Journal of Affective Disorders ∎ (∎∎∎∎) ∎∎∎–∎∎∎

Contents lists available at ScienceDirect

Journal of Affective Disorders

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

Brief report

The CBCL dysregulated profile: An indicator of pediatric bipolar disorder or of psychopathology severity?

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ARTICLE INFO

Article history:
Received 23 September 2013
Accepted 22 October 2013

Keywords:
Child Behavior Checklist
Dysregulated profile
Suicidal ideation
Comorbidity
Severity
Pediatric bipolar disorder

ABSTRACT

Background: To evaluate whether the Child Behavior Checklist Dysregulated Profile (CBCL-DP) can be used as an effective predictor of psychopathological severity as indicated by suicidality and comorbidities, as well as a predictor of pediatric bipolar disorder (PBD).
Method: CBCL-DP scores for 397 youths seeking treatment for mood disorders were calculated by summing the *t*-scores of the Anxious/Depressed, Aggressive Behaviors, and Attention Problems subscales such that a clinical cut-off of 210 was used to indicate the presence of a dysregulated profile. Suicidality and an increased number of diagnoses were used as markers of illness severity.
Results: Those with a dysregulated profile presented more severe suicidal ideation when compared to those without the profile. They also had a significantly larger number of Axis I diagnoses. Groups did not differ in the amount of individuals diagnosed with PBD.
Limitations: Suicidal ideation was assessed by a third-party informant and not from the youths themselves. No other forms of suicidal behavior such as self-harm or suicide attempt were measured. Also there may not be complete convergence between parental reports on behavior and youth reports, which might have affected the results.
Conclusions: These findings suggest that the CBCL-DP is an effective indicator of psychopathological severity through its association with more comorbidities and more severe suicidality. Earlier detection of psychopathological severity through an initial screening tool could aid clinicians in planning treatment and providing quicker and more structured care based on the client's needs.

1. Introduction

The Child Behavior Checklist (CBCL) as developed by Achenbach and Rescorla (2001) is a widely used and accessible screening instrument that is used to assess the severity of children's internalizing and externalizing problems as reported by their parents (Althoff et al., 2010; Biedermann et al., 2009; Diler et al., 2009). Many researchers (Achenbach and Rescorla, 2001; Achenbach et al., 2008; Nakamura et al., 2009) have extensively studied the psychometric properties of this tool, such that its reliability and validity across cultures have been well established as it continues to be used in clinical and community settings.

New research has proposed an algorithm using the data from the CBCL to create the dysregulated profile (CBCL-DP) used to indicate the risk for pediatric bipolar disorder in youth (PBD) (Biedermann et al., 2009; Meyer et al., 2009; Mick et al., 2003). Three longitudinal studies have explored the ability of the CBCL-DP to predict bipolar disorder in youth samples. These studies have presented mixed results with regards to this association. Results found by Biedermann et al. (2009), using a sample of ADHD and non-ADHD youths (aged 6–18), provided initial evidence for the CBCL-DP's predictive ability for bipolar disorder. Those who presented with the dysregulated profile had a significantly increased risk for bipolar disorder by age 25. Similarly, Meyer et al. (2009) found that while there were no bipolar disorder (I or II) diagnoses in those with the dysregulated profile during childhood, 31% were diagnosed with bipolar disorder in young adulthood. Recently, however, Holtmann et al. (2011) found no support for the predictive ability of the CBCL-DP in regards to PBD. None of those who presented the CBCL-DP profile at ages 8 and 11 were diagnosed with PBD at 19 years of age. Comparably, Diler et al. (2009) found that the CBCL-DP could not clinically distinguish in a reliable manner between healthy youths, those diagnosed with disruptive disorders, and those diagnosed with PBD or mood disorders. The

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http://dx.doi.org/10.1016/j.jad.2013.10.033

usefulness of the CBCL-DP in predicting PBD, therefore, remains uncertain, especially for youth under the age of 19.

Given that the research on the CBCL-DP has been inconclusive as to its utility for predicting PBD, researchers have instead suggested that the dysregulated profile may be useful in indicating the severity of psychopathology (Diler et al., 2009; Holtmann et al., 2011). This has generated a renewed interest in the CBCL-DP to aid clinicians in assessing the severity of a childs mental health problems.

Holtmann et al. (2011) explored the potential of the CBCL-DP as an indicator of later psychopathological severity in a sample of clinically referred outpatients or inpatients. Their results showed that higher scores on the CBCL-DP at ages 8 and 11 were predictive of an increased risk of comorbid diagnoses of ADHD, mood and substance abuse disorders, suicidal ideation and attempts, and poorer overall functioning at 19 years of age. Meyer et al. (2009) provided further support for this, such that participants who presented the dysregulated profile in mid to late childhood had more anxiety and depression, ADHD, cluster B personality disorders, and suicidal ideation by the age 20. Biedermann et al. (2009) also found that the CBCL-DP predicted severity through its strong association with psychiatric hospitalization due to mood disorders, along with his findings that the dysregulated profile predicted PBD. These studies therefore provided some evidence as to the CBCL-DP's use as a marker of severity through identification of comorbid diagnoses.

Shin et al. (2009), in a longitudinal study done in Korea, found that the severity of psychopathology as measured by the number of comorbid diagnoses found on the CBCL, could be a predictor of suicidal ideation. In Quebec, a rate of 10.8 per 100 000 youths aged 15–19 completed suicide has been found in 2009, thereby constituting the second cause of death in this age range group (Institut National de Sante publique du Quebec, 2013). There is therefore urgent need for early detection and intervention. Volk and Todd (2007) found that over 85% of participants with suicide plans and attempts in their sample presented with a CBCL dysregulated profile. Furthermore, Holtmann et al. (2011) found that suicidal ideation and attempt were positively correlated with the CBCL-DP score severity. Suicidal ideation, therefore, has been a prominent finding in the research done on the CBCL-DP. Given that suicide is an important target for clinical intervention and research, the CBCL-DP could be of great clinical use in screening for such problems.

These findings thus provide a new orientation to the potential clinical utility of the CBCL-DP. Much of the research to date, however, has been conducted with children from heterogeneous treatment seeking samples, such as those diagnosed with or at risk of developing ADHD or bipolar disorder, two conditions which have regularly been associated with an elevated CBCL-DP score (Biedermann et al., 2009; Faraone et al., 2005; Meyer et al., 2009; Southammakosane et al., 2013; Volk and Todd, 2007; Youngstrom et al., 2005). More studies are needed to determine the applicability to the CBCL-DP as a marker of psychopathological severity in a more homogeneous clinical sample. Considering past research and given the evidence of the CBCL-DP as a potential measurement of severity, it was hypothesized that those with an elevated CBCL-DP score would present an increased number of comorbid diagnoses and more severe suicidal ideations when compared to those without the dysregulated profile. It was also hypothesized that the CBCL-DP would be an effective predictor of PBD.

2. Method

2.1. Participants

The 397 youths included in the sample ranged from 6 to 18 years of age ($M=14.14$, $SD=2.57$) and consisted of 63% females. All participants who were included in the study were referred from first or second line health clinics to the Depressive and Suicidal Disorders Outpatient Clinic (youth section) at the Douglas Mental Health University Institute because of depressive symptoms. Permission to access medical files of patients followed from 2006 to 2013 was granted through the Directorate of Professional and Hospital Services (DPHS) of the Douglas Mental Health University Institute. DSM-IV-TR diagnostic information was obtained from patients' clinical files and included for analyses. Patients were excluded if their parents completed the older version of the CBCL (4-18), or if they did not have a CBCL in their file.

2.2. Measures

The Child Behavior Checklist is a preliminary screening tool administered to the parents of all patients upon entering the specialized Outpatient Clinic. It is widely used to measure behavior and organize it according to appropriate norms for age, sex and informant, and is free from any form of clinician bias (Althoff et al., 2010; Biedermann et al., 2009). It has a number of syndrome subscales that correspond to either broader internalizing categories (such as Anxious/Depressed, Withdrawn/Depressed and Somatic Complaints) or externalizing categories (such as Rule Breaking Behavior and Aggressive Behavior). Three more subscales (Thought Problems, Attention Problems and Social Problems) do not belong to these overarching categories (Pandolfi et al., 2012). The CBCL-DP was calculated by summing the *t*-scores of three subscales of the CBCL (Attention Problems, Aggressive Behaviors, and Anxious/Depressed). A *t*-score of 70 for each subscale was used as a cutoff for clinical severity. A total *t*-score of 210 or above was used for inclusion in the dysregulated group. To measure the presence of suicidality in the sample, item 91 of the CBCL was assessed. Item 91, "Talks about killing self", uses a Likert scale from 0 (absent) to 2 (often) to assess the severity. A score of 1 or 2 indicated the presence of suicidal ideation, which was considered as a presence of psychopathological severity, along with the number of diagnoses of each subject.

3. Results

3.1. Preliminary analyses

Statistical analyses were performed using SPSS version 20.0 (IBM Corp, 2011). Of the 397 participants in the study, 150 (37.8%) presented with a dysregulated profile. The descriptive statistics for age, gender, and diagnoses for those with the dysregulated and non-dysregulated profiles are presented in Table 1. An independent samples *t*-test was conducted in order to evaluate the differences in age between those who presented with the dysregulated profile and those who did not. The *t*-test was non-significant ($t(395)=0.61$, $p=$NS). Furthermore, gender differences between both groups were examined. The dysregulated group consisted of a significantly larger ratio of females to males (26.6% vs. 11.1%, $\chi^2=6.12$, $p<0.01$).

3.2. Main analyses

An independent samples *t*-test was conducted to determine whether those with a dysregulated profile had more DSM-IV-TR diagnoses. The *t*-test was significant, where $t(395)=-3.02$, $p=0.001$. Those who did not present with the dysregulated profile showed less number of diagnoses ($M=2.20$, $SD=0.94$) than those who did present with the dysregulated profile ($M=2.55$, $SD=1.05$), with a moderate effect size ($d=-0.33$). A hierarchical multiple regression was conducted using age, gender and the dysregulated profile to predict psychopathological severity as

Please cite this article as: Mbekou, V., et al., The CBCL dysregulated profile: An indicator of pediatric bipolar disorder or of psychopathology severity? Journal of Affective Disorders (2013), http://dx.doi.org/10.1016/j.jad.2013.10.033