European Psychiatry 40 (2017) 110–115

Contents lists available at ScienceDirect

European Psychiatry

journal homepage: http://www.europsy-journal.com

Original article

Self-reported problem behavior in young children with and without a DSM-disorder in the general population

A.P. Ringoot [a,b,c], P.W. Jansen [b,d], J. Rijlaarsdam [e], P. So [f], V.W.V. Jaddoe [a,g,h], F.C. Verhulst [b], H. Tiemeier [b,g,i,*]

[a] The Generation R Study Group, Rotterdam, The Netherlands
[b] Department of Child and Adolescent Psychiatry/Psychology, Erasmus University Medical Center, Rotterdam, The Netherlands
[c] Department of Clinical Psychology, Open University of the Netherlands, Heerlen, The Netherlands
[d] Institute of Psychology, Erasmus University, Rotterdam, The Netherlands
[e] Faculty of Pedagogical Sciences, Leiden University, Leiden, The Netherlands
[f] Lucertis, Rotterdam, The Netherlands
[g] Department of Epidemiology, Erasmus University Medical Center, Rotterdam, The Netherlands
[h] Department of Pediatrics, Erasmus University Medical Center, Rotterdam, The Netherlands
[i] Department of Psychiatry, Erasmus University Medical Center, Rotterdam, The Netherlands

ARTICLE INFO

Article history:
Received 23 February 2016
Accepted 22 August 2016
Available online 16 December 2016

Keywords:
Children
Externalizing problems
Internalizing problems
Assessment
Berkeley Puppet Interview
Self-report

ABSTRACT

Background: Problem behavior of young children is generally not assessed with structured child interviews. This paper examined how information about problem behavior, obtained by structured interviews with six-year-old children, relates to DSM-disorders obtained from parents and to treatment referral.

Methods: In a population-based cohort, caregivers of 1084 young children (mean age 6.7 years) were interviewed with the DSM-based Diagnostic Interview Schedule-Young Child version (DISC-YC), and they scored the Child Behavior Checklist (CBCL). Children themselves were interviewed about problem behavior using the semi-structured Berkeley Puppet Interview (BPI). Information regarding treatment referral to mental health services was obtained by parent-reported questionnaire when children were on average eight years old.

Results: DSM-disorders and CBCL problems in the clinical range were cross-sectionally associated with higher levels of child self-reported problems. Associations were strongest in the externalizing domain (e.g. DISC-YC externalizing disorders with BPI externalizing scores: $F(1, 416) = 19.39$, $P < 0.001$; DISC-YC internalizing disorders with BPI internalizing scores: $F(1, 312) = 3.75$, $P = 0.054$). Moreover, higher BPI internalizing and externalizing problem scores predicted treatment referral two years later.

Conclusions: We conclude that systematically interviewing preschool and young elementary school-aged children should be an integral part of child assessment. This approach may contribute to a better understanding of child development and may predict future problems.

1. Introduction

Accurate diagnosis of child psychopathology is of great importance for early and effective interventions and may improve children's prognosis [1,2]. Obtaining accurate diagnoses can, however, be challenging when psychopathology in young children is assessed. There is consensus that a multi-informant approach should be used to obtain a comprehensive picture of child problems [3]. A multi-informant approach preferably includes information from multiple contexts (e.g. home vs. non-home) and perspectives (e.g. adults vs. children). In the diagnostic process of children below the age of eight years, clinicians and researchers generally rely on information from parents, observations of the child's behavior and information from teachers or daycare professionals. Standardized information is, however, rarely obtained from young children themselves. Yet, perspectives of various informants often do not converge and this may have important consequences. For instance, adult informants may have difficulties recognizing children's problems, in particular if these are not very

* Corresponding author at: Erasmus University Medical Center Rotterdam, Department of Child & Adolescent Psychiatry/Psychology, Room NA 2814, PO-BOX 2060, 3000 CB Rotterdam, The Netherlands.
E-mail address: h.tiemeier@erasmusmc.nl (H. Tiemeier).

http://dx.doi.org/10.1016/j.eurpsy.2016.08.009
0924-9338/

disruptive [4,5], as is the case with most internalizing problems. Hence, by not including structured child information, clinicians or researchers may miss significant concerns that children themselves have and could voice [6].

There is evidence suggesting that children, even as young as four to eight years, are capable of providing reliable, valuable and unique information about their emotions and behavior, but only if age-appropriate, structured, instruments are used [7,8]. One such instrument is the Berkeley Puppet Interview (BPI) [9], a semi-structured interview using puppets to engage young children in a conversation to playfully discuss issues like depression, anxiety and aggression. The validity of this interview was supported by associations of known risk factors (e.g. lower socioeconomic status, family stress) with self-reported problem behavior, also teacher reports of school adjustment were related to children's self-reported problem behavior obtained with the BPI [8,10,11]. Acceptable other psychometric properties of the BPI have been reported [e.g. 8,11]. Less is known about how children's reports on the BPI, or other instruments to obtain self-reports of children below age eight years, relate to formal diagnostic information. Only a few, relatively small, studies examined the association of young children's self-reports with diagnostic information. Mostly, these studies examined only selected internalizing or externalizing problems as reported by the child [10,12,13]. To our knowledge, there are no studies examining young child self-reported problem behavior and DSM-based diagnostic information concerning multiple problem domains.

The present paper aims to extend previous studies by examining the degree to which young elementary school children's self-reported internalizing and externalizing problems, are related to DSM-IV disorders in a large population-based cohort. The Diagnostic Interview Schedule-Young Child version (DISC-YC) is used to determine parent-reported DSM-IV disorders [14]. We hypothesize that children with a DISC-YC derived DSM-IV disorder report more problems than children without a disorder. To study consistency of findings across different measures, we also examine how information on internalizing and externalizing problems obtained during a child interview are related to scores in the clinical range on DSM-oriented scales of the Child Behavior Checklist [15]. Finally, we examine whether higher self-reported problems predict treatment referral two years later.

2. Materials and methods

2.1. Design and study population

This study was embedded in the Generation R Study, a population-based cohort from fetal life onwards in Rotterdam, the Netherlands. The Medical Ethics Committee of the Erasmus Medical Center approved the study. Written informed consent was obtained from all caregivers.

We used data obtained during an early school age (five to eight years) examination in the Generation R Study. Caregivers filled out questionnaires and at a research center children were interviewed with the Berkeley Puppet Interview (BPI). In total, 6690 children visited the research center. After excluding poor quality BPI data and data of children who were older than 8 years at assessment, BPI data was available in a sample of 6521 children (mean age 6.1 [*SD* = 0.4]).

Caregiver reported Child Behavior Checklist (CBCL1½-5) data was available in 6172 children (mean age 6.0 [*SD* = 0.4], all younger than 8 years). Children with high problem scores on the CBCL, i.e. top 15% of total problem score and top 2% on any of the syndrome scores, were selected for in-depth diagnostic assessment with the DISC-YC [16]. This selection was performed to efficiently include children with potential DSM-IV disorders. In addition, a random sample of children scoring below the cutoffs on the CBCL was selected for interviews. Selected were 1410 children: 1080 children who scored above the cutoffs (screen-positive) and a random sample of 330 children (screen-negative). DISC-YC interview data was successfully obtained from 1154 participants (82% of 1410 selected). Analyses were performed in 1084 children with BPI, DISC-YC and CBCL data (77% of 1410). These children were on average 6.7 years old at DISC-YC assessment (*SD* = 0.6, all younger than 9 years), 55% were boys, 63% were of Western national origin, 50% had a mother with a higher level of education (higher vocational or university degree), 29% grew up in a family with a two times above modal income (> 4000 euros net per month) and 83% came from a two-parent family.

Questionnaire data on treatment referral was available in 746 of the 1084 children at a mean age of 8.2 years (*SD* = 0.2).

2.2. Measures

2.2.1. Child interview about internalizing and externalizing problems

Child self-reported internalizing and externalizing problems were assessed with the Berkeley Puppet Interview (BPI) [9,11], a semi-structured interview in which two identical dog hand puppets make opposing statements about themselves and ask the child to indicate which statement describes him/her best. All interviewers were research assistants who had been trained under the supervision of one of the developers of the BPI. Regular update sessions were conducted. Research assistants coded the videotaped interviews independently of the interviewers. The interviews were videotaped and afterwards coded, independently of the interviewers, by research assistants who were blind to other data of the child. Each statement was scored on a 7-point scale, ranging from 1 to 7. The exact score depended on which of the puppets' statements the child chose and how much emphasis was put on the answer. For instance, very positive answers (e.g. "I *never* hit other kids") received a score of 1 and very negative answers (e.g. "I *often* hit other kids") received a score of 7. Item scores were summed to compute scale scores. We used the 20-item broadband internalizing scale ($\alpha = 0.71$) comprising the depression, separation anxiety and overanxious subscales, and the 21-item broadband externalizing scale ($\alpha = 0.78$) comprising the conduct problems, hostility and oppositionality and defiant subscales. Within the Generation R Study, the BPI had an adequate factor structure, could be interpreted validly – as indexed by associations with socio-demographic factors – and had acceptable internal consistencies of the internalizing and externalizing broadband scales [11].

2.2.2. Parent-reported DSM-disorders

The Diagnostic Interview Schedule for Children-Young Child version (DISC-YC) [14], a structured and developmentally appropriate interview, was used to obtain research diagnoses of DSM-IV disorders [16]. Trained interviewers administered the computer assisted DISC-YC to caregivers during a home visit. For the present study, we used the diagnostic sections of mood disorder (dysthymia or major depression), separation anxiety, generalized anxiety disorder (GAD), specific phobia, oppositional defiant disorder (ODD), conduct disorder and attention deficit hyperactivity disorder (ADHD). Also, broad internalizing and externalizing disorders were defined (a disorder in the first four or latter three sections, respectively). Test-retest reliability of the DISC-YC symptom scales has previously been shown to be acceptable to high [see 17].

At the end of each diagnostic section, the level of *impairment* from the symptoms was assessed using six questions. In the present study we report DISC-YC-derived DSM-disorders if children displayed the minimum number of symptoms needed for a classification and additionally experienced significant