Personality and Individual Differences 82 (2015) 131–135

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Agreement of adolescent ratings with mother ratings and teacher ratings of ADHD symptom groups: A correlated trait-correlated method minus one analysis

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ARTICLE INFO

Article history:
Received 30 December 2014
Received in revised form 5 February 2015
Accepted 11 February 2015
Available online 23 March 2015

Keywords:
ADHD
Adolescent–mother agreement
Adolescent–teacher agreement
Correlated trait-correlated method minus one model

ABSTRACT

This study examined the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher ratings of the inattention (IA) and hyperactivity/impulsivity (HI) symptom groups of ADHD. A total of 214 adolescents provided self-ratings of IA and HI, and their IA and HI were also rated by their mothers and teachers. The correlated trait-correlated method minus one model was applied, with adolescent ratings as the reference method, and the other two ratings as the non-reference methods. The findings indicated no additional variance in adolescent ratings for IA and HI that could not be accounted by mother ratings of IA and HI, respectively. In contrast, there was additional variance in adolescent ratings for IA and HI that could was not accounted by teacher ratings of IA and HI, respectively. The findings suggest that when diagnosing ADHD in adolescents, their reports of their own ADHD behaviors are not needed when mother reports of such behaviors are used.

1. Introduction

For the diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD), the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, APA, 2013) and the earlier edition (DSM-IV, APA, 1994) have the same list of inattention (IA) and hyperactivity/impulsivity (HI) groups of symptoms. Current practice guidelines for ADHD have proposed that for its diagnosis in children and adolescents, information about their ADHD behaviors be obtained from multiple informants, with their parents and teachers being the primary informants (e.g., American Academy of Child and Adolescent Psychiatry, 2007), and that when adolescents are the target of diagnosis, adolescent self-reports be also considered.

A number of studies have reported correlations for adolescent and parent ratings (Hartung, McCarthy, Milich, & Martin, 2005; Kaner, 2011; Konard & Glutting, 2008; Wan Ismail, Baharudin, Nik Jaafar, Midin, and Abdul Rahman, 2013), and adolescent and teacher ratings (Kaner, 2011; Wan Ismail et al., 2013) for total observed IA and HI scores. In general, the findings have indicated moderate to low agreement for IA and low agreement for HI between adolescent and parent ratings, and low or no agreement for IA and low agreement for HI for teacher ratings. For example, the correlations for adolescent and parent ratings for IA were .54 in the Karner study, and .28 in the Wan Ismail et al. study. The correlations for HI were .38 and .28, respectively. The correlations for adolescent and teacher ratings for IA were .14 in the Karner study, and .01 in the Ismail et al. study. They were .13 and .30, respectively, for HI. These findings suggest that much of the variance in adolescent ratings of their ADHD behaviors do not overlap with the ratings of these behaviors provided by their parents and teachers. This interpretation supports the view that that adolescent self-reports of their ADHD behaviors provide additional information that are not reported by their parents or teachers, and are therefore useful when they are examined for ADHD diagnosis.

Despite existing findings of low or moderate adolescent and parent agreement, and low or no adolescent and teacher agreement for ADHD behaviors, it is argued that these findings lack credibility. This is because past findings have all been from studies that have used observed scores that include effects (variances) from at least three components: trait, method, and random measurement error (Lord & Novick, 1968). Trait effect is the variance for the construct (e.g., IA and HI) being measured by an assessment method (e.g., an ADHD rating scale). Method effect is all systematic variance specific to the method used to collect the information on

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http://dx.doi.org/10.1016/j.paid.2015.02.015
0191-8869/

the construct, including ratings from different sources (e.g., mother, teacher and adolescents) using the same ratings scale (i.e., all sources completing the same rating scale). Random measurement effect includes all other variance and is unrelated to method or trait effects. Both method and random measurement effects are problematic because these effects distort the relations among the trait constructs under investigation, with method effects leading to either systematic increase or decrease in the relation between the traits (Campbell & Fiske, 1959). Consequently, it can lead to misleading findings and conclusions. Given this, it can be argued that the findings from past studies in this area that have used observed scores would potentially be unreliable. Reliable findings need to partial method and random error effects from the observed scores.

A method that partials method and random error effects from observed scores that is appropriate for examining the level of agreement between different respondents is the correlated trait-correlated method minus one [CT-C($M-1$)] model (Eid, Lischetzke, Nussbeck, & Trierweiler, 2003). This model, developed primarily for evaluation of the construct validity of a measure within a multi-trait by multi-method framework, is a confirmatory factor analysis (CFA) model that involves two or more traits measured by two or more methods. Figure 1 shows a conceptual representation of the CT-C($M-1$) model that can be applied to examine the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher ratings for IA and HI. As shown, the total observed scores for IA and HI for adolescent, mother and teacher ratings are used as indicators in the model. IA and HI scores for adolescent ratings are loaded only on the appropriate trait factors (IA and HI, respectively). In contrast, mother and teacher ratings for IA and HI are loaded on the appropriate trait factors (IA and HI, respectively) as well as the appropriate method factors (mother and teacher ratings). These make adolescent ratings the reference method, and mother and teacher ratings the non-reference methods. The trait factors for IA and HI are correlated with each other, and the mother and teacher method factors are correlated with each other. The method and traits factors are not correlates with each other. In the CT-C($M-1$) model, the true score (variance of the observed score without error variance) of the reference method (adolescent ratings in this case) is used to predict the true scores in the non-reference methods (mother ratings and teacher ratings in this case). As the reference method or adolescent ratings in this case does not have a method factor, what this means is that the amount of variance predicted in mother or teacher ratings for IA and HI are the amount of true score variance in them that are shared with the reference or adolescent ratings of IA and HI, respectively. The residuals (i.e., variance not shared) for each of the indicators in the prediction constitute their own method variance. The method variance for mother IA and HI form the mother method factor, and the method variance for teacher IA and HI form the teacher method factor. In an actual application, higher trait factor loadings for the indicators of the non-reference methods can be interpreted as higher level of agreement of these indicators with the corresponding indicators of the reference method. Thus if there are higher trait factor loadings for mother IA and HI, and teacher IA and HI it would indicate stronger agreements of mother and teacher ratings of IA and HI with adolescent ratings of IA and HI. The reverse is the case when loadings are low.

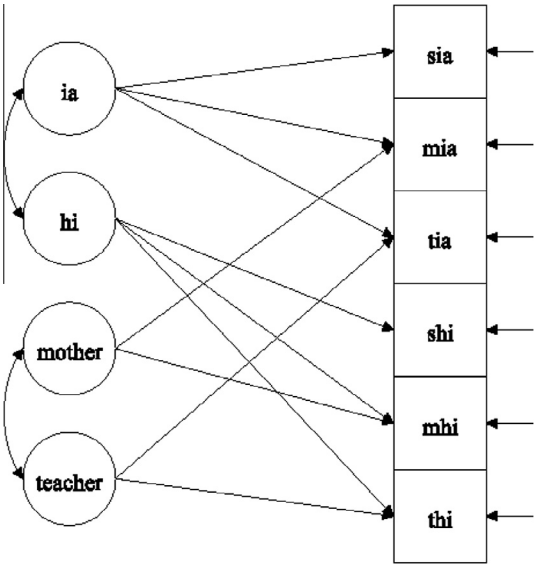

Fig. 1. Path diagram of the CT-C($M-1$) model used in the study.

So far no study has examined the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher ratings for IA and HI, taking into account method and random error effects. Given this omission, the major aim of the current study was to use the CT-C($M-1$) model to examine the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher rating for IA and HI. An additional aim of the study was to examine the relationships of the trait factors (IA and HI) and method factors (mother and teacher) in the CT-C($M-1$) model with the age and sex of adolescents. Based on existing correlation findings involving observed scores, moderate (for IA) to low (for HI) agreement for adolescent and mother ratings, and, at best, low agreement for adolescent and teacher ratings for both IA and HI were expected.

2. Method

2.1. Participants

The sample comprised 214 adolescents (103 males and 111 females), between 12 and 17 years, with a mean (*SD*) age of 13.82 (1.30) years. The mean age of male ($M = 13.90$, $SD = 1.35$) and female ($M = 13.74$, $SD = 1.24$) adolescents did not differ significantly, $t\ (212) = 0.88$, *ns*. The adolescents were from 14 secondary schools, which constituted half the total number of school selected randomly to participate. Although details are not provided (due to word limitation), the overall mean occupational level indicated "middle-class", and there was close match in ethnicity between the Australian general population and the group involved in the study. We had no other background information on either the mothers or teachers who completed the ratings on these adolescents.

2.2. Measure

Mother and teacher ratings for the ADHD symptoms were obtained using the Disruptive Behavior Rating Scale (DBRS; Barkley & Murphy, 1998). The DBRS includes the DSM-IV and thus the DSM-5 ADHD IA and HI symptoms. For adolescents, the DBRS was revised to make it amenable to self-rating. All version required respondents to circle the number that best the TADH symptoms over the past 6 months on a 4-point scale (0 = "never or rarely", 1 = "sometimes", 2 = "often", and 3 = "very often"). The internal consistency (Cronbach's alpha) values for the adolescent, mother and teacher ratings for the IA scale of the DBRS in this study were .84, .93 and .96, respectively. The values for the HI scale of the DBRS were .79, .90 and .93, respectively.

2.3. Procedure

The research was approved by Human Ethics Research Committee of the University of Ballarat (Australia), which adheres to the ethical standards and guidelines of the (Australian) National Medical Research Council.

Stratified random sampling was used to select schools for participation in the study. The population was divided into nine groups, corresponding to the nine regions of the State of Victoria, Australia. A total of 28 randomly selected secondary schools from the nine regions were contacted. In all, 14 schools consented to participate.

Following consent from directors of education and school principals, classroom teachers were issued the appropriate numbers of large sealed envelopes to be forwarded to the mothers. Each envelope, forwarded to mothers through adolescents targeted for the study, contained two sets of documents plus questionnaires, and a return envelope. One set was for the mother and the other set was for the adolescent targeted for the study. Each set comprised a letter describing the study, the parent version of the DBRS (for mothers) and the adolescent version of the DBRS (for adolescents), and a number of other questionnaires (not the focus of the current study). It also included a parent and adolescent consent forms for permission to have the adolescent's teacher complete the same set of questionnaires. The letters describing the study stressed the importance of completing one's own questionnaires independently, and mentioned that this was essential for the success of the study. To minimize bias in ratings, the letters to mothers and adolescents indicated that the study was about adolescent behaviors, and the questionnaires were not identified by name.

In all, about 52% or a total of 363 of the questionnaires distributed to mothers and adolescents were returned with completed scores for the DBRS, and consent for teachers to also complete the questionnaires. Of these, teachers rated about 59% of the adolescents, resulting in 214 ratings with complete (usable) sets of adolescent, mother and teacher ratings. These return rates are comparable to another study that has also collect parent and teacher ratings of ADHD symptoms (Gomez, Burns, Walsh, & Moura, 2003). Only these 214 ratings were included in the analyses. Mother, adolescent and teacher ratings were obtained within 1 month of each other. Teachers had been interacting with the adolescents for a minimum of 3 months prior to the ratings. For the 149 adolescents who were not rated by their teachers, there were 77 males and 72 females, and their overall mean age was 13.80 years (SD = 1.27). There was no difference between these 149 adolescents and the 214 adolescents who were included in this study for sex distribution, χ^2 (df = 1) = 0.50, p = ns, and age, t (361) = 0.15, ns.

2.4. Statistical procedures

All CFA models in the study were analyzed using M*plus* (Version 7) (Muthen & Muthen, 2012). Robust maximum likelihood was used for estimation. For the CT-C($M-1$) model (Fig. 1), the comparability of the adolescent and mother ratings for IA and HI, and adolescent and teacher ratings for IA and HI in the CT-C($M-1$) model was examined statistically. For each pair of comparison, the trait factor loading (IA or HI) of the non-reference method was set equal to the same trait factor loading for adolescent (the reference method), and the fit of this revised model was compared to the original CT-C($M-1$) model. Difference between these models was taken as indicative of non-equivalency in the relevant trait factor loadings. In contrast, no difference between these models was taken as indicative of equivalency in the relevant trait factor (IA or HI) loadings.

Figure 2 shows the path diagram for the analysis that examined the predictions of IA and HI trait factors, and mother and teacher method factors by age and sex. As shown, for this analysis, the CT-C($M-1$) model was extended to include age and sex, and all the trait and method factors were regressed on age and sex.

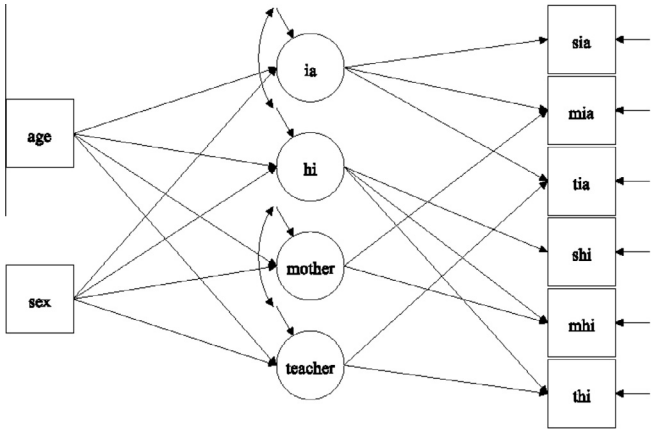

Fig. 2. Path diagrams of the extended CT-C($M-1$) model used to predict the trait and method factors by age and sex.

3. Results

The fit values for the CT-C($M-1$) model were Satorra–Bentler χ^2 (S–Bχ^2) = 4.0, df = 3, ns; comparative fit index (CFI) = 1.00; and root mean squared error of approximation (RMSEA) = .04. These values indicate excellent model fit, based on currently accepted guidelines (non-significant χ^2, CFI > .95, and RMSEA < 0.06; Hu & Bentler, 1998). Table 1 shows the completely standardized factor loadings for IA and HI trait factors. Although all the trait loadings were salient (>.30), for the non-reference method, the loadings were substantially more for mother ratings than teacher ratings for both IA and HI. This means there was more shared variance between adolescent and mother ratings for both IA and HI (55% and 52%, respectively) than adolescent and teacher ratings for IA and HI (19% and 14%, respectively).

Table 2 shows that results of the series of analyses that tested the significance of the associations for adolescent and mother ratings of IA, adolescent and teacher ratings of IA, adolescent and mother ratings of HI, and adolescent and teacher ratings of HI in the CT-C($M-1$) model. As shown, there was no difference between the original and revised CT-C($M-1$) models in which mother ratings for IA was set equal to adolescent ratings of IA, and mother ratings for HI was set equal adolescent ratings of HI. These findings indicate that there was no additional variance in adolescent ratings for IA and HI that could not be accounted by mother ratings of IA and HI. Table 2 shows that were statistical

Table 1
Mean and SD of model indicators, actor loadings and variance components in the CT-C($M-1$) model.

Rating	Descriptive		Loading		Variance	
	Mean	*SD*	Trait	Method	Trait	Method
Inattention (IA)						
Adolescent	5.53	4.02	.88	–	.78	–
Mother	6.53	5.79	.74	.50	.55	.25
Teacher	5.68	6.40	.44	.75	.19	.56
Hyperactivity/impulsivity (HI)						
Adolescent	6.66	4.58	.91	–	.83	–
Mother	4.87	5.44	.72	.54	.52	.29
Teacher	3.20	4.87	.37	.73	.14	.54

Note. All loadings significant, p < .001. Correlations between AI and HI factors = .80, p < .001; and mother and teacher method factors = .52, p < .001.

Table 2
Results of tests for evaluating nonequivalent factor loadings for the IA and HI trait factors.

Models tested	Model fit				ΔModel[a]	
	S–Bχ^2	*df*	RMSEA	CFI	*df*	S–Bχ^2
Baseline CT-C($M-1$) model	4.00	3	.04	1.00	–	–
Baseline with AIA & PIA loadings equal	5.74	4	.04	1.00	1	1.64
Baseline with AIA & TIA loadings equal	7.91	4	.06	.99	1	3.87*
Baseline with AHI & PHI loadings equal	4.30	4	.02	1.00	1	0.44
Baseline with AHI & THI loadings equal	23.14***	4	.16	.95	1	13.01***

Note: S–Bχ^2 = Satorra–Bentler χ^2: RMSEA = root mean square error of approximation; CFI = comparative fit index; AIA = adolescent total inattention; AHI = adolescent total hyperactivity/impulsivity; MIA = mother total inattention; MHI = mother total hyperactivity/impulsivity; TIA = teacher total inattention; AHI = teacher total hyperactivity/impulsivity.

[a] All models were compared with the original CT-C($M-1$) model.

*** $p < .001$.

* $p < .05$.

differences between the original and revised CT-C($M-1$) models in which teacher ratings for IA was set equal to adolescent ratings of IA, and teacher ratings for HI was set equal adolescent ratings of HI. These findings indicate that there was additional variance in adolescent ratings for IA and HI that could not be accounted by mother ratings of IA and HI.

Table 3 shows the results of the analysis in which the age and sex of adolescents predicted the IA and HI trait factors, and mother and teacher method factors in the CT-C($M-1$) model. As shown, IA and HI were not predicted by either age or sex. Age predicted the method factor for teacher negatively, and sex predicted the method factors for mother and teacher negatively. As male was code 2 and female was coded 1, the later finding indicate that being female was associated with lower mother and teacher method factor scores.

4. Discussion

The major aim of the current study was to examine the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher rating for IA and HI, taking into account method and error effects. The CT-C($M-1$) model, with adolescent ratings as the reference method and mother and teacher ratings as the non-reference methods was applied to achieve this goal. The findings indicated substantial more shared variance for adolescent and mother ratings (55% and 52% for IA and HI, respectively) than adolescent and teacher ratings (19% and 14% for IA and HI, respectively). Also, there was no additional variance in adolescent ratings for IA and HI that could not be accounted by mother ratings of IA and HI, respectively. In contrast, there was additional variance in adolescent ratings for IA and HI that could was not accounted by teacher ratings of IA and HI, respectively. Overall, the findings can be interpreted as indicating full agreement between adolescent and mother ratings for IA and HI, and no agreement between adolescent and teacher ratings for IA and HI. As we used a community sample, it unlikely that the findings in the study were confounded systematically by specific external factors, such as cognitive impairment of adolescents or maternal psychopathology, that can confound findings.

Table 3
Standardized path coefficients (standard errors) for the predictions of trait and method factors in the CT-C($M-1$) by age and sex.

	Trait		Method	
	IA	HI	Mother	Teacher
Age	0.05	−0.00 (.07)	−0.09 (.07)	−0.13 (.06)*
Sex	−0.10 (.08)	0.03 (.07)	−0.17 (.08)*	−0.32 (.07)***

IA = inattention; HI = hyperactivity/impulsivity.

*** $p < .001$.

* $p < .05$.

In relation to adolescent and teacher agreement, the findings in the current study concur with past studies (Wan Ismail et al., 2013; Kaner, 2011) as past studies have also show low agreement between these respondents for IA and HI. The finding here for complete agreement between adolescent and mother ratings is however inconsistent with the results of previous studies as they have reported moderate (for IA) to low (for HI) agreement between adolescent and parent ratings (Hartung et al., 2005; Wan Ismail et al., 2013; Kaner, 2011; Konard & Glutting, 2008). As past studies used observed scores that include method and random measurement variance that can confound findings, and the current study controlled for these effects, the findings in the current study are likely to be more accurate. This means that adolescent ratings of their own ADHD behaviors do not provide additional information then that provided about their ADHD behaviors by their mothers.

The findings in the study also showed that being younger was associated with higher scores in the teacher method factor, and being male was associated with higher scores in the mother and teacher method factors. Keeping in mind that the method factors for mothers and teachers in the CT-C($M-1$) model represent the true scores for IA and HI in their ratings that is not predicted by the corresponding true scores in the reference method, these findings can be interpreted to mean that there will be more discrepancies for ADHD ratings between younger adolescent and their teachers than older adolescents and their teachers; and between male adolescents and their mothers and teachers than female adolescents and their mothers and teachers.

The findings in this study have implications for adolescent self-reports of ADHD behaviors when they are the target of diagnosis. As our findings showed that there was additional variance in adolescent ratings for IA and HI that could was not accounted by teacher ratings of IA and HI, it follows that adolescent self-reports of their ADHD behaviors would be useful for diagnosis if the only other respondent is a teacher. This is especially so for younger adolescents and male adolescents as the study found more discrepancy between adolescent and teacher reports in younger than older adolescents and in male adolescents than female adolescents. The findings in the study showed no additional variance in adolescent ratings for IA and HI that could not be accounted by mother ratings of IA and HI. Thus it can be argued that when mother reports of the adolescent's ADHD behaviors are available, then adolescent self-reports of their ADHD behaviors may not be needed for diagnosis. Thus in terms of ascertaining if the ADHD symptoms presented by adolescents are present in different settings, a requirement for ADHD diagnosis (DSM-5, APA, 2013), it could be argued that only parent and teacher ratings would be sufficient. This may be especially so for female adolescents, as the study found even less discrepancy between adolescent and mother reports in girls than boys.

The findings in the study also have implications for a better understand of the situational specificity hypothesis of ADHD (Gomez et al., 2003; Wolraich et al., 2004). This hypothesis suggests that the poor agreement between different respondents reflects actual differences in ADHD behaviors in different settings, such as parents observing home behaviors, and teachers observing school behaviors. If so, when the findings here for high agreement for adolescent and mother ratings, and low agreement for adolescent and teacher ratings are considered together, they can be interpreted to suggest that when adolescents are asked to describe their

ADHD behaviors, their responses are focused far more on home than school behaviors. This means that if a clinician wishes to obtain information about an adolescent's ADHD behaviors at school, than it would be necessary to ask questions specific to this setting.

The study has a number of limitations. First, approximately 48% of mothers and adolescents invited to participate in the study did not participate. As ethics approval for this study did not permit collection of information about individuals prior to inviting them to participate, there was no information about those who did not participate, and therefore how this impacted the results. Also, 32% of adolescents with self-ratings and mother ratings were not rated by their teachers. However there was no difference between those rated and not rated by teachers for sex distribution and age. Second, as the targets of ratings in this study were adolescents from the general community with normative levels of ADHD, it is uncertain how the findings apply to adolescents referred to clinics for ADHD problems. It is however suspected that the study findings would apply to such adolescents as there are data showing that adolescent reports identify very few, if any, additional adolescents with ADHD on top of adolescent already identified using parent reports (Smith, 2007). Third, as the study used overall scores for IA and HI, there needs to be caution when the conclusions made here are extended to symptoms. Fourth, although the DBRS used in the current study is similar to other ADHD rating scales, they are not identical. Thus it is possible that the findings of this study may not generalize to other ADHD rating scales. Fifth, as this study was based on ratings of ADHD symptoms, it is also uncertain if these findings are applicable to information on ADHD symptoms obtained through clinical interviews. If we accept that the information provided by respondents on ADHD rating scales are close approximations to that obtained by interviews, as has been proposed (Wolraich et al., 2004), then the findings in this study could be relevant for ADHD reports from clinical interview. Sixth, it is also important to note that as the CT-C($M-1$) model is asymmetrical, it is possible that different levels of agreement could emerge between mother and adolescent with mother ratings as the reference method, and teacher and adolescent with teacher ratings as this reference method. Similarly, different levels of agreement could be possible, for models with only adolescent and mother ratings, and only adolescent and teacher ratings. Also, because the CT-C($M-1$) model had mother and teacher ratings as the non-reference methods, the study was unable to test for agreement between mother and teacher rating. However, there is ample data from previous studies of low mother and teacher agreement (e.g., Gomez et al., 2003). Although all these could have been empirically explored in the current study, this was not pursued because of word limit, and more importantly, the primary goal of the study was to examine concurrently the level of agreement of adolescent ratings with mother ratings, and adolescent ratings with teacher rating for IA and HI.

In concluding, it is important to note that our findings and conclusions made for adolescent and mother ratings do not imply that adolescent ratings can replace mother ratings of ADHD. This is because the CT-C($M-1$) model is asymmetrical, and consequently, the findings here reflect only how adolescent ratings predict mother ratings, and not the reverse. Also of reverence is that between mother and adolescent reports, mother reports are likely to be more diagnostically useful as there are data showing that parent reports are more accurate and reliable that adolescent reports (Cantwell, Lewinsohn, Rohde, & Seeley, 1997).

References

American Academy of Child, and Adolescent Psychiatry. (2007). Practice parameter for the assessment and treatment of children and adolescents with attention deficit-hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 894–921.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed., text revision). Washington, DC: American Psychiatric Association.

Barkley, R. A., & Murphy, K. R. (1998). *Attention-deficit hyperactivity disorder: A clinical workbook* (2nd ed.). NY: Guilford Press.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 2*, 81–105.

Cantwell, D. P., Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1997). Correspondence between adolescent report and parent report of psychiatric diagnostic data. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 610–619.

Eid, M., Lischetzke, T., Nussbeck, F. W., & Trierweiler, L. I. (2003). Separating trait effects from trait-specific method effects in multitrait–multimethod models: A multiple-indicator CT-C(M–1) model. *Psychological Methods, 8*, 38–60.

Gomez, R., Burns, G. L., Walsh, J. A., & Moura, M. A. (2003). Trait, source and error variance in ADHD symptoms in Australian and Brazilian Children: A multitrait-multisource confirmatory factor analytic approach to the construct validity of ADHD rating scales. *Psychological Assessment, 15*, 3–16.

Hartung, C. M., McCarthy, D. M., Milich, R., & Martin, C. A. (2005). Parent-adolescent agreement on disruptive behavior symptoms: A multitrait-multimethod model. *Journal of Psychopathology and Behavioral Assessment, 27*, 159–168.

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424–453.

Kaner, S. (2011). ADHD symptoms in national samples of Turkish adolescents: self, parent, and teacher reports. *Procedia Social and Behavioural Sciences, 15*, 3342–3348.

Konard, T. R., & Glutting, J. J. (2008). ADHD and method variance: a latent variable approach applied to a nationally representative sample of college freshman. *Journal of Learning Disabilities, 41*, 405–416.

Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores. Reading.* MA: Addison-Wesley.

Muthen, L. K., & Muthen, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthen & Muthen.

Smith, S. R. (2007). Making sense of multiple informants in child and adoelscent psychopathology: a guide for clinicians. *Journal of Psychoeducational Assessment, 25*, 139–149. http://dx.doi.org/10.1177/0734282906296233.

Wan Ismail, W. S., Baharudin, A., Nik Jaafar, N. R., Midin, M., & Abdul Rahman, F. H. (2013). Attention Deficit Hyperactivity Disorder symptoms reporting in Malaysian adolescents: Do adolescents, parents and teachers agree with each other? *Asian Journal of Psychiatry, 6*, 483–487.

Wolraich, M. L., Lambert, E. W., Bickman, L., Simmons, T., Doffing, M. A., & Woricy, K. A. (2004). Assessing the impact of parent and teacher agreement on diagnosing attention deficit hyperactivity disorder. *Journal of Developmental and Behavioral Pediatrics, 25*, 41–47.