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## Children seeking help for auditory verbal hallucinations; who are they?

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### ABSTRACT

**Background:** Auditory Verbal Hallucinations (AVH) in children and adolescents are a relatively common and mostly transient feature in community samples. However, it should not be regarded as a merely benign phenomenon, as childhood AVH are associated with psychopathology. Little is known about the clinical group of children seeking help for AVH. This brings uncertainty on how to assess and treat these children.

**Methods:** This study describes the characteristics of 95 help-seeking children (aged 6 to 18 years) with AVH attending an outpatient clinic specifically dedicated to help youth with this complaint. We aim to provide pointers regarding diagnostic assessment and interventions.

**Results:** Children seeking help for AVH suffered from a diversity of co morbid psychiatric diagnoses and consistently experienced high stress from AVH. When the DSM-IV-TR criteria for psychotic disorder NOS were used, all 95 children obtained this diagnosis. However, when a psychotic disorder was defined using the A-criterion of schizophrenia, only a minority of 11 cases (11.6%) was diagnosed as having a psychotic disorder. All children were in need of psycho-education and coping strategies and only the minority (11.6%) fulfilling criteria for a more narrowly defined psychotic disorder was prescribed antipsychotic medication.

**Conclusions:** Children seeking help for AVH form a heterogeneous group with high stress and reduced functioning. Even though only a minority (11.6%) suffers from a psychotic disorder, all children warrant clinical care due to their burden and multi morbid psychopathology.

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### 1. Introduction

Auditory Verbal Hallucinations (AVH) are common in children and adolescents, with prevalence estimates ranging between 1 and 35% (Bartels-Velthuis et al., 2010; Dhossche et al., 2002; Laurens et al., 2012; Polanczyk et al., 2010; Scott et al., 2009; van Os et al., 2009; Yoshizumi et al., 2004; Yung et al., 2009). AVH in children are transient in up to 95% of cases (Bartels-Velthuis et al., 2011, 2016; Rubio et al., 2012). Yet, AVH are not always a benign phenomenon, as even in a non-clinical setting 15% of children experience stress and problem behavior resulting from their AVH (Bartels-Velthuis et al., 2010). Persistence of AVH through adolescence is associated with more and distressing psychotic experiences, traumatic events and the risk of post-traumatic stress disorder (PTSD) (Bartels-Velthuis et al., 2016). In addition, the presence of AVH in childhood increases the risk of developing psychopathology later in life: a threefold increased risk to develop a depressive disorder (Dhossche et al., 2002) and, a five- to sixteenfold increased risk to develop a schizophrenia-spectrum disorder (Poulton et al., 2000). Furthermore, even at young age a wide range of psychiatric

disorders such as depression, ADHD and PTSD can accompany AVH (Edelsohn et al., 2003; Hlastala and McClellan, 2005; Kelleher et al., 2012).

Epidemiological studies largely point to the benign course of AVH, but do not inform clinicians very well on the group of children seeking help for AVH. Nor do they lead to the improvement of care (Garralda, 2015). Only few articles have provided some directions on how to help children with stressful AVH (Garralda, 2015; Jardri et al., 2014; Sikich, 2013). Although helpful, these articles did not provide clinical data of children seeking help for AVH to base their directions on. Until recently, The Netherlands had no specific care facility for children with AVH and most clinicians had little knowledge on how to help them. We therefore used (social) media to create awareness, and started an outpatient clinic specifically for children seeking help for AVH in March 2013. Since then, children seeking help for AVH are seen on a weekly basis at the outpatient clinic. The present paper describes the characteristics of these children seeking help for AVH. These findings will help to accurately develop guidelines to improve care for these youngsters.

### 2. Methods

#### 2.1. Patients

Clinicians provided the researchers with anonymized data of patients visiting the outpatient clinic between March 2013 and February

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2016. As data were anonymized, METC approval and informed consent was not needed, as agreed upon with the local ethical committee.

## 2.2. Measurements

### 2.2.1. Procedure

At the outpatient clinic, all children were diagnosed upon consensus of a child psychiatry resident and a child psychiatrist, using the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM-IV-TR) (DSM-IV; APA, 1994). Children and their parents were interviewed through systematic and detailed exploration of all domains of psychopathology as part of a comprehensive mental status examination. Both their information was weighted and integrated to ensure a most accurate view on children's complaints and functioning. If indicated, additional assessments, such as neuropsychological testing, an autism diagnostic interview (ADI-R) or blood tests were conducted to complete diagnostic evaluation.

The diagnosis of a psychotic disorder not otherwise specified (NOS) can be made on the basis of persistent hallucinations causing distress and dysfunction alone. However, being psychotic is generally viewed as a distortion of reality testing and many children with persistent and stressful AVH have adequate reality testing and lack delusional thinking style or disorganized behavior. We chose not to diagnose all these children with a psychotic disorder, although they matched the psychotic disorder NOS criteria. Rather, we decided to diagnose a psychotic disorder in children only when the A-criterion of the DSM-IV category schizophrenia was met. This requires that, next to hallucinations, these children should also have either delusions, disorganized speech, disorganized or catatonic behavior or negative symptoms. These more strict criteria prevent overdiagnosing psychotic disorders in children and may better select those children that may benefit from antipsychotic medication.

Parents of the children were asked to complete the Child Behavior Checklist (CBCL) as a standard procedure of symptom evaluation at the child- and youth psychiatry department of the UMC Utrecht (Achenbach, 1991).

### 2.2.2. Global functioning

Global functioning was measured with the Childhood Global Assessment Scale (CGAS) (Shaffer et al., 1983). CGAS was scored as the level of functioning at the time of assessment at the clinic.

### 2.2.3. AVH characteristics

Characteristics of the hallucinations were assessed according to the Auditory Vocal Hallucination Rating Scale (AVHRS) previously used and validated by Bartels-Velthuis et al. (2010). Minor adjustments were made by the doctors at the outpatient clinic to enhance comprehensibility for the children.

## 2.3. Treatment

Previous treatment and provided or recommended treatment at our outpatient clinic is described.

## 2.4. Statistics

To analyze the data, SPSS version 23.0 was used. Descriptives and *t*-test were used to examine the data.

## 3. Results

### 3.1. Patients

We assessed data of 95 children. Mean age was 11.8 years (SD 3.0; range 6 to 18 years). Sixty-six percent were girls. See Table 1 for demographics and descriptives.

**Table 1**  
Demographics and descriptives.

Total children	N = 95
Age (y), mean (range; SD)	11.8 (6–18; 3.0)
Gender, N girls (%)	63 (66.3%)
CGAS, mean (range; SD)	50.9 (25–85; 11.4)
Total IQ, mean (range; SD)	94.44 (59–135; 19.1)
Borderline mental retardation N (%) <sup>*</sup>	14 (14.4%)
Mild mental retardation N (%) <sup>**</sup>	2 (2.8%)
DSM diagnosis, N (%)	
No DSM diagnosis	9 (9.5%)
One DSM diagnosis	36 (37.9%)
Two DSM diagnoses	34 (35.8%)
Three or more DSM diagnoses	16 (16.8%)
Total CBCL score, mean (range; SD)	62.3 (7–121; 28.9)

<sup>\*</sup> IQ level 70–85.

<sup>\*\*</sup> IQ level 50/55–70.

## 3.2. Diagnostic heterogeneity

### 3.2.1. DSM-IV-TR classification

All children met criteria for a psychotic disorder NOS, but only 11 (11.6%) met the A-criterion of the schizophrenia and were actually diagnosed with a psychotic disorder. Eight children (8.4%) did not receive any psychiatric disorder, 37 (38.9%) received one diagnosis, and 50 (52.6%) received more than one diagnosis (see Table 2). There were no cases of alcohol and/or substance abuse or dependence.

### 3.2.2. CBCL

The CBCL was completed for 67 children (70.5%). Except for mean age (no CBCL 13.6 years; with CBCL 11.1 years;  $p < 0.001$ ), there were no significant differences regarding gender, CGAF or DSM classifications between children with and without completion of the CBCL.

On CBCL total score, 42 children (62.7%) scored within the clinical range of psychopathology: 43.5% scored within the clinical range for anxious/depressed, 30.4% for withdrawn/depressed, 36.2% for somatic complaints, 21.7% for social problems, 75.4% for thought problems, 29.0% for attention problems, 14.5% for rule-breaking behavior and 14.5% for aggressive behavior.

### 3.2.3. Cognitive functioning

Data on cognitive functioning in terms of intelligence quotient (IQ) were either available through previous assessment by referring specialists (performed within the last two years) or was done if clinically indicated (for example because of problematic school performances

**Table 2**  
Psychiatric disorders.

	Number of disorders in 95 children	
	N	%
Anxiety disorder (general, separation, NAO)	26	27.4
Attention-deficit hyperactivity disorder	18	18.9
(Mild) mental retardation	21	22.1
Pervasive developmental disorder (autistic, Asperger, PDD-NOS)	19	20.0
Mood disorder (depressive, bipolar)	15	15.8
Personality disorders	15	15.8
Psychotic disorder (schizophrenia, NOS)	11	11.6
Parent-child relational problem	12	12.6
Obsessive compulsive disorder	3	3.2
Attachment disorder	2	2.1
Oppositional defiant disorder/conduct disorder	2	2.1
Tic disorder	1	1.0
Other <sup>*</sup>	9	9.5

<sup>\*</sup> e.g. Disorder of childhood NOS, reading disorder etc.

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