Scientifically Unsupported and Supported Interventions for Childhood Psychopathology: A Summary

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ABSTRACT. Although numerous scientifically supported treatments are available for childhood psychiatric disorders, many of the most popular interventions for these conditions are based on weak or nonexistent data. This article offers basic guidelines for distinguishing scientifically supported from unsupported treatments for 3 important childhood psychiatric disorders: autistic disorder, attention-deficit/hyperactivity disorder, and conduct disorder. A key challenge for the future will be to place the treatment of childhood psychiatric disorders on firmer scientific footing. ***Pediatrics*** **2005;115:761–764;** ***evidence-based mental health, childhood psychopathology, autistic disorder, attention-deficit/hyperactivity disorder, conduct disorder.***

ABBREVIATIONS. EST, empirically supported treatment; SQT, scientifically questionable treatment; ADHD, attention-deficit/hyperactivity disorder; FC, facilitated communication; SMI, sensory-motor integration; EEG, electroencephalogram; PMT, parent-management training; FFT, functional family therapy.

There are >500 brands of psychotherapy, many of which are targeted primarily to children with psychiatric disorders.[1] Although some of these interventions have proven efficacious in controlled trials, most have never been tested. Still others have been found to be ineffective. Moreover, the treatment of childhood psychopathology has been susceptible to a bewildering array of therapeutic fads, several of which are potentially hazardous either psychologically or physically to children and their families. In this article, I offer guidance for distinguishing scientifically unsupported from scientifically supported interventions for childhood psychiatric disorders and draw readers' attention to popular somatic and psychosocial treatments that are unsubstantiated or ineffective.

GENERAL CONSIDERATIONS

Largely in reaction to the proliferation of treatments that are devoid of scientific support, the fields of psychology and psychiatry have increasingly embraced standards for evidence-based mental health practice.[2] For example, Division 12 (The Society for Clinical Psychology) of the American Psychological Association recently generated criteria for, and a list of, empirically supported treatments (ESTs) for childhood psychiatric problems including anxiety disorders, oppositional behavior, enuresis, and encopresis.[3] These ESTs were identified on the basis of randomized, controlled trials or systematic within-subject designs. Although the movement toward ESTs has been criticized by some authors as premature, given the preliminary state of the research evidence,[4,5] there is a general consensus that this movement represents a laudable effort to place the field of mental health practice on firmer scientific footing. In addition, 2 journals dedicated to distinguishing scientifically supported from unsupported psychiatric and psychological techniques, *Evidence-Based Mental Health* and the *Scientific Review of Mental Health Practice*, were launched in the past few years. The latter journal is published under the aegis of the Council for Scientific Medicine and Mental Health, a newly formed interdisciplinary group of psychologists, psychiatrists, social workers, and other health professionals dedicated to distinguishing scientific from nonscientific interventions for mental and medical disorders.

Although scientifically questionable treatments (SQTs) have flourished for a variety of childhood disorders, they have been especially prevalent for 3 conditions: autistic disorder (autism), attention-deficit/hyperactivity disorder (ADHD), and conduct disorder. SQTs are operationalized here as interventions that have been promoted as efficacious in the absence of adequate supporting evidence. Autism, ADHD, and conduct disorder are all chronic and treatment-resistant, perhaps rendering clients and treatment providers especially vulnerable to the alluring promise of rapid and dramatic cures. Hence, in the body of this article I focus on these 3 conditions.

TREATMENTS FOR AUTISM

Popular SQTs for autism include both somatic and psychosocial interventions. In the late 1990s, secretin, a polypeptide hormone often synthesized from the duodenum of pigs, was promoted widely as an efficacious treatment for autism. Nevertheless, several controlled trials demonstrated no beneficial effects of secretin on the core features of autism.[6,7] Other popular somatic treatments have included (1) elimination diets, in which casein (in wheat products) or gluten (in milk products) are removed from daily food intake; (2) vitamin B_6 (typically administered with magnesium); (3) dimethylglycine, an antioxi-

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dant; and (4) famotidine (Pepcid). Controlled trials of these 4 treatments have been negative, inconclusive, or so methodologically flawed as to preclude meaningful conclusions.[8–10] Still other somatic treatments, including antiyeast diets, have not been subjected to controlled trials.[9] Several of these popular treatments are not free of adverse side effects; for example, vitamin B_6 toxicity has been linked to peptic ulcer disease.[11]

Psychosocial SQTs for autism include facilitated communication (FC) and sensory-motor integration (SMI). FC is premised on the notion that autistic children suffer not from an intellectual and affective impairment but from an exclusively motor impairment termed developmental apraxia, which impedes their ability to speak properly.[12] Hence, with the aid of a facilitator who guides their hand movements, these children can ostensibly type out complete sentences on a computer keyboard or letter pad. Nevertheless, controlled studies demonstrate overwhelmingly that FC is ineffective and that the resultant communications are a product of inadvertent facilitator control over the child's hand movements.[13,14] Although this "ideomotor effect" has been well documented by researchers for decades, the proponents of FC never considered it as an alternative explanation for FC's seemingly remarkable effects.[15] In addition to gratuitously raising the hopes of the parents of autistic children, FC has resulted in numerous uncorroborated allegations of sexual and physical abuse against these parents.[16] SMI is premised on the notion that autism is attributable to dysfunctions in brain areas responsible for sensory (eg, visual, tactile, vestibular, and kinesthetic) input and motor output. Common SMI treatments include spinning children in chairs, engaging them in balance activities, and brushing their body parts.[17] Although widely used, SMI treatments have not been shown to be efficacious in carefully controlled studies.[18]

Efficacious pharmacologic treatments for autism include dopamine antagonists such as haloperidol (Haldol), atypical antipsychotics such as risperidone (Risperdal), and selective serotonin reuptake inhibitors such as fluoxetine (Prozac). Although these medications do not cure the core features of autism, they seem useful in curtailing certain problematic behaviors including temper outbursts, hyperactivity, and repetitive actions.[19]

The most efficacious psychosocial treatment for autism is applied behavior analysis, which focuses on positively reinforcing and shaping selected target behaviors such as appropriate interpersonal interactions and use of correct language. In controlled within-subject studies, applied behavior analysis has demonstrated positive effects on autistic children's social and intellectual behaviors, although almost all of these children are left with serious deficits in adaptive functioning.[8,9]

TREATMENTS FOR ADHD

ADHD treatment has similarly been a fertile breeding ground for SQTs. On the somatic front, 2 dietary approaches have been particularly popular: sugar elimination and the Feingold diet, the latter of which is based on the assumption that salicylates contained in artificial food colorings and flavorings cause or contribute to ADHD. Nevertheless, there is scant evidence that the removal of sugar from the diets of ADHD children is efficacious,[20] Nor is there much methodologically sound support for the efficacy of the Feingold diet, although a small subgroup of ADHD children may respond positively to this intervention.[21,22] Amino acid supplements and megavitamin therapy have also been found to exert weak or nonexistent effects on ADHD, and several other proposed biological treatments including saccharides, mineral supplements, and naturopathic remedies (eg, pycnogenol) have not been tested adequately in controlled studies.[20] In addition, although prescriptions of atypical antipsychotics for ADHD have increased in at least some parts of the United States, there is no compelling evidence for their efficacy for this condition.[23]

A popular somatic treatment of late is electroencephalogram (EEG) biofeedback, known also as neurofeedback or neurotherapy, which attempts to treat ADHD by increasing the ratio of high-frequency β-EEG activity to low-frequency θ-EEG activity.[24] Nevertheless, much of the research support for neurofeedback derives from inadequately controlled studies that are susceptible to methodologic artifacts, including regression to the mean, the influence of concurrent treatments, and placebo effects. Future studies should compare neurofeedback to "bogus feedback" conditions (those that provide feedback on EEG frequency bands different from those hypothesized by neurofeedback proponents) to ascertain whether the apparent effects of neurofeedback are attributable to hypothesized changes in the high-frequency β and low-frequency θ bands.[25]

In the psychosocial domain, widely used SQTs for ADHD include play therapy and cognitive-training programs. Play therapy is based on the notion that the use of dolls, toys, and other props allows children to explore underlying psychological conflicts that they cannot articulate verbally. Nevertheless, there are no controlled studies supporting the efficacy of play therapy for ADHD.[20] Cognitive-training programs attempt to treat ADHD children's self-control problems by imparting self-instructional skills that foster their ability to "stop, look, and listen." Nevertheless, these programs in isolation have yielded few or no positive effects on ADHD symptoms.[26]

Stimulants, such as methylphenidate (Ritalin), and antidepressants, such as desipramine (Norpramin), have shown efficacy in ameliorating core ADHD symptoms.[27] Also demonstrating efficacy for ADHD in controlled studies are behavioral treatment programs and school-based behavioral interventions, which focus on positively reinforcing certain target behaviors such as sustaining attention and remaining seated at appropriate times.[28] Nevertheless, controversy persists regarding whether such behavioral interventions offer significant efficacy above that afforded by stimulant medication alone.[29]

TREATMENTS FOR CONDUCT DISORDER

Among the more widely used psychosocial SQTs for conduct disorder are peer-group interventions, which attempt to treat antisocial behaviors by placing behaviorally disordered children and adolescents in discussion groups. Nevertheless, quasi-experimental studies reveal that such interventions may actually increase the levels of antisocial behaviors in conduct-disordered children. These negative effects may be attributable to "deviancy training," whereby conduct-disordered youth acquire antisocial behaviors through observations of, and interactions with, troubled peers.[30] Two other SQTs for conduct disorder are Scared Straight and boot-camp interventions, which rely on a "get-tough" approach to delinquency. Scared Straight programs expose conduct-disordered youth to incarcerated prisoners in an effort to educate them regarding the negative consequences of an antisocial lifestyle, whereas boot-camp programs expose these youth to a strict regimen of military-style discipline. Although politically popular, both programs have proven ineffective in controlled studies[31,32]; in fact, a recent meta-analysis indicates that Scared Straight interventions may significantly worsen conduct-disorder symptoms.[31]

Attachment therapies, including rebirthing, reparenting, and holding, are sometimes used for a subset of conduct-disordered children, especially those who seem to have difficulty forming close bonds to their parents. These therapies assume that behavioral problems are traceable to early deficits in parental attachment, some dating to before birth, that produce excessive frustration of basic needs. Such therapies attempt to trigger and then discharge these pent-up feelings of frustration. For example, rebirthing requires children to "reenact" the trauma of birth with the aid of therapists. Some forms of attachment therapy require high levels of physical restraint (eg, sitting on children in an effort to simulate birth contractions) and have been linked to the deaths of several children by asphyxiation. There is no controlled evidence that attachment therapies are efficacious.[33,34]

Although there is no widely agreed-on psychopharmacologic treatment for conduct disorder, typical antipsychotics, such as haloperidol, atypical antipsychotics, such as Risperdal, and mood stabilizers, such as lithium carbonate, have shown promise for reducing aggression in conduct-disordered children.[35,36] Nevertheless, evidence for the efficacy of mood stabilizers for conduct disorder is mixed.[37] Moreover, psychopharmacologic agents should not be considered stand-alone treatments for conduct disorder.[38]

Conduct disorder responds to a broad spectrum of behavioral interventions including parent-management training (PMT), multisystematic family therapy, and functional family therapy (FFT). PMT is premised largely on the notion that parents of conduct-disordered children inadvertently reinforce their children's coercive behaviors (eg, threats of aggression) by acceding to their demands. PMT teaches parents to modify patterns of interaction with their children to reinforce prosocial rather than coercive behaviors.[39] Multisystematic family therapy attempts to enhance family cohesion and parental discipline and encourage children's exposure to prosocial (as opposed to antisocial) peers.[40] FFT strives to identify the underlying functions of family members' maladaptive behaviors and encourages them to find more constructive means of satisfying these functions.[41] For example, a conduct-disordered child may run away from home repeatedly in an effort to obtain interpersonal distance from parents who impose demands on him or her. An FFT therapist could encourage the parents to find a more adaptive means of fulfilling the child's needs for interpersonal distance, such as granting the child more time alone. All 3 interventions have shown positive effects on conduct disorder in controlled trials, with PMT probably being the most extensively supported.[39,42]

CONCLUSIONS

Although numerous efficacious and promising interventions exist for childhood psychiatric disorders, many SQTs (some potentially harmful) are promoted and administered widely. Moreover, there have been fewer publications on the empirical evaluation and dissemination of efficacious treatments for childhood psychiatric disorders than adult psychiatric disorders.[43] A key challenge for the future will be to place the treatment of childhood psychopathology on firmer scientific footing by combating the spread of SQTs and facilitating the transport of scientifically supported interventions to the clinical community. To accomplish the latter goal, considerably more communication and collaboration between researchers and clinicians will be necessary.[44]

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