



## Efficacy of a multimodal treatment for disruptive behavior disorders in children and adolescents: Focus on internalizing problems



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### ABSTRACT

Disruptive Behavior Disorders (DBDs) are among the most common reasons for youth referrals to mental health clinics. Aim of this study is to compare short and medium term efficacy of a multimodal treatment program (MTP), compared to community care (treatment-as-usual, TAU). The sample included 135 youths with DBDs (113 males, age range 9–15 years, mean age  $12 \pm 2.5$  years) were assigned either to a MTP ( $n=64$ ), or addressed to community care for a TAU ( $n=71$ ). Outcome measures were the Child Behaviour Checklist (CBCL) and the Children's Global Assessment Scale (C-GAS). All subjects were assessed at the baseline (T0), after 1-year treatment (T1) and after a 2-year follow-up (T2). Compared with patients receiving TAU, youths in the MTP showed, both at T1 and T2, significantly lower scores on CBCL Externalizing Scale, Internalizing Scale, Anxious/Depressed, Social Problems, and Aggressive Behavior, and higher scores at the C-GAS. Improvement in Internalizing Scales was particularly evident, with a shift from the clinical to the non-clinical range. Rate of use of mental health services and scholastic failure were reduced in the MTP. It is suggested that the improvement of the Internalizing symptoms is a crucial component of the therapeutic process in this MTP.

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### 1. Introduction

Disruptive Behavior Disorders (DBDs), including Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD), are among the most common reasons for youth referrals to mental health clinics (Steiner and Remsing, 2007), and they may be associated with academic failure, persistent maladaptive (impulsive and aggressive) behaviors, and future antisocial outcomes (Pardini and Fite, 2010). Psychosocial maladjustment can be negatively affected by co-occurring internalizing (mood and anxiety) disorders, with related social isolation, low-self esteem, suicidality, self-injury behaviors and substance abuse, although these problems are frequently overshadowed by impulsive aggression (Maughan et al., 2004; Masi et al., 2008). Internalizing comorbidity involves a strong portion of aggressive youths both in community and clinical settings (Boylan et al., 2007; Polier et al., 2012), it is

associated with a higher risk of social and school dysfunction (Newcorn et al., 2004; Ezpeleta et al., 2006), with greater persistence of DBD lifetime (Maughan et al., 2004; Nock et al., 2007), and greatly increases the costs for communities (Kolko et al., 2014).

Much progress has been made in identifying evidence-based treatments that decrease aggression (Moffitt et al., 2008). Although psychosocial, psychotherapeutic and familial approaches are usually first-line treatment options, severe behavior disorders may be refractory to such approaches (Kazdin, 2000). Multimodal psychosocial interventions, usually including both youths and parents, have been found to be more effective than interventions delivered only to children (Lochman and Wells, 2002; Pappadopoulos et al., 2003; Steiner and Remsing, 2007; Copeland et al., 2009; Kolko et al., 2014; Masi et al., 2013). A cognitive-behavioral therapy (CBT) on youth targets aggressive behaviors and cognitions through behavior management, role playing, social and token reinforcements, and problem solving (Lochman and Wells, 2002; Van Manen et al., 2004). Involvement of parents, aimed at promoting positive parenting practice, significantly increases the effectiveness of interventions

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(Garland et al., 2008; Larsson et al., 2009). Most of the studies have explored efficacy of these interventions in improving severe behavior symptoms, such as hostility and aggression (Kazdin, 2000). Fewer data is available on effects of treatments in improving internalizing symptoms, and their impact on global functioning. In a review article exploring the moderating role of comorbid dimensional symptoms (including those associated with ADHD, anxiety, and depression) on treatment outcomes for ODD/CD children, comorbidity had little or no effect on the treatment of child conduct problems (Ollendick et al., 2008). More specifically, children with and without a comorbid disorder did not differ at the end of treatment in terms of their antisocial behavior, problem behaviors observed in the home, or parent ratings across multiple symptom domains. Results of these studies suggest that comorbidity does not predict negative treatment outcomes for oppositional and conduct problem youth. More recently, Jarrett et al. (2014), in a study designed to evaluate the efficacy of the Coping Power Program (Lochman and Wells, 2004), and to examine how internalizing symptoms predicted change in externalizing problems, reported that greater depressive symptoms, but not anxiety symptoms (as reported by parent or teacher) were associated with a larger reduction in externalizing behaviors problems following a school-based preventative intervention.

Aim of this paper was to explore efficacy of a multimodal, CBT-inspired treatment for patients with DBDs, compared with a community care (“treatment as usual” – TAU), at the end of the treatment (1-year follow-up), and 1 year after the end of the treatment (2-year follow-up). Effects on externalizing and internalizing problems and on psychosocial functioning were separately evaluated.

## 2. Methods

### 2.1. Sample

The sample included 135 youths (113 males, age range 9–15 years, mean age  $12 \pm 2.5$  years, 85% Italian, 10% South-American and 5% from Asian and African countries), diagnosed and treated in our Hospital within the period 2005–2011. All the patients were diagnosed according to a clinical interview, the Kiddie Schedule for Affective Disorder and Schizophrenia for School-Age Present Life time Version (K-SADS-PL) (Kaufman et al., 1997), administered to patients and parents by trained child psychiatrists. Furthermore, the Child Behaviour Checklist (CBCL) (Achenbach and Edelbrock, 1983) was completed by parents. To determine IQ, all children were evaluated with the Wechsler Intelligence Scale for Children, 3rd Edition Revised (WISC-III-R) (Wechsler, 1991). Family socio-economic status was evaluated according to Hollingshead (2007). Inclusion criteria were: (1) DSM-IV diagnosis of Conduct Disorder (CD) or Oppositional Defiant Disorder (ODD) according to K-SADS-PL; (2) a Full Scale IQ above 85; and (3) a CBCL Externalizing Scale score above 63.

The patients who met inclusion criteria were assigned either to a Multimodal Treatment Program (MTP) conducted in our hospital ( $n=64$ ), or addressed to community care for a Treatment-As-Usual (TAU) ( $n=71$ ). The sequential allocation in each of the two treatment groups was affected only by the immediate availability of the treatment program of our Hospital. When the treatment was not immediately available, the patients were addressed to the TAU group and followed by the community services, irrespective of their psychosocial or clinical characteristics. No other clinical criteria were used for group assignment. The comparison between the two groups at the baseline showed no statistical differences for socio-demographic variables, including age, gender ratio, ethnicity, socio-economic status according to Hollingshead and Redlich, rate of adoptive children, family type (bi-parental, mono-parental, or custody), and socio-economic status, type of DBD (ODD/CD) and most significant comorbidities (Table 1). Similarly, baseline clinical variables, including all CBCL and C-GAS measures, did not differ between groups, as reported in Table 2.

After 1 year of treatment, the patients in the MTP were followed-up with monthly monitoring visits, while the patients receiving TAU continued the community care. During these 1-hour monthly visits, patients and parents received an unstructured interview exploring behavioral disturbances (including impulsive and aggressive behaviors and substance abuse), social and scholastic functioning, disciplinary measures, and need for further supporting interventions. This information was included in the medical record.

At a 2-year follow-up, the two groups were re-assessed, and parents were also asked, by means of an interview, about further referrals to community mental health services and/or scholastic failure during the follow-up.

The study was approved by the ethical committee of our Hospital. All patients and their families participated voluntarily in the study after written consent was obtained for assessment and treatments procedures.

### 2.2. Treatment

#### Multimodal Treatment Program (MTP)

The MTP is a “real world” treatment organized in once-a-week sessions, lasting 1 year, and includes individualized and group support for youths and individual parent training. The duration of each separate session for youth and with parents is two hours. Intervention is conducted by child psychiatrists and psychologists. A social worker helps parents to request welfare benefits or transportation facilities.

During the sessions, an individual and group therapy is focused on teaching children or adolescents to improve self-control, problem-solving skills, and perspective taking. We used the following evidence-based practices to reach these goals: goal setting, modeling, positive reinforcements, anger coping techniques, role-playing and home-works. Structured exercises and group discussions are aimed at improving insight about emotions of self and others, management of rage and temper outbursts. Role playing, videos with group discussion, dramatization, problem solving are used to explore alternatives to increase the insight and improve behavioral dyscontrol. Given the possible role of school failure in worsening the psychosocial adaptation, the children also receive a specific training to improve scholastic achievement, namely their meta-cognitive reading skills, to increase their ability in understanding the text, to develop more effective study strategies and to enhance attention abilities (Masi et al., 2013).

Individual parent training intervention includes defining a selected number of children's behavioral problems (where, when, with whom), and learning techniques to modify parent-youth interaction (for e.g., correct use of prize, punishment and response cost, ignoring and time-out). Parents are trained to monitor conflict situations in which to apply the new parenting practices, to improve predictability and consistency and to increase self-awareness about how to deliver prompts and consequences, and how to manage their child's beliefs, feelings or reactions. In our treatment model, there is not a strict determination in the use of specific evidence-based practices and techniques. However a weekly staff meeting based on case review is used to monitor the adherence of the therapists to the treatment model.

The adherence of the MTP intervention to the model was monitored and measured in the following ways: (a) the therapists attended a official training in cognitive behavioral psychotherapy; (b) the therapists attended case-review meetings with a psychotherapy supervisor; and (c) protocol checklists were completed by the psychotherapist after each session, indicating which objectives were raised and which practices were used. These checklists were reviewed during the weekly supervision sessions, and indicated that over 85% of session objectives were delivered.

#### Control condition: Treatment as Usual (TAU)

Patients assigned to TAU were treated and followed-up in the community health services. No constraints were set for treatments of this comparison group.

Information about the type and the type of usual-care treatments during the follow-up (1-year and 2 year) were collected with unstructured interviews to patients and parents. According to information available, all the patients received a psycho-educational intervention, with periodic visits (1 or 2 h/week), but only 30 patients received an individual psychotherapy. Parents did not receive therapeutic interventions, but periodic psycho-educational sessions (one or two/month).

### 2.3. Measures

Two measures were administered at the baseline (T0), after 1 year (at the end of the MTP) (T1), and after 2 years (T2):

- Child Behaviour Checklist (CBCL) (Achenbach and Edelbrock, 1983), a 118-item scale, completed by parents, is one of the most frequently used empirically based instrument for outcome research. Items are scored on a 3-step response scale, and grouped in 8 different syndromes (Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior and Aggressive Behavior). The CBCL provides a Total Problem Score, two broad-band scores designated as Internalizing Problems (including Withdrawn, Somatic Complaints and Anxious/Depressed syndromes) and Externalizing Problems (including Delinquent Behavior and Aggressive Behavior). A T-score of 63 and above for broadband scales (Total, Externalizing, Internalizing), and of 70 and above for syndrome scales, are considered clinically significant, while a T-score between 61 and 63 for broadband scale and between 65 and 70 for syndrome scales is considered borderline.
- Children's Global Assessment Scale (C-GAS) (Shaffer et al., 1983) is a single-point rating scale designed for use with children from 4 to 16 years of age. It is

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