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ABSTRACT

This paper summarizes the development of the Adolescent Treatment Outcome Module (ATOM) to monitor the outcomes of mental health treatment of adolescents with emotional or behavioral problems. The module is intended to: provide reliable and valid information about outcomes of mental health care; be applicable across severity levels, clinical settings, interventions, and population groups; and be brief and inexpensive to administer. The module is composed of seven domains: (1) focal problems; (2) diagnostic assessment in five diagnostic categories; (3) multidimensional assessment of functional impairment; (4) family burden; (5) acceptability of treatment; (6) prognostic or risk-adjustment factors that may influence treatment outcome; and (7) assessment of the amount and quality of treatment received. (DB)

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Development of the Adolescent Treatment Outcomes Module (ATOM)

Introduction

As mental health treatment programs come under closer scrutiny by payers who have a range of options for therapeutic services, well-designed evaluations of the clinical utility, acceptability, and societal value of services are needed (Pfeiffer & Strzelecki, 1990). This paper describes development of a module to monitor the outcomes of treatment of adolescents with emotional or behavioral problems.

Although an estimated $5 billion is spent each year in providing mental health services to children and adolescents (Burns, Taube, & Taube, 1990; Rice, Kelman, Miller, & Dunmeyer, 1990), there is virtually no evidence that routine mental health care for youth is effective. While some isolated studies offer optimistic conclusions about the benefits of some forms of treatment (Cause et al., 1994; Clark et al., 1994; Henggeler, Melton, & Smith, 1992; Scherer, Brondino, Henggeler, Melton, & Hanley, 1994), other evaluations suggest that intensive treatment programs show minimal benefits compared to standard care (Bickman et al., 1995; Heneghan, Horwitz, & Leventhal, 1995). Most treatment programs which are considered promising have yet to be evaluated, partly because no comprehensive, standardized set of instruments have been developed for adolescents that are brief, easily administered, and inexpensive. To that end, the Adolescent Treatment Outcomes Module (ATOM) has been constructed. The objective of the ATOM is to (a) provide reliable and valid information about outcomes of care, (b) be applicable across severity levels, clinical settings, interventions, and population groups, and (c) be brief and inexpensive to administer.

Outcomes modules are sets of standardized, validated instruments designed to facilitate the routine and systematic

gathering of data on patient response to treatment (Smith, Rost, Fischer, Burnam, & Burns, in press). The ATOM is the sixth in a series of outcomes modules developed by the NIMH Center for Rural Mental Health Services Research, University of Arkansas for Medical Sciences. Steps in the development of the module, components of the module, and preliminary data on a small sample are presented.

Steps in Module Development

Module development began with an extensive review of diagnostic, prognostic, health service, and methodologic issues of adolescent treatment outcome (Robbins & Taylor, 1995). A multi-disciplinary panel of experts was convened to advise the development team on critical components of the module. Experts were recruited from child psychiatric epidemiology, functional measurement in children and adolescents, child mental health services research, structured psychiatric diagnostic instruments for children, and child psychotherapy research. Based on panel recommendations, a draft of the module was composed and presented to panel members for evaluation. Recommended changes were made, and a pilot study to gather validating data has been undertaken.

Module Components

The module is composed of seven domains: (a) focal problems; (b) diagnostic assessment to establish caseness in five diagnostic categories (i.e., anxiety, depression, oppositional defiant disorder, conduct disorder, ADD); (c) multidimensional assessment of functional impairment; (d) family burden; (e) acceptability of treatment; (f) prognostic or risk-adjustment factors that may influence treatment outcome; and (g) assessment of the amount and quality of treatment received. These domains, listed in Table 1, have been identified as most central to understanding outcomes of treatment for emotional and behavioral problems (Hoagwood, Jensen, Petti, & Burns, 1996).

Focal Problems

Youth are referred to clinics not because of a particular diagnosis, but because parents, teachers, or others are concerned about specific problems they are having at home, school, or elsewhere (Weisz & Weiss, 1989). The module identifies the primary reasons for initiating treatment, the seriousness of these problems, and tracks change in presenting problems following treatment.

Caseness and Symptom Severity

It is not feasible within the scope of the module to gather sufficient data to make diagnoses of disorders using full DSM-IV criteria. Therefore, results of item analyses on four large data sets were used to generate a much reduced set of symptoms that are used to identify likely cases of generalized anxiety, separation anxiety, major depression,

generalized anxiety, separation anxiety, major depression, oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity. These symptom items have been supplemented with representative symptoms of each disorder, selected on the basis of prevalence, to produce a measure of symptom severity.

Functional Impairment

Therapeutic outcomes in adolescent mental health include both resolution of symptoms and enhanced functioning. Items designed to address domains of functioning were drawn from multiple sources including the Brief Impairment Scale designed by Hector Bird (Bird, 1995) from the tradition of the Columbia Impairment Scale (CIS: Bird, Shaffer, Fisher, Gould, & Staghezza, 1993), and the Child Health Questionnaire (CHQ: Kurtin, Landgraf, & Abetz, 1994). The ATOM also monitors sentinel indicators, relatively rare negative events caused directly or indirectly by emotional or behavioral problems. Sentinel indicators, adapted from draft items of the UNOCCAP study, include inability to remain in the home, expulsion or suspension from school, and frequent arrests. The following domains of functioning are assessed:

- ***Functioning in the family.*** In-home placement is the goal of many residential, therapeutic foster care and family preservation programs and is the primary outcome measure of many evaluations (Gabel & Shindledecker, 1992). Ability of the adolescent to remain in the home, relationships with family members, responsibility at home, and ability to follow home safety rules are measured.
- ***Functioning in school.*** School-related outcomes include acceptance of teacher authority, academic progress, and completion of seatwork. Parental involvement through frequent calls to come to school for behavioral conferences or to pick up an unruly child is also included, as are sentinel indicators of expulsion and suspension.
- ***Community functioning.*** Successful functioning in the community is measured on a sentinel level by ability to comply with societal laws. Number of contacts with the criminal justice system, arrests, time till arrest, incarceration, and residential placement are determined. Additionally, measures of involvement in community activities and use of leisure time are included.
- ***Functioning with friends.*** Peer quality is assessed by determining the ability of the teen to make friends who do not normally break rules and laws and are not regularly in trouble with authority figures. Peer relations are addressed by asking both parent and the adolescent whether (s)he is able to make friends and get along with the friends (s)he has made.

Family Burden

Burden of the family in dealing with the psychopathology of an adolescent is measured by the Burden Assessment Scale developed by Reinhard and colleagues (Reinhard, Gubman, Horwitz, & Minsky, 1994).

Satisfaction with Care

Satisfaction with mental health care services is measured by the Client Satisfaction Questionnaire (CSQ) modified by DeChillo for children (Larsen, Attkisson, Hargreaves, & Tuan, 1979). The CSQ is a brief well-validated instrument for use with parents.

Prognostic or Risk-adjustment Factors

Factors associated with successful outcomes of care were identified from the literature and from consultation with the expert panel. These factors vary across treatment contexts and must be adjusted for in studies comparing outcomes across treatment sites. Items include age of onset of symptoms, age of onset of aggression, psychiatric and substance use comorbidity, mental illness and substance abuse history of parents, parental use of mental health services, recent family stressors, housing instability, and socioeconomic position of the family. Family functioning, shown to be a strong determinant of treatment success, is measured by the general functioning subscale of the McMaster Family Assessment Device (FAD: Byles, Byrne, Boyle, & Offord, 1988).

Treatment Amount and Quality

There is a growing consensus that mental health treatment of adolescents requires multi-modal approaches (Baer & Nietzel, 1991). This view is partly based on disappointing results from clinical studies of the efficacy of single agents. Experience throughout the country with integrated systems of care suggests that a combined therapeutic program is necessary. Assessment of quality and amount of treatment is based on reports of the parent and a chart review guided by a checklist of treatment options. Treatment options include: (a) medications; (b) parent training; (c) crises services; (d) in-home services; (e) individual, family, and group therapy; (f) case-management, and (g) school-based treatments. Frequency of each intervention is documented. Services utilization materials from the National Adolescent and Child Treatment Study conducted by the Research and Training Center for Children's Mental Health (Silver et al., 1992), and the Services Use in Children and Adolescents (Parent Self-Report) instrument developed by the task force on outcomes research of the American Academy of Child and Adolescent Psychiatry were adapted.

Pilot Test of the ATOM

Adolescents, age 11 to 18, from both the inpatient and outpatient units at Arkansas Children's Hospital and the

outpatient units at Arkansas Children's Hospital and the Centers for Youth and Families in Little Rock were recruited. Each subject and his/her parent or guardian completed the self-report Baseline Assessment of the ATOM. The adolescent and parent completed the Diagnostic Interview Schedule for Children (DISC: Version 3.0; Shaffer, Schwab-Stone, Fisher, Cohen, Paicenti, Daves, et al., 1993), the Child Behavior Checklist (CBCL: Achenbach, 1991) and the Columbia Impairment Scale (Bird et al., 1993) to allow us to examine the relationships between brief module measures and extensive research measures of overlapping constructs. The admitting clinician completed the Clinician Baseline Assessment.

Of the 37 adolescents referred to the research assistant, 31 (84%) agreed to participate in the study. Complete baseline data have been collected for all enrolled cases. Subjects were 13.8 years old (sd = 1.7) on average, 36% female, and 39% minority, predominantly African American. Common DISC diagnoses include conduct disorder (23%), depression or dysthymia (30%) and attention deficit hyperactivity disorder (26%). All major outcome measures in the module (symptom severity, functioning in the home, functioning in the school, functioning in the community, functioning with peers) show a distribution approaching normal with no evidence of a ceiling or floor effect. We are currently in the process of examining correlations between module and gold standard measures of comparable constructs, while examining patterns in the variation between adolescent and parent reports on outcomes. Sentinel indicators show that 65% of subjects have been suspended from school for one day or more; 40% have had contact with the police in the past six months; and 15% have made many friends who are often in trouble with the authorities. Close to one-fifth of parents (17%) reported missing days at work because of their child's problems, and 44% found the household routine was upset because of the adolescent's problems.

On average, the baseline portion of the module, exclusive of validating instruments, was completed in 25 minutes (sd = 8.6) by adolescents, 28 minutes (sd = 7.8) by parents, and 7 minutes (sd = 9.4) by clinicians. All participants filled out the module with a minimum of missing data: (a) < 2% from adolescents, (b) < 1% from parents, and (c) < 5% from clinicians. Research interviewers began six month follow-up evaluations with patients and parents in July, 1996.

Conclusions

Routine outcomes monitoring requires instruments that are comprehensive, psychometrically sound, and acceptable to patients, families, and agencies. They must therefore be brief, inexpensive, and administered by non-clinicians with only minimal training. To our knowledge, the prototype ATOM is the only currently available battery of instruments that measures all important outcome domains easily and economically. As such, it holds great promise in advancing routine scientifically rigorous outcomes monitoring in

routine scientifically rigorous outcomes monitoring in adolescent mental health care.

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