Disagreement across the parents, teachers and adolescents in reporting Attention Deficit Hyperactivity Disorder (ADHD) symptoms: what have we learned?

Authors

Wan Salwina Wan Ismail

Nik Ruzyanei Nik Jaafar

Azlin Baharudin

Correspondence

National University of Malaysia,

Jalan Yaakob Latiff,

Bandar Tun Razak,

56000 Cheras,

Kuala Lumpur.

wan@ppukm.ukm.edu.my

Abstract:

Recognizing Attention Deficit Hyperactivity Disorder (ADHD) symptoms during adolescent years maybe challenging. Multi-informant assessment has been implicated to facilitate the diagnostic process. However, disagreement across the different informants is common, creating conflicting conclusions in clinical practice. Parents, adolescents and teachers may report the ADHD symptoms from their own perspectives and even biases. Several other factors such as the nature of the symptoms, the different settings where behavior is observed, differing cultural values among the informants, the informants' education and stress levels, contribute to their reporting of the ADHD symptoms. It is important for clinicians to understand why disagreement occurs rather than disregard the differences as insignificant. Each informant provides unique information and contributes significantly to a comprehensive overview of the clinical features. This paper reviews disagreement across the informants in reporting ADHD symptoms in adolescents, explores various factors contributing to the disagreement, and discusses strategies to harmonize information from the different informants namely the parents, teachers and adolescents themselves.

Key words: ADHD reporting, adolescent, informants, disagreement

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is among the commonest childhood disorders seen in clinical practice. It is a neuropsychiatric disorder characterized by symptoms of inattention, hyperactivity and impulsivity[1], as well as deficits in executive functioning[2]. Given the behavioral nature of the symptoms, clinical diagnosis is a challenge in differentiating the normally boisterous children from those with hyperactivity and impulsivity.

ADHD in adolescents presents a different challenge from the younger age group given the complexity of its clinical presentation at this phase. During adolescence, comorbid conditions are more common and may disguise the symptoms of ADHD[3-4]. Symptoms of inattention, which are the common features seen in adolescents[3], are not readily observable compared to the symptoms of hyperactivity usually seen in younger children. Adolescents who have ADHD are emotionally immature and their expression of emotions could be exaggerated. On the other hand, they may also suffer in silence. Either way, these difficulties arise from their inability to cope with the increased cognitive demand and social expectations[5] during adolescence. Although adolescents are capable of reporting their own symptoms, it is a common practice to get information from other informants such as their parents and teachers for a more comprehensive overview and reliable diagnosis. The DSM-5 diagnostic criteria for ADHD requires that symptoms must exist in at least two different settings, hence the need to gather information from the different informants[6].

However, the drawback is the low to moderate agreement amongst the multiple informants which had been reported for a long time. Previous studies showed poor agreement across the different sources of informants in reporting ADHD symptoms[7-14]. More recent studies continued to report discrepancies among the parents, teachers and adolescents in reporting ADHD symptoms[15-23] regardless of the rating scales used and the geographical locations.

Many important factors influence the agreement across the multiple informants in reporting ADHD symptoms among adolescents. This disparity needs to be understood better although comparisons are difficult given the heterogeneity of the studies.

Agreement across the different informants in reporting ADHD symptoms among adolescents

Agreement between parents & teachers

In general, the agreement between parents and teachers was low to moderate[9,14,18,21,24], with stronger agreement reported for hyperactivity symptoms compared to inattention symptoms[18,21].

In a New Zealand sample of relatively younger adolescents and children, poor agreement between parents and teachers was observed, whereby parents reported more symptoms than teachers. Interestingly in this study, parents' and teachers' reports were combined with clinical observation of some participants in the classroom. The analysed data showed moderately correlated agreement for hyperactivity symptoms but no correlation for the inattentive symptoms. The authors suggested that each of the informants' report was influenced by their personal views and biases[18].

Similar findings were replicated in another study with larger sample of 6659 children and adolescents aged 4 to 18 years. They reported

low to moderate agreement between parents with similar pattern of parents' tendencies to report more symptoms than teachers. The authors concluded that disagreement between informants is clinically valid because each uniquely describes the presentation of ADHD[21] as manifested in different settings.

In a clinical sample of 1364 children and adolescents, discrepancies of parents' and teachers' report of ADHD symptoms were more likely to occur when there were significant homework problem and externalizing behavior such as oppositional defiant symptoms. Homework problem commonly occurs at home, and therefore is closely related to parents than teachers. Parents who encounter these problems at home are possibly more likely to report the ADHD symptoms[22]. On the other hand, although externalizing behavior is easily noticeable by both informants, they are probably more commonly observed by parents. Adolescents may be more oppositional with parents at home compared to teachers whom they regard as authority figures.

Agreement between adolescents & parents

Relatively less studies focused on the agreement between adolescents and parents in reporting ADHD symptoms, but similar findings of low to moderate agreement were reported[15-17,19,25] . The disagreement between parents and adolescents can be partially explained by the different attribution of behavior correlates of ADHD. For example, parents reported inattention symptoms to be related to executive functioning and deficits in planning, organizing and regulating behavior whereas adolescents associated their symptoms to psychological symptoms rather than deficits in self-regulation and self-organization. Interestingly, parents and adolescents agreed on the ADHD specific symptoms, with higher level of inattention symptoms reported by both informants[17].

In a Swedish sample of 2960 adolescents, both parents and adolescents disagree on the predicted outcomes of ADHD. Parents' report predicted academic and occupational failure, criminal convictions and traffic-related injuries while adolescents' report predicted substance use and academic failure. It was also found that the associations with adverse outcomes were stronger in parents' rating compared to adolescents' self-reports. The authors suggested that while both informants' information are important, parents' report should be given priority against adolescents' report[15].

In a population sample of adolescents and parents from 25 countries, adolescents reported more behavioral symptoms in most behavior scales than parents[26]. In contrast, another study of clinical sample comparing seven different countries found smaller differences between parents and adolescents scores in most behavior scales[19]. Disagreement between adolescents and parents was found in reporting behavioral symptoms with better agreement in externalizing behavior compared to internalizing behavior. Parents more often reported deviant behavior when adolescents did not, as compared to adolescents themselves reporting similar behavior when their parents did not[19]. However, it is important to note that apart from the different sample populations, these studies assessed more general behavioral symptoms rather than the more specific ADHD symptoms.

Agreement between adolescents & teachers

Teachers are important informants particularly for specific behavior in classroom setting, since they spend significant period of time with adolescents in school. However,

only few studies looked at the disagreement between teachers and adolescents in reporting ADHD symptoms.

A Malaysian study involving 410 young adolescents from six public schools in urban area of Kuala Lumpur, found low and non-significant correlations between teachers and adolescents' reporting of the different types of ADHD symptoms[14]. In a bigger community sample of 973 Turkish adolescents, low agreement was reported between teachers and adolescents. Agreement between parents and adolescents was better compared to teachers and adolescents, suggesting that adolescents agree less with their teachers. They also found that teachers and adolescents had better agreement on inattention symptoms than hyperactivity/impulsivity symptoms[9].

Agreement between fathers and mothers

Despite observing adolescents' behavior in similar settings, the disagreement between parents in reporting ADHD symptoms was clinically significant, whereby mothers had the tendency to report more ADHD symptoms compared to fathers[7,10,13], reflecting individual perception and different symptom domain observed at home. The agreement between parents were better for hyperactivity and impulsivity symptoms compared to inattention symptoms[7], most probably because of the readily observable symptoms of hyperactivity. In most situations, mothers spend more time with their children, hence their better ability to observe and recognize ADHD symptoms. Factors such as parental stress[10] and parental education[7] had been found to influence disagreement between informants.

What have we learned? Understanding disagreement across the multiple informants in reporting ADHD symptoms among adolescents

From a clinical perspective, a comprehensive history of adolescents' symptoms and behavior across the different settings, is essential for diagnosing ADHD. There is a need to gather information from parents, teachers and adolescents, despite the continuous evidence of disagreement between the multiple informants when reporting ADHD symptoms in adolescents. Each report is unique and contributes significantly to the understanding of ADHD symptoms in adolescents. While it is important that each informant's report is given serious consideration, the 'why' disagreement occurs in the first place, need to be clarified and understood clearly.

The informant's unique perspective[24,27-28] and situation specificity[29-30], among other factors, explain discrepancies between informants in reporting mental health problems such as ADHD symptoms. According to the unique perspective hypotheses, different informants have different perspective and therefore different perception of a problem behavior . The informant's tolerance for unacceptable behavior also varies[27]. It was found that informants agreed better when reporting readily observable behavior such as hyperactivity[18-19], and when they saw the behavior in the same setting[31], reflecting their perception in reporting ADHD symptoms.

Parents and teachers have different expectations from adolescents. Each informant looks at the behavior from different perspectives and attributes different meanings. From a parent's perspective, inattentive and restless behavior may be

perceived as culturally impolite and unacceptable. On the other hand, teachers may interpret the behavior as acceptable because it has not caused disruption in class. Parents and teachers who are observant and spend enough time with the adolescents are able to provide more accurate information of the symptoms. Informants with better knowledge of the problem behavior will make a better perception of the symptoms[22].

In contrast, situation specificity hypothesis explains the disagreement as a result of the different demands and expectations in specific settings[22]. ADHD symptoms are situation specific[29-30], whereby symptoms vary across different settings[32] that impose different demands[22]. In the classroom settings, adolescents are expected to focus and perform on given mental tasks within a reasonable period of time. On the other hand, parents observe adolescents in a less structured home environment, with lesser expectations of mental tasks and effort. Therefore, ADHD symptoms such as hyperactivity and inattention will be more readily observable in the classroom compared to home setting.

During adolescence, inattention symptoms are more common[3] while symptoms of hyperactivity and impulsivity become less prominent, hence adolescent self-report carries more weight during this stage. Adolescents are capable of recognizing and reporting their own symptoms[33] although they tend to underestimate and therefore under-report their own symptoms[34]. There is a strong stigma attached to the diagnosis of ADHD[35] among adolescents hence the tendency to minimize their symptoms.

The Attribution Bias Context model[36] explains discrepancies between informants in relation to informants' attribution, their perspectives, the clinical assessment process and the interaction between the three components mentioned. Observer informants such as parents and teachers are more likely to attribute problem behavior to the adolescents' disposition and disregard the context in which the behavior is exhibited. In contrast, adolescents tend to attribute problem behavior to the environment and the context of behavior, but discount their own contribution[36]. In the context of ADHD symptoms reporting in adolescents, discrepancies occur because of the discrepant attributions and perspectives of the symptoms, which are discrepant from the goals of the clinical assessment[36].

Cultural and socio-demographic factors contribute significantly to disagreement between informants. Culture influences perceptions of ADHD symptoms[37-38], which are subjected to different interpretations cross-culturally[39-41]. A study found significant cross-cultural differences in knowledge and attitude of teachers in Korea and Germany, regarding students with ADHD[38].

Many Asian countries are influenced by Confucian's doctrine which emphasizes on harmony, morality and hierarchy in the society[38]. For example, teachers and parents are at higher hierarchies, hence they have more authority to care for the lower hierarchs such as adolescents, who are expected to obey and respect the higher hierachs[38]. Because they cause disruption in classes, ADHD symptoms are regarded as immoral and disrespectful to teachers, hence culturally unacceptable.

Previous studies from different societies and cultural background, found low to moderate agreement between parents and adolescents in reporting behavioral symptoms[19,26] such as ADHD. Interestingly, Hong Kong showed the lowest agreement despite sharing similar cultural values with Japan and Korea

suggesting additional factor such as familism[42] that plays a role in the perception of behavioral symptoms[26].

Socioeconomic factors such as low parental education[43], low family income[43-44], family functioning[45-46], family structure and parent-adolescent relationship[43] contribute significantly to disagreement between informants in reporting ADHD symptoms among adolescents. Low income can cause parental stress and lower their tolerance to the problem behavior [44]. Parental stress which leads to negative reporting of behavior [47] has been found to predict discrepancies in reporting ADHD symptoms between parents[10]. Mothers from dysfunctional family report more symptoms of ADHD in their children, probably reflecting their perceived difficulties in the family[46]. Knowledge on ADHD also influences informant's perception and ADHD symptoms reporting[48-51].

Translating into clinical practice: strategies to harmonize information from the different informants

Agreement between informants are higher when reporting readily observable symptoms in the same setting[31,52], reflecting variation of behavioral symptoms in different settings and situations. It indicates differences in perception and attribution of the observed symptoms[53]. There is no one accurate informant but each of them provides unique and meaningful information about ADHD symptoms in adolescents. In this context, disagreement does not indicate weaker effects but suggests different effects[53].

When disagreement occurs in the clinical context, clinicians should not judge the reliability of informants reporting but to understand the meaningful differences between multiple informants. Clinicians should avoid discounting one informant's report at the expense of other report[52]. In addition, clinicians should attempt to explore the informant's perception in regard to why the particular symptoms or behavior are demonstrated[36].

Using multi-informants' assessments sequentially should help to maintain the comprehensive nature of multi-informants reports[52]. However, instead of using multiple informants' reports directly, choose a single informant report based on the relevance of the presenting complaint. For example, get the teacher's report if the main complaint is disruptive behavior in school. When there is progress in the main symptoms, clinicians may get subsequent report from another informant, to complete multi-informant assessments successively[52]. However, this method may not be effective given the limited clinicians' time.

It is recommended that clinical assessment is individualized to the specific context of the problem behavior and the unique needs of the adolescent[31]. For instance, parents may report lower inattention symptoms compared to adolescents because the symptoms are not readily observable. In such context, more merit should probably be given to the adolescents reporting of their own symptoms.

Prior understanding of the patterns of informants' reports may assist clinicians in making independent assessment, resulting in increased reliability and validity in clinical decision[31]. Clinicians should anticipate informants' disagreement and predict the meaning of disagreement, before the assessment[52]. For example, by anticipating disagreement between parents and teachers because of the contextual differences, clinicians can focus on the expression of behavioral variation and interpreting the meanings. It is important that clinicians

corroborate the informant discrepancies with their own clinical assessment and observation (home and school visits) or conducting interviews with the other informants.

Finally, discrepancies should be perceived as an important component of clinical assessment because it provides an understanding into the various factors that possibly contribute to the behavior or symptoms[36]. Informants' discrepancies also offer important insight into potential differences in the intervention outcome[53]. For example, adolescents may benefit from different intervention at home and school, based on the different expression of symptoms observed and reported in the different settings.

Conclusions

Multi-informant assessment is an important element in clinical assessment of ADHD among adolescents. Disagreement between informants is common but should not be discounted. Instead, considering reasons for disagreement is important to facilitate our understanding of the clinical symptoms. Clinicians should strategize ways to best optimize and harmonize the different information from the different informants. Firstly, it is recommended that informants are selected cautiously to ensure accurate reporting. Informants should have enough opportunities to observe and understand the symptoms before they can report reliably. For instance, a class teacher who spends relatively more hours compared to other teachers, is probably more reliable to report. Secondly, it is suggested that assessment is obtained from both parents to get different perspectives of the symptoms, and a better understanding of the clinical picture. Thirdly, it is important to note that each informant's assessment carries different weight depending on their specific and unique contributions. For instance, in reporting internalizing symptoms such as inattention, adolescents may be a better reporter of their own symptoms, compared to observer informants. In contrast, parents and teachers may better report externalizing symptoms such as impulsivity which are easily observable, while adolescents may under-report symptoms which are perceived as unacceptable. Each informant assessment needs to be understood in their specific and unique context. Finally, it is important to emphasize that ADHD is a clinical diagnosis. Comprehensive clinical assessment is of utmost important in arriving at the diagnosis while multi-informant report facilitates to complete the gap in clinical assessment.

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