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Attention Deficit Hyperactivity Disorder symptoms reporting in Malaysian adolescents: Do adolescents, parents and teachers agree with each other?

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a clinical diagnosis relying on persistence of symptoms across different settings. Information are gathered from different informants including adolescents, parents and teachers. In this cross-sectional study involving 410 twelve-year old adolescents, 37 teachers and 367 parents from seven schools in the Federal Territory of Kuala Lumpur, reliability of ADHD symptoms among the various informants were reported. ADHD symptoms (i.e. predominantly hyperactive, predominantly inattentive and combined symptoms) were assessed by adolescents, teachers and parents, using Conners-Wells' Adolescent Self-report Scale (CASS), Conner's Teachers Rating Scale (CTRS) and Conner's Parents Rating Scale (CPRS) respectively. For predominantly hyperactive symptoms, there were statistically significant, weak positive correlations between parents and teachers reporting ($r = 0.241$, $p < 0.01$). Statistically significant, weak positive correlations were found between adolescents and parents for predominantly inattentive symptoms ($r = 0.283$, $p < 0.01$). Correlations between adolescents and parents reporting were statistically significant but weak ($r = 0.294$, $p < 0.01$). Weak correlations exist between the different informants reporting ADHD symptoms among Malaysian adolescents. While multiple informant ratings are required to facilitate the diagnosis of ADHD, effort should be taken to minimize the disagreement in reporting and better utilize the information.

1. Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is among the most common psychiatric disorders seen worldwide as well as in Malaysia. The worldwide-pooled prevalence of ADHD was reported as 5.29% (Polanczyk et al., 2007). A study on Malaysian children reported a prevalence of inattention between 9% and 12.5% (Woo and Teoh, 2007). Another study on primary school children in Malaysia found a prevalence rate of 1.61% with the inattention subtype being the most common (0.96%), followed by hyperactive-impulsive (0.32%) and combined subtypes (0.32%) (Gomez and Hafetz, 2011).

According to the Clinical Practice Guideline (Ministry of Health Malaysia, 2008), diagnosis of ADHD requires a comprehensive assessment involving parents or care-givers, teachers (Mitsis et al., 2000) and clinical observation to determine symptoms. The Diagnostic Statistical Manual of Mental Disorders (DSM) criteria, require evidence of symptoms before the age of seven years and persistence of symptoms across different settings before diagnosis of ADHD can be established (DSM-IVTR; APA, 2000).

Self-reported questionnaires reporting ADHD symptoms by different informants such as parents, teachers and adolescents themselves are commonly used to complement clinical observation. While these provide comprehensive assessment, previous studies have shown poor agreement between multiple informants (Collet et al., 2003; Coutinho et al., 2009; Frazier and Youngstrom, 2006; Gau et al., 2010; Kaner, 2011; Papageorgiou et al., 2008; Tripp et al., 2006), creating difficulties as there were no measures to blend the information together.

Self-reported questionnaire is a measure of perception. Self-reported findings of ADHD symptoms among adolescents are perceptions of the symptoms from his or her own perspectives. Similarly, parents and teachers report ADHD symptoms as they perceive from their unique perspectives (Smith, 2007). Perception

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is subjective and readily influenced by various factors in the informants i.e. adolescents, parents, and teachers, as well as factors in the illness and the environment itself. Hence, the discrepancies seen in the different ratings by the different informants.

ADHD symptoms change across the different stages of development (Barkley, 2005). In the young children, symptoms of hyperactivity may be more prominent compared to inattention, which are more commonly seen in the adolescents (Wolraich et al., 2005). This is further complicated by the different subtypes of ADHD, manifesting different symptoms domains such as predominantly hyperactive, predominantly inattentive and combined symptoms. Interestingly, symptoms of ADHD may also change with the different situations (Van Der Oord et al., 2006) and consequently lead to different behaviors observed and reported. For instance, in a less restrictive and demanding environment, symptoms may not be easily apparent (Barkley, 2005). As symptoms manifest at different levels of severity, the milder symptoms can go unnoticed compared with the moderate to severe symptoms that are readily observable. There were higher agreements between informants when domains of symptoms being rated are more observable (Langberg et al., 2010).

Likewise, ADHD symptoms described by parents and teachers are evaluations of their perceptions of the adolescents' behavior across different settings. These perceptions are based on their familiarity with the behavior and the specific situations where the behavior were observed (De Los Reyes and Kazdin, 2005) and their own psychological state. Parenting stress (Youngstrom et al., 2000; Van Der Oord et al., 2006) and depression (Youngstrom et al., 2000) were found to contribute to the lower agreement in reporting ADHD symptoms, particularly inattentive dimensions (Van Der Oord et al., 2006).

On a different vein, parents and teachers tend to report more ADHD symptoms among adolescents with poor school achievement (Pierrehumbert et al., 2006). Likewise, adolescents with ADHD symptoms are more likely to experience academic difficulties (Birchwood and Daley, 2012). However, similar trend in reporting was not seen among children and adolescents (Pierrehumbert et al., 2006) thus contributing to the discrepancies between the informants.

Interpretation of observed ADHD behavior is influenced by cultural and ethnic background (Moon, 2011). The cultural diversity and language plurality in Malaysian society further complicate the process of reporting and affect the reliability accordingly. Previous findings of poor agreement between different informants' report were mainly from the western samples (Collet et al., 2003; Coutinho et al., 2009; Frazier and Youngstrom, 2006; Papageorgiou et al., 2008; Tripp et al., 2006), with less language and cultural diversity. It is therefore interesting to explore this issue in the local setting. To our knowledge, there has been no local study that examines the reliability of ADHD symptoms reporting by the different informants. This study aimed to examine the reliability between adolescent, parents and teachers report of the ADHD symptoms in adolescents.

2. Methods

2.1. Sampling

This is part of a cross-sectional study on ADHD and bullying, Wan Ismail et al. (2010) whereby a pattern of agreement and reliability between parents, teachers and adolescents in reporting ADHD symptoms were examined. A total of 826 adolescents from seven randomly selected schools in Kuala Lumpur were approached to take part in this study. 198 adolescents failed to return the consent forms, 183 adolescents did not consent while another 35 adolescents were absent, and thus excluded from the study. In the final phase, a total of 410 twelve year old adolescents were recruited to participate in the study. In addition, 37 teachers and 367 parents also participated in this study. Teachers with the most contact hours with the participating students were selected to participate. Teacher: adolescent ratio was 1:11. Only one parent that knew the adolescent the best was required to participate. Active consent was obtained from the adolescents, their parents and teachers. Adolescents with poor command of language and mental retardation were excluded from this study.

2.2. Measurement instruments

Conners Wells Adolescent Self-report Scale: Short (CASS:S), Conners Parent Rating Scale: Short(CPRS:S) and Conners Teacher Rating Scale: Short(CTRS:S) were used in this study. Items in the questionnaires were rated according to the behavior that occurred in the past month as observed by the adolescents (CASS: S), their parents (CPRS:S) and teachers(CTRS:S) accordingly. The CASS:S and CPRS:S consist of 27 items whereas the (CTRS:S) has 28 items (Conners, 2001). The translated version of Conners Rating Scales (CRS) in the local language i.e. Bahasa Malaysia were used in this study.

The translations were done by a team of four psychiatrists including three of the authors. Two members of the team front translated the questionnaires while another two members back translated them. Two front and two back translations were carried out for each of the questionnaires. After the translations, the team met to discuss the pre-final versions and made appropriate amendments, taking into consideration the meaning of the contents within the cultural context. The pre-final versions were tested on a group of convenient samples and further changes were made based on the feedback obtained. These versions were finally sent to the Multi-Health Systems revision board, for final revision and approval before their use in this study.

The CRS are diagnostic tools for assessment of ADHD in children and adolescents. In practice, diagnosis of ADHD remains a clinical diagnosis while the use of instruments was not recommended (CPG, 2008). For the purpose of this study, only three subscales of CRS i.e. combined; hyperactive and inattentive were included, while oppositional subscale was not considered in the analysis. Furthermore, the *T*-scores which were the cut-off scores that separate the clinical and non-clinical sample were not used. This was because the *T*-scores were not developed for the local population. Instead, the raw scores were used, whereby higher scores indicate higher ADHD symptoms while lower scores reflect lower ADHD symptoms. Therefore, ADHD symptoms rather than the illness were examined in this study.

2.3. Study implementation

Adolescents completed the self-reported questionnaires during the given period in their respective schools. They were not allowed to discuss their responses. Teachers and parents were given two weeks to complete the questionnaires at their own leisure time.

2.4. Statistical analysis

Statistical Package for Social Studies (SPSS) version 13 was used to analyze the data. *Q–Q–Q* plot and Kolmogorov–Smirnov test were used to test for normality of the continous data such as ADHD symptoms and parents' age. Intraclass correlation was used to examine correlations between ADHD symptoms as reported by the different informants. Chi-square was used to examine differences between adolescent with and without parents' report for socio-demographic profiles. Mann–whitney test was used to examine ADHD symptoms reported by adolescents and teachers, between adolescents with and without parents report.