), after accounting for all other variables in the model. There was a significant effect of having baseline internalizing disorder ($OR = 11.27, p < 0.001, 95\% CI [3.82, 38.998]$), such that the odds of having an internalizing disorder at 6 months was significantly greater for those with a baseline internalizing disorder. As can be seen in Table 3, the confidence intervals indicated that, although statistically significant, there is considerable uncertainty in the estimate. There was also a significant effect of gender ($OR = 0.25, p < 0.001, 95\% CI [0.11, 0.54]$), such that boys were significantly less likely to have an internalizing disorder than girls.

Table 1 Demographic information of the final analytic sample

	Adolescent (N=172)	Parent (N=172)
	n (%)	n (%)
Gender _{boys} ^m	89 (51.74)	155 (90.12)
Ethnicity ^m		
White	132 (76.74)	153 (88.95)
Hispanic	14 (8.14)	7 (4.07)
Asian	6 (3.49)	2 (1.16)
Native American	4 (2.32)	3 (1.74)
Black	15 (8.72)	7 (4.07)
Other	1 (0.58)	0 (0)
Age ^a	16.22 (1.00) ^a	
Internalizing disorder ^m		
Baseline	137 (79.65)	
6 month	101 (58.72)	
Baseline AUD ^m	108 (62.79)	
MH services ^m	153 (88.95)	
RHS enrollment ^m	91 (52.91)	
Parent education ^m		
< High school		3 (1.74)
High school graduate		16 (9.30)
GED		0 (0)
Some college		41 (23.84)
Some vo-tech		4 (2.33)
2-year degree		16 (9.30)
Vo-tech cert/degree		8 (4.65)
4-year degree		54 (31.40)
Prof/Graduate degree		30 (17.44)
Family history of AOD ^m		145 (84.30)
Parent MH history ^m		106 (61.63)

Note. ^aAdolescent age is reported as the mean and standard deviation (M [SD]). ^mDenotes variables that are in the polynomial regression equations. Parent mental health refers to whether a biological parent had a history of mental illness, = parent report, RHS enrollment refers to whether the adolescent was enrolled in an RHS for at least 28 days at time of 6 month assessment, MH services refers to whether adolescent received mental health services at any time, AUD = alcohol use disorder at baseline (abuse or dependence), AOD = alcohol or drug use problem, vo-tech = vocational or technical training, cert = certification, prof = professional degree (including masters or doctoral degrees).

Table 2 Adolescent and parent reports of the APQ and correlations of reports

	Parent Report <i>M (SD)</i>	Adolescent Report <i>M (SD)</i>	Association between parent and adolescent reports		
			<i>r</i>	<i>p</i>	95% CI
Positive Parenting	3.91 (0.55)	3.33 (0.79)	0.11	0.16	-0.04–0.25
Poor Monitoring	2.52 (0.65)	2.82 (0.64)	0.26	< 0.001	0.12–0.40
Inconsistent Discipline	2.70 (0.75)	3.01 (0.81)	0.38	< 0.001	0.24–0.50

Note. Although the APQ and PAPQ values were mean-centered in the polynomial regression equations, the means (*M*) and standard deviations (*SD*) in this table represent non-centered values, or the raw means and standard deviations.

Table 3 Model parameter estimates of predictor variables in polynomial regression equations

Parameter	Inconsistent Discipline			Poor Monitoring			Positive Parenting		
	<i>B</i>	<i>SE</i>	OR (95% CI)	<i>B</i>	<i>SE</i>	OR (95% CI)	<i>B</i>	<i>SE</i>	OR (95% CI)
Intercept	-1.42	1.71	0.24 (0.01-9.64)	-1.86	1.81	0.16 (0.004-7.23)	-1.77	1.77	0.19 (0.01-8.20)
Adolescent report	0.26	0.28	1.30 (0.76-2.26)	0.37	0.34	1.45 (0.75-2.90)	-0.32	0.26	0.73 (0.44-1.20)
Parent report	0.57	0.31	1.77 (0.98-3.30)	0.02	0.34	1.02 (0.52-2.00)	-0.05	0.40	0.95 (0.43-2.05)
Adolescent ²	2.55	3.13	0.03 (0.03-7776.7)	2.91	3.11	18.31 (0.06-122235.1)	-0.59	2.57	0.55 (0.00-1.96)
Parent ²	-1.80	3.10	0.00 (0.00-65.15)	2.80	2.78	16.44 (0.08-4811.1)	2.58	3.26	13.17 (0.05-12930.2)
Parent x Adolescent	-0.01	0.43	0.98 (0.42-2.36)	-1.07	0.61	0.34 (0.01-1.06)	0.31	0.61	1.36 (0.40-4.59)
Gender _{boys}	-1.48**	0.42	0.23 (0.097-0.51)	-1.37**	0.40	0.25 (0.11-0.55)	-1.38**	0.40	0.25 (0.11-0.54)
Baseline internalizing	2.61**	0.62	13.61(4.38-50.15)	2.54**	0.62	12.70 (4.11-47.11)	2.42**	0.59	11.27 (3.82-3.90)
Baseline AUD	-0.38	0.46	0.68 (0.27-1.64)	-0.33	0.47	0.72 (0.28-1.76)	-0.20	0.45	0.82 (0.33-1.96)
Parent mental health	-0.11	0.43	0.898 (0.38-2.08)	0.05	0.43	1.05 (0.45-2.40)	0.05	0.42	1.06 (0.46-2.39)
RHS enrollment	0.34	0.41	1.40 (0.63-3.14)	0.14	0.41	1.15 (0.51-2.57)	0.29	0.40	1.34 (0.61-2.97)
MH services	0.37	0.65	1.44 (0.40-5.37)	0.54	0.69	1.72 (0.44-6.95)	0.47	0.67	1.60 (0.43-6.18)
Ethnicity									
Hispanic	0.60	0.82	1.83 (0.39-10.34)	0.81	0.84	2.25 (0.47-13.60)	0.88	0.82	2.40 (0.51-13.64)
Asian	-0.07	1.07	9.36 (0.12-8.93)	-0.81	1.03	0.45 (0.06-4.05)	-0.26	0.98	0.77 (0.12-6.60)
Native American	1.19	1.48	3.28 (0.23-107.89)	0.41	1.27	1.51 (0.14-34.71)	-0.09	1.37	0.92 (0.07-23.33)
Black	-0.16	0.70	8.56 (0.22-3.63)	0.30	0.70	1.35 (0.35-5.81)	0.10	0.69	1.11 (0.30-4.60)
Other	13.29	882.7	5.91 (NA)	13.74	882.7	928930.4 (NA)	13.46	882.7	6.98 (NA)
Parent education									
High school graduate	1.26	1.74	3.53 (0.08-107.37)	1.46	1.80	4.30 (0.01-145.38)	1.23	1.77	3.41 (0.08-107.27)
Some college	0.29	1.64	1.34 (0.04-32.05)	0.71	1.71	2.04 (0.05-56.87)	0.34	1.67	1.41 (0.04-36.40)
Some vo-tech	2.06	2.26	7.82 (0.09-883.34)	2.03	2.25	7.60 (0.08-795.47)	1.64	2.34	5.13 (0.05-632.76)
2-year degree	0.01	1.70	1.02 (0.03-28.27)	0.31	1.75	1.37 (0.03- 41.97)	-0.02	1.72	0.10 (0.02-27.71)
Vo-tech cert/degree	-0.91	1.89	0.40 (0.00-16.21)	-0.54	1.90	0.59 (0.01-23.59)	-0.72	1.89	0.49 (0.01-19.07)
4-year degree	0.18	1.67	1.20 (0.03-30.61)	0.71	1.72	2.03 (0.05- 57.86)	0.33	1.69	1.39 (0.03-36.53)
Prof/Graduate degree	-0.11	1.70	0.90 (0.02-24.71)	0.21	1.76	1.23 (0.03-37.70)	-0.05	1.73	0.96 (0.02-27.71)

Note. Parent mental health refers to whether a biological parent had a history of mental illness, = parent report, RHS enrollment refers to whether the adolescent was enrolled in an RHS for at least 28 days at time of 6 month assessment, MH services refers to whether adolescent received mental health services at any time, AUD = alcohol use disorder at baseline (abuse or dependence), vo-tech = vocational or technical training, cert = certification, prof = professional degree; Gender reference group = girls; AUD reference group = “no AUD”; Ethnicity reference group = “White”; Parent education reference group = “less than high school”; mental health services reference group = “no”; parent mental illness reference group = “no”; RHS enrollment reference group = “no”; significance: **p < 0.001.

Discussion

The purpose of this study was to test whether discrepancies in parents' and adolescents' baseline reports of parenting practices predict an internalizing disorder diagnosis among adolescents at a 6-month follow-up. Specifically, this study assessed discrepancies in reports of poor parental monitoring, inconsistent discipline, and positive parenting practices using three separate polynomial logistic regression models. The results suggest that discrepancies in parents' and adolescents' reports of parenting did not predict adolescent internalizing outcomes at the 6-month follow-up in this sample of adolescents with histories of SUDs. In other words, the parent x adolescent interaction term, the key discrepancy term, was not significantly associated with the odds of adolescents having an internalizing disorder, even after controlling for several key demographic factors. The results did indicate that the presence of a baseline internalizing disorder was predictive of having an internalizing disorder 6 months later. This finding is not surprising, however, given the persistence of internalizing disorders across development (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Kessler et al., 2012). Gender was also a significant predictor of adolescents' internalizing outcomes, such that girls exhibited higher odds of having an internalizing disorder at the 6 month follow-up compared to boys. This finding is consistent with previous research that shows significantly higher rates of internalizing disorders among adolescent girls than boys (Costello et al., 2003; Kessler et al., 2012). The results from this study also indicated statistically significant and positive correlations between parents' and adolescent reports of parental monitoring and inconsistent discipline, which is consistent with prior findings in the multiple assessment literature (Achenbach et al., 1987).

Overall, however, there was no evidence that discrepancies were predictive of internalizing outcomes in this sample. There are several plausible explanations for these findings. First, the relationship between adolescent SUDs and internalizing disorders is complex, whereby

the temporality of risk is still unclear, especially among clinical populations (O'Neil et al., 2011). In their review, O'Neil et al. (2011) found evidence for internalizing disorders being a risk factor preceding later substance use, as well as vice versa. It is plausible that additional confounding variables unaccounted for in the statistical models used in the current study may be affecting internalizing outcomes and therefore masking potential relationship of interest. Given the history and severity of SUDs among this particular adolescent sample, future research should seek to better understand the specific risk and protective factors associated with co-occurring SUDs and other psychiatric disorders, particularly internalizing disorders.

Second, considering the complexity of co-occurring adolescent SUDs and internalizing disorders, it may also be the case that the parenting dimensions assessed in the APQ are not significantly associated with internalizing psychopathology nor attuned to predict these intricacies. While several APQ items capture dimensions of parenting (e.g., parental warmth and monitoring) that have been shown to be associated with internalizing symptoms in adolescents (e.g., Pinquart, 2017), the APQ was initially developed to assess those parenting practices most closely related to youth disruptive behavior problems (Frick, 1991; Shelton et al., 1996). Internalizing disorders may also be more difficult to predict with a tool like the APQ from another informant's perspective (i.e., a parent's) given the heterogeneity in presentation of youth internalizing disorders (Caron & Rutter, 1991). These discrepant ratings represent the key issue in clinical assessments, spanning assessment measures and methods (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005).

Additionally, the APQ was developed in 1991 and thus, may not reflect modern parent-adolescent relationships. For example, given increases in media use among contemporary youth, parental monitoring is now more commonly occurring among online platforms versus in-person interactions (Gentile, Reimer, Nathanson, Walsh, & Eisenmann, 2014). Further, adolescents

(compared to younger children) are likely spending more time with peers, as well as establishing their own private spheres (i.e., independent activities of adolescents as a means of developing privacy and deliberately limiting information disclosure to suppress parental control; Masche, 2010), both of which contribute to normative declines in parental monitoring. Based on this premise of increasing adolescent independence, the parenting constructs in the APQ may not be appropriately assessing parenting practices that are most associated with adolescent behaviors, especially given the added facet of increasing media use among adolescents. Future research in this area may therefore benefit from studying the utility of a more comprehensive parenting assessment tool to capture modern factors that may impact parenting practices and parent-adolescent relationships.

Finally, the sample in this study represents a high risk population of adolescents given their past history of SUDs. There may be unexplained factors impacting the parent-adolescent relationship that were not accounted for in my models, nor assessed appropriately in the APQ that are specific to youth with histories of SUDs. Although recent research has shown that SUDs and internalizing disorders among adolescents are highly comorbid and may share common risk factors, including familial factors (O'Neil et al., 2011), this topic requires further exploration in order to gain a better understanding of the potential impacts that adolescent substance use may have on the parent-adolescent relationship. Thus, it is important to study factors of parenting such as monitoring, support, involvement, and parent-adolescent relationship quality, as these have been found to be associated with substance use during adolescence (Yap et al., 2017), as well as internalizing disorders specifically (Pinquart, 2017).

It is important to interpret these results in light of both the strengths and weaknesses of the present study. To my knowledge, this is the first study to date that has examined associations between discrepancies in parent-adolescent reports of the APQ and internalizing disorders

among a sample of youth with a history of SUDs. One limitation of the present study was the use of a discrete internalizing outcome measure, reported at the level of the disorder (i.e., a diagnosis of an internalizing disorder) and not at the symptom level. This measurement choice decreased the variability of the internalizing outcome, and thus, only captured adolescents with clinical diagnoses. This primary outcome was selected given the high prevalence of mental illness and clinical presentation of this particular sample, but nonetheless may have masked variation in effects among subclinical levels of internalizing problems. Future research should seek to study these discrepancies with outcomes reported at the symptom level – using a continuous outcome measure may provide a more holistic view of effects on adolescents’ internalizing symptoms and problems. A second limitation of the current study was the small sample size – due to attrition and sample loss associated with listwise deletion of data, the final analytic sample size may have been underpowered to detect the effects of interest. Finally, it is again important to note potential limitations with the measurement of the internalizing problems and parenting measures. It is possible that a more comprehensive parenting assessment reflective of modern parenting practices with a consistent theoretical basis may be better in assessing adolescent internalizing outcomes. Given the heterogeneity in parenting dimensions and practices assessed in previous studies (e.g., Pinquart, 2017), future research may benefit from testing the predictive and construct validity of this and other parenting assessments among other high-risk samples, for instance those with co-occurring mental illnesses. Taken together, future research should attempt to replicate these findings with a larger sample size, more appropriate measures of parenting, internalizing outcomes reported at the symptom level, and among adolescents without a history of SUDs.

Despite these limitations, this research has important implications for understanding factors associated with adolescent mental health outcomes, including substance use and

parenting. Internalizing disorders are highly prevalent and persistent among adolescents (e.g., Costello et al., 2003; Kessler et al., 2012), posing significant risk for maladaptive and negative outcomes in adulthood without effective intervention or treatment. There are many ways to study and assess parenting in relation to adolescent mental health, and informant discrepancies may serve as one such method. However, it is critical to explore the topic of informant discrepancies further, as it is necessary to first clarify the risk relations between adolescent SUDs and internalizing disorders. These topics warrant further exploration to better understand the research and clinical implications of collecting multi-informant reports and the predictive utility of informant discrepancies, as well as the risk relations and co-occurrence between adolescent SUDs and internalizing disorders.

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