

Parental Adherence to Child Psychologists' Recommendations From Psychological Testing

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Nonadherence to prescribed regimens is a significant cause of treatment failure across pediatric and psychological/psychiatric childhood conditions. Although a modest literature exists for medical conditions, the literature on adherence to psychologists' recommendations is sparse. We review the extant literature on this topic, highlighting areas for further study and intervention. Implications for policy and the practice of psychoeducational assessment are also discussed.

Keywords: parental adherence, child mental health recommendations, psychological assessment, treatment

Nonadherence to prescribed regimens is considered the leading cause of treatment failure across most childhood conditions (Rapoff, 1999). Historically, research has focused on identifying and modifying factors that are associated with nonadherence to medical regimens. This research is clearly necessary, given that approximately 50%–55% of chronically ill pediatric patients are nonadherent to their recommended medical treatment regimen (Rapoff, 1999). However, comparatively less research has focused on nonadherence to recommendations made by child psychologists following psychological testing. The rate of nonadherence to psy-

chological treatment recommendations for children is comparable to, or in some cases worse than, that of medical recommendations (e.g., Patel, DelBello, Keck, & Strakowski, 2005). Studies that have examined adherence to medication and psychotherapy recommendations in inpatient and outpatient diagnostic testing settings have found that the estimated rate of nonadherence to psychological treatment recommendations for children who have participated in psychological testing is greater than 50% (Joost, Chessare, Schaeufele, Link, & Weaver, 1989; King, Hovey, Brand, Wilson, & Ghaziuddin, 1997; Sirles, 1990). Notably, the extant literature has examined primarily adults; few studies have been published examining nonadherence to psychological treatment recommendations subsequent to psychological testing for children, a disturbing reality given that early psychological intervention is paramount in the prevention of severe psychopathology later in life (Carter, Briggs-Gowan, & Davis, 2004).

A number of reasons can be cited regarding why it seems essential to examine parental adherence to recommendations made by their child's psychologist after a comprehensive psychological assessment. First, 5%–7% of all children in the United States are seen by a mental health provider for psychological services every year (Ringel & Sturm, 2001). One element of these psychological services consists of psychological testing, a service that entails a comprehensive assessment of psychological and psychoeducational functioning that may include clinician-administered measures; diagnostic interviews; self-report, parent-report, and teacher-report questionnaires; computerized measures; and behavioral observations. It is likely that child psychologists who provide recommendations to parents following these assessments make these recommendations to alleviate distress, improve functioning, or otherwise enhance well-being in children. However, virtually no systematic research has investigated how many recommendations made by child psychologists are actually followed or whether following through with the recommendations leads to improvements in symptoms or in psychosocial functioning. Second, substantial resources have been allocated to the development and refinement of mental health, medical, educational, and social interventions for children, some of which have excellent empirical

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support (e.g., Chambless & Ollendick, 2001; Lonigan, Elbert, & Johnson, 1998; Spirito, 1999). Unfortunately, these interventions are of little value if parents do not or are unable to access them once they have been recommended. Third, a better understanding of the factors that differentiate parents who adhere to recommendations made by child psychologists following psychological testing from those who do not adhere can guide the development of targeted interventions designed to maximize adherence within the psychological testing milieu.

Experts have emphasized that the utility of clinical assessments will be demonstrated only insofar as they result in practical and effective interventions (Mash & Wolfe, 2005). Child psychological testing places demands on the resources of both the patient and the provider. Psychological testing often involves several hours of patient participation, and patients, as well as their parents, typically have to miss school and work, respectively, to attend such assessments. Additionally, psychologists must be adequately trained in the testing instruments, an endeavor that is quite time-consuming and energy-consuming given the multitude and diversity of psychological testing instruments currently available. Managed care also has an effect on the ability of child psychologists to use appropriate tests in assessing their patients. For example, in a survey assessing child mental health practitioners' views of the effects of managed care, 46.3% of psychologists reported that managed care had a negative impact on reimbursement for psychological testing, with 29% also reporting a negative impact on their ability to accurately diagnose clients (Chasel, 2002). This finding underscores the importance of the effect of evidence-based research on psychological testing for evaluation of whether psychological testing is actually useful and necessary for treatment planning and provider recommendations. Psychologists often make multiple recommendations following psychological testing to facilitate reductions in child symptomatology (e.g., MacNaughton & Rodrigue, 2001). Yet, the extent to which such recommendations are carried out, as well as the degree to which recommendations are evidence based, is unclear. Given this, we advance the current knowledge by synthesizing the extant literature on adherence to psychologists' recommendations, highlighting areas for further study and practice implications.

Research on Parental Adherence to Recommendations for Childhood Disorders

Multiple stages are involved in the eventual amelioration of mental health problems in children. Delineating these stages and examining nonadherence at each stage can help identify specific barriers to parental adherence and possible avenues for intervention. First, parents must recognize that their child has symptoms warranting mental health consultation or assessment. Second, parents must access appropriate mental health services for the assessment of their child. Third, parents must evaluate the prescriptions, or recommendations, made by their child's provider and determine whether to initiate prescribed or recommended courses of action. Fourth, parents must complete prescribed or recommended courses of action. At any point along this continuum, issues of adherence can be examined and their relationship to problem resolution evaluated. In the literature addressing these four stages of adherence in childhood disorders, there is valuable research on the failure to recognize mental health symptoms in children, the failure

to access mental health assessments, and the failure to complete treatment; however, little is written about the initiation of treatment.

Parental Recognition of Problem

Clearly, because parents are necessarily involved in accessing treatment for children, it is important for parents to first recognize difficulties in their children. According to the service access model developed by Costello, Pescosolido, Angold, and Burns (1998), parental problem recognition has two components: (a) Parents must perceive that the child has difficulties or needs, and (b) parents must comprehend the manner and degree to which others are affected by the child's behavior. Teagle (2002) investigated the relationship between these two components and child mental health service use in 1,420 children (9–13 years of age). Across all parent-child dyads, the frequency of problem perception was 13.3%. When looking at parents of children with one or more *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; DSM-IV; American Psychiatric Association, 1994) diagnoses, 39.0% perceived difficulties and 31.7% recognized the impact of the child's difficulties on others. Not surprisingly, the strongest predictor of problem recognition was impact, suggesting that the degree to which problems affect others is important for recognition. Similar rates of problem recognition have been found by others (e.g., Zahner, Pawelkiewicz, DeFrancesco, & Adnopoz, 1992). These low rates of problem recognition are particularly important in light of Teagle's (2002) finding that problem perception, rather than impact, predicted use of specialty services (e.g., mental health services).

Access to Mental Health Assessments

In a number of studies, researchers are also investigating the second stage along the adherence continuum, namely, access to mental health assessments for children with mental health problems (e.g., Cornelius, Pringle, Jernigan, Kirisci, & Clark, 2001; Flisher et al., 1997; Kataoka, Zhang, & Wells, 2002). Among a sample of inner-city youths, for example, approximately one third of 253 parents did not attend an initial assessment session after being referred by a general medical practitioner and having their session scheduled. Moreover, three quarters of those who did not attend the initial session still expressed a desire for care (Harrison, McKay, & Bannon, 2004). Several factors contributing to parents' failure to access mental health were identified, including cultural and familial factors such as social support and parental skill efficacy (Harrison et al., 2004), a lack of available resources, and caregivers' failure to recognize mental health need (Buckner & Bassuk, 1997). Undoubtedly, cost is also a barrier in access to such services. This fact is evident from reports that the use of mental health services from childhood through adolescence is greater among those underprivileged who have had contact with child welfare than among those with similar need for services who have not had welfare service contact (Farmer et al., 2001).

Treatment Continuation and Completion

In the vast majority of studies, researchers have focused on the final stage of *adherence*, or continuation and completion of mental

health and (more often) medical treatment regimens, once they have been initiated (Colland et al., 2004; DeLambo, Ievers-Landis, Drotar, & Quittner, 2004; Garcia & Weisz, 2002; Ibrahim, 2002; Kazdin, Holland, & Crowley, 1997; Kazdin & Wassell, 1999; La Greca & Bearman, 2003; Luk et al., 2001). The reason for the large number of studies in this area is likely due to evidence that failure to comply with recommended mental health regimens or medical regimens is a major barrier toward achieving therapeutic goals (DiMatteo, 1994). These studies have examined a variety of pediatric patient groups, including children with asthma (Colland et al., 2004), cystic fibrosis (DeLambo, Ievers-Landis, Drotar, & Quittner, 2004), disruptive behavior disorders (Kazdin et al., 1997; Kazdin & Wassell, 1999; Luk et al., 2001), and attention-deficit/hyperactivity disorder (ADHD; Ibrahim, 2002). Rates of child adherence to treatment regimens vary dramatically. A study examining child pharmacological adherence in ADHD, for example, yielded compliance rates greater than 70% (Ibrahim, 2002), whereas a study examining rates of child adherence to a self-managed asthma regimen yielded much lower estimates (25%; Colland et al., 2004). Factors influencing adherence at this stage are various and can include multiple demographic factors (e.g., ethnicity, single parent status, parent's education), child's developmental level, child and parental beliefs about the illness, type of illness, type of treatment, financial concerns, quality of the therapeutic relationship, quality of family relationships, or time and transportation constraints.

Initiation of Services

The previously reviewed studies address adherence at important time points along a continuum and provide valuable data highlighting possible barriers to adherence and intervention targets. However, the preponderance of studies investigating adherence focus exclusively on access to care and completion of treatment. Almost no empirical attention has been devoted to parental adherence to psychologists' recommendations for children at the point of initiation. It is essential to know, once childhood mental health (or other clinical) services are recommended following psychological testing, what percentage and what types of recommendations parents initiate and, furthermore, which barriers interfere with adherence at this critical stage along the continuum.

Failure to initiate treatment might be related to the type of recommendation made. Bennett and colleagues (1996) examined parents' adherence to a recommendation to pursue psychotherapy and a medication evaluation for their child who was diagnosed with ADHD and who participated in psychological testing at an outpatient ADHD clinic. Seventy-two percent of parents pursued the recommendation for a medication trial, whereas only 54% followed through with the psychotherapy recommendation. Similarly, King et al. (1997) examined adherence rates in a sample of suicidal adolescents and their families who participated in a comprehensive psychological assessment in an inpatient setting. In this study, the researchers found that 67% of the adolescents and their families adhered to a recommendation for medication follow-up, 51% adhered to a recommendation for individual psychotherapy, and 33% adhered to the recommendation for parent guidance or family therapy. These findings are consistent with those reported by Joost and colleagues (1989), who found that 53% of parents of children with educational or behavioral problems who were re-

ferred to an outpatient clinic for a psychological evaluation did not follow through on a recommendation for follow-up psychotherapy services. Given these findings, gaining insight into parents' explanations for choosing certain recommendations over others may provide valuable information relevant to how parents perceive mental health services and whether these perceptions negatively influence whether a parent initiates mental health recommendations following psychological testing. Such information may be useful in guiding psychologists to be more cognizant of parental perceptions and expectancies that influence issues related to adherence.

In the only direct examination of parental adherence to the full range of recommendations for children made by psychologists following psychological testing, MacNaughton and Rodrigue (2001) studied 93 parents of children ages 4–12 who presented for evaluation in a hospital-based child psychology clinic. Recommendations were categorized to include psychological treatment, referral for psychopharmacological evaluation, school-based interventions, additional professional consultation with other health professionals (e.g., hearing evaluation, occupational therapy, developmental assessment), and participation in various self-help activities. The recommendations made by the evaluating psychologist were recorded, and then parents' adherence to them was assessed via telephone interview with the parents approximately 4 weeks after the evaluation. Two particularly important findings emerged from this study. The first finding was that the level of adherence differed significantly, depending on the type of recommendation made. The second finding was that the number of barriers encountered was more important for adherence than the type of barrier.

Two hundred sixty-two recommendations ($M = 2.8$ recommendations per child) were prescribed during the study period, with an overall adherence rate of 67%. On the surface, this information suggests a moderate level of adherence to psychologists' recommendations. However, further examination of the data showed that adherence rates differed significantly on the basis of the type of recommendation made. Adherence was highest (81%) for professional nonpsychological recommendations, which most often included referrals to pediatricians or other health professionals. School-based recommendations were adhered to 69% of the time; these recommendations included consultation with the child's teachers, classroom behavioral plans, tutoring, and remedial academic programming. Recommendations that involved various types of self-help activities were adhered to 59% of the time; these recommendations included bibliotherapy, community support groups, and home-based behavioral strategies. Finally, the lowest adherence rate (47%) was observed for recommendations pertaining to psychological services. These services include individual, family, or group psychotherapy; behavior management training; or additional psychological evaluation.

MacNaughton and Rodrigue (2001) provided preliminary data on predictors of initiation nonadherence. In particular, they highlighted the significant influence of the sheer number of barriers on nonadherence; as the amount of identified barriers (regardless of type) increased, rates of nonadherence also increased. This fact is particularly noteworthy, given that more than one third of participants in the study reported difficulties accessing recommended services. Thus, although a large number of participants could not even access services, this was not as important for predicting

nonadherence as the total number of barriers encountered. This finding corroborates research investigating predictors of nonadherence at the treatment completion stage (e.g., Kazdin et al., 1997; Kazdin & Wassell, 1999), suggesting that the perception of cumulative barriers affects nonadherence at multiple stages along the adherence continuum.

Although the MacNaughton and Rodrigue (2001) study was a valuable first step in the identification of predictors of nonadherence during the initiation stage, the authors used unvalidated self-reports of perceived barriers and adherence. Research in this area would benefit from the development of a standardized assessment measure that would help researchers ensure reliability and validity of the data as well as the use of multiple informants that would help researchers assess adherence with treatment recommendations following psychological testing. Furthermore, investigation into other categories of barriers beyond those assessed in the MacNaughton and Rodrigue study (e.g., access problems, financial problems, competing time or schedule demands, and negative attitudes/beliefs) may provide insight into the mechanisms through which nonadherence occurs. In light of significant findings from MacNaughton and Rodrigue, it is essential that researchers continue examining adherence at the point of initiation in the context of types of recommendations and barriers.

Predictors of Adherence to Psychologists' Recommendations

Many factors can potentially influence parents' adherence to psychologists' recommendations for their children following psychological testing. Some of the barriers identified by MacNaughton and Rodrigue (2001) included limited resources, access to care issues, child-care difficulties, delays in insurance authorization, transportation problems, and other competing time demands. Other possible predictors gleaned from a review of other relevant literature (e.g., Richardson, 2001) include relevant sociodemographic characteristics, attitudes and beliefs, perceived severity of the child's presenting symptoms, self-efficacy, parents' mental and physical health status, and satisfaction with services. A parent's adherence is likely to be influenced by the characteristics of interactions between the parent and child. In addition, a parent's adherence is likely to be influenced by parental adjustment, child adjustment (Kamphaus & Frick, 2002), and the success of specific interventions for specific types of childhood psychopathology (Fonagy, Target, Cottrell, Phillips, & Kurtz, 2002). Hence, when examining parental adherence to psychological recommendations for children following psychological testing, these family process variables may be studied for their contribution to parental adherence as well as for subject problem and treatment match. For example, an unmotivated parent with an oppositional child or a recently widowed parent with a depressed teenager may be at considerably more risk for failure to adhere. Developmental variables are likely to contribute to variance in adherence, as well. For example, adolescent resistance and rebelliousness may prove to be substantial obstacles to a parent's ability to follow through with treatment recommendations.

A parent's thoughts, attitudes and beliefs toward the treatment recommendations made by psychologists following psychological testing can affect initiation adherence behavior. Beliefs about the credibility of the recommended treatment, the focus of the recom-

mended treatment, the extent to which the recommended intervention can improve the child's functioning, the mental health provider's competency, and the time and resource demands of the recommended treatment may all influence whether a parent will initiate a recommended treatment. Additionally, a parent's sense of self-efficacy may predict whether the parent adheres to treatment recommendations from child psychologists. If parents perceive themselves as incapable of participating in their child's treatment, they may choose not to initiate such treatment so as to avoid failure. In some cases, a parent's perceived incapability may be accurate given certain financial or family situations, and this realistic perception, if verbalized or otherwise noted, may also be useful in understanding reasons for nonadherence. Research on parental beliefs and expectancies at the completion stage suggest that these factors are significant predictors of adherence (Nock & Kazdin, 2001). Gaining insight into the relation between parental expectancies and parental adherence to psychologists' recommendations at the initiation stage is of critical importance to the understanding of the reasons behind parents' nonadherence and to the development of interventions targeting nonadherence at the initiation stage.

Challenges to Measuring Adherence and Potential Solutions

Because of the large number and various types of factors that present challenges to adherence to recommendations following psychological testing, the accurate measurement of these factors and of adherence also presents challenges. Clinicians and researchers involved in psychological testing are faced with many questions: When should assessment of adherence occur? Should it be 1 month, 2 months, or 3 months after the evaluation? In light of the difficulties with access to treatment described earlier, it is clear that some parents might need more time before treatment can be initiated and before adherence to recommendations can be assessed. Establishment of a timeline and plan with the parent(s) that takes into consideration identified barriers (e.g., access to transportation) and offers potential solutions to overcoming these barriers (e.g., Medicaid van) may help to guide this process. Another challenge to accurate assessment of adherence to recommendations concerns the demand characteristics inherent in an interview format. As one potential solution, to ensure valid data researchers can obtain information relevant to adherence not only from the parent(s) but also from the individuals or agencies to whom the psychologist made referrals. Another issue is that of standardizing the adherence assessment interview so that all potential barriers to initiation have been queried and all potential recommendations have been considered. The development of such a measure should include proper consideration of how to categorize barriers, recommendation types, and percentages of adherence (e.g., the parent initiated one out of four treatment recommendations). Additionally, the measure should address parents' explanations for which recommendations (if any) they chose to initiate. For example, if a parent initiates a medication recommendation and the child's behavior improves, the parent may be less motivated to initiate other treatment recommendations (e.g., individual or family therapy). This type of information may be particularly useful in understanding a parent's conceptualization of their child's problem and may

also provide insight into how to best match client needs to optimal treatment recommendations.

Practice Implications

A recent review of trends in psychological testing of children and adolescents indicated that child assessment is “thriving” (Kamphaus, Petoskey, & Rowe, 2000, p. 161). This review reported the existence of an “extraordinary array of tests” available for child assessment and stated that these tests are being offered at a “dizzying pace” by test publishers (Kamphaus et al., 2000, p. 161). Child assessment has become an industry in terms of the rapid and extensive generation of instruments for testing children. Psychologists are being advised to stay abreast of the considerable number of new measures and new technology available for conducting child assessments, a somewhat daunting task given the substantial amount of growth occurring at present.

In addition to remaining up to date on the latest methods of child assessment, the child psychologist also has the responsibility of evaluating the incremental validity of incorporating such assessment methods into their current practice. In examining the utility of these measures and techniques, the child psychologist should consider the diagnostic efficiency of the instrument. Research on the predictive value of psychological testing instruments has suggested that these instruments often have substantial limitations for use in clinical assessments, especially in making initial diagnostic decisions. Often, measures tap one aspect of a disorder rather than the full range of symptoms or problems that form the diagnostic criteria for a disorder. Additionally, many of the assessment techniques and measures have limited ability to discriminate those youth with or without a psychological disorder (Doyle, Biederman, Seidman, Weber, & Faraone, 2000; Frick & Loney, 2000). In fact, researchers acknowledge that even with a multiple test battery, the number of false negatives can be substantial (Doyle et al., 2000). Therefore, consideration of the incremental utility of adding a new measure to the clinical assessment protocol should be made with an informed understanding and knowledge of the measure.

Additionally, we contend that there is a long overdue need for the assessment of whether the use of such tests results in the initiation of recommended interventions and the amelioration of symptoms. As a means to these ends, in this article we present pertinent issues that psychologists can consider in measuring adherence, and we highlight key variables that researchers can include in developing a standardized assessment instrument. Having an assessment system that can identify and classify barriers to adherence will be instrumental in the design of interventions aimed at reducing such barriers or, when possible, helping parents overcome them.

A number of potential barriers exist that may prove to negatively affect a parent’s decision to initiate treatment for their child. The barriers identified by Kazdin et al. (1997) for the treatment continuation and completion stage likely may also serve as barriers for the treatment initiation stage. For example, barriers such as the perceived relevance of the recommended treatment, the perception of treatment demands, and the relationship between the parent and the psychologist may all be important predictors of nonadherence (Kazdin et al., 1997). Modification of such a measure may pose promise in helping psychologists identify barriers to initiation of treatment.

In addition to barriers identified by Kazdin et al. (1997), researchers have begun to acknowledge other factors that may influence nonadherence to treatment recommendations following psychologist testing. For example, researchers have indicated that continuity of care is related to increased adherence rates (Dierker, Nargiso, Wiseman, & Hoff, 2001; Foster, 1998), whereas disruption in care providers and long periods of time on waiting lists are associated with increased nonadherence (Sirles, 1990). Additionally, researchers have examined nonadherence as it is related to Prochaska and DiClemente’s (1984) transtheoretical stages of change model, acknowledging that it may be that nonadherence is a function of a parent’s or child’s motivation to change (Nock & Kazdin, 2005). Nock and Kazdin (2005) have recently developed a motivational interviewing intervention called participation enhancement intervention (PEI) that has been shown to increase parent motivation, treatment attendance, and treatment adherence. Additionally, these researchers acknowledged that the brief nature of the intervention makes it modifiable and applicable to a large range of patient populations and psychological presentations.

Researchers have also highlighted that many psychological factors fail to address familial, community, and other contextual factors that affect the decision to initiate treatment for their child (Perrino, Coatsworth, Briones, Pantlin, & Szapocznik, 2001). Intuitively, it is important to not only focus on ways in which to engage the identified patient when delivering treatment recommendations but also to address the context of the entire family and other community members who share involvement in the child’s life. Including evaluations of the family’s power structure, communication styles, alliances, conflicts, support, and level of family distress and disorder may assist the psychologist in acknowledging family strengths and risk factors prior to treatment onset and enable him or her to address these issues up front so as to reduce the likelihood of nonadherence to recommendations (Perrino et al., 2001).

Another issue worthy of consideration is the breadth of treatment recommendations made by psychologists following psychological testing. Investigating whether certain recommendations are followed more often than others and examining possible reasons why parents seem to choose certain modes of treatment over others may provide insight into reasons for nonadherence. Perhaps parents fail to initiate treatment recommendations because treatment targets are focused primarily on the child and fail to address other pertinent issues within the family that may be unrelated to the child (e.g., marital conflict, family transitions). In support of this notion, researchers investigating adherence during the continuation and completion stage of the adherence continuum compared standard family treatment (SFT), which focuses exclusively on parental management of the child’s symptoms, and enhanced family treatment (EFT), which addresses not only management of the child’s symptoms but also adult issues. These researchers found that dropout rates among families in the EFT condition were significantly lower than those in the SFT condition (Prinz & Miller, 1994).

Conclusion

In this article, our primary purpose is to arouse interest and awareness related to issues of nonadherence to treatment recommendations following psychological testing. Additionally, we hope to encourage child psychologists to incorporate an assess-

ment of these issues into their current practices to obtain a better understanding of the factors contributing to nonadherence. Understandably, integrating such a system into clinical practice may require a modification or expansion of one's current clinical framework. However, in light of the findings from preliminary research in this area that indicate nonadherence to psychologists' treatment recommendations is a significant concern, attendance to and assessment of issues of nonadherence is essential. Once the systematic measurement of adherence is established, the next logical step is the assessment of whether adherence is related to symptom improvement. Development of measures of adherence as well as research on barriers to parental adherence with clinical recommendations following assessment will improve children's mental health care.

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