

Common Factors in Pediatric Psychiatry: A Review of Essential and Adjunctive Mechanisms of Treatment Outcome

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Abstract

Objective: The purpose of this article is to review the literature on hypothesized behavioral correlates of pharmacotherapy treatment response. A particular focus is placed on what have been referred to as “common factors” across mental health treatments, including medication adherence, therapeutic alliance, motivation for behavior change, and expectancies for positive treatment outcomes. These understudied factors may provide unique explanations for mechanisms of symptom change, patient risk as a result of protocol deviation, and attenuated treatment outcomes.

Method: A literature search was conducted to evaluate the relationship between treatment processes in pediatric psychiatry and medication adherence, therapeutic alliance, motivation for behavior change, and expectancies for positive treatment outcomes.

Results: Substantial variability and room for improvement was identified for each common factor. Behavioral protocols have already been developed to address many aspects of common factors in pediatric psychiatric treatment, but are not yet a part of many practice parameters.

Conclusion: Interventions to improve common factors can be used immediately in tandem with psychopharmacological interventions to provide increased symptom relief and reduce patient risk. Furthermore, incorporating instruction in common factors interventions can positively affect training of future providers and enhance understanding of the mechanisms of effect of medications. An increased focus on common factors, with a particular emphasis on quantifying the magnitude and mechanisms of their effects on psychopharmacological interventions stand to benefit child patients, their families, treatment providers, training facilities, and pharmaceutical manufacturers.

Keywords: alliance, motivation, expectancies, adherence, common factors

PHARMACOTHERAPY HAS DEMONSTRATED efficacy for pediatric psychopathology (TADS Team 2007; Walkup et al. 2008) and is widely disseminated, as an estimated 14.2% of adolescents report taking a psychotropic medication in the preceding 12 months (Merikangas et al. 2013). Medication use has also been expanding over time, as the number of physician visits resulting in psychotropic medication prescriptions has more than doubled during the 15 year period before 2010 (Olfson et al. 2014). Widespread intervention is indeed necessary; 49.5% of youth experience a mental disorder at some point, and 22.2% of children experience symptoms that are characterized by severe impairment and/or distress (Merikangas et al. 2010). By adolescence, nearly two million

American children perceive more than half of their days as “mentally unhealthy” (Perou et al. 2013). On a broader level, the associated costs of mental illness in young people are staggering, with annual costs associated with pediatric mental illness estimated at \$247 billion dollars (Perou et al. 2013). Mental disorders are the costliest health condition to treat in children (Soni 2009).

While pharmacotherapy has a substantial base of efficacy data for its support, treatment response and patient adherence behavior have differed between clinical trials and real world clinical practice (Fleischhacker and Goodwin 2009). These circumstances reflect not only reduced effectiveness of medication, but also an increase in safety risks through protocol deviation. For instance,

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acute medication discontinuation may be associated with increased suicide risk posed by selective serotonin reuptake inhibitors (SSRIs) that led to the Federal Drug Administration (FDA) imposing a “black box” warning on antidepressants (Weiss and Gorman 2005; Goodman et al. 2007; Murphy et al. 2008). Clinical research is also affected by nonadherence, as suboptimal adherence can lead to a substantial increase in the sample size needed to detect a significant effect, result in overestimation of dosage requirements, and interfere with the proper association of adverse event rates with drug administration (Pullar 1991; Farmer 1999; Matsui 2009). However, despite the widespread recognition of these problems, the causes of this situation are understudied.

One very likely source for this attenuation of pharmacotherapy effects is behavior. Adherence is naturally implicated, and a number of psychosocial variables (in particular, therapeutic alliance, motivation for behavior change, and expectancies for positive treatment outcome) have demonstrated substantial impact on outcomes in psychotherapy and other areas of medicine (Karver et al. 2006; Hall et al. 2010; Osborn and Egede 2010). These variables are known as “common factors” in the psychotherapy literature, as they have been highlighted for their importance across all methods of psychotherapy for over 70 years (Rosenzweig 1936), but in the context of pharmacological interventions they have been characterized more frequently in terms of nuisance confounds and “placebo effects” (Miller et al. 2009).

While common factors variables have often been considered to be confounding factors in clinical trials, perhaps instead they can be construed as novel mechanisms of treatment that can be capitalized upon to provide new avenues for pharmacotherapy outcome improvement. A significant amount of variability exists in these factors, and while some of them have traditionally been considered dispositional attributes, they are surprisingly modifiable. Given that the process of psychiatric drug development has slowed substantially (Cowen 2011), improving upon these factors provides a mechanism to improve treatment outcomes across-the-board, immediately, in contrast to waiting for a hypothetical future advance in psychopharmacology. The purpose of this article is to characterize the current state of the literature on several of these factors with a focus on pediatric psychiatric practice, and suggest ways forward.

Search Strategy

A database search of PubMed and Google Scholar was performed by crossing demographic terms (i.e., child, adolescent, pediatric, youth) with terms from the common factors literature (adherence, compliance, alliance, expectanc*, motivation) and searching for these terms without crossing. Particular focus was placed on studies relevant to pediatric psychopharmacology, though research from other fields (e.g., adult populations, psychotherapy, and other areas of medicine) was employed when relevant for context, given the understudied nature of these factors in pediatric psychiatry. Reference lists from meta-analyses and highly cited articles were also used during the search process.

Considering the Role of Adherence in Pediatric Psychiatry

Adherence refers to the extent that patients follow a prescribed medication regimen, and is critical to ensure the effectiveness of interventions (Osterberg and Blaschke 2005). It is also a critical connection between treatment development and outcome, as billions of dollars in drug development are rendered ineffectual if patients do not take their medications as prescribed. In child psychiatry, adherence has often been observed to be poor, and adherence rates have

been reported to be under 50% for commonly used medications such as serotonin reuptake inhibitors and stimulants (Murray et al. 2004; Richardson et al. 2004; Gau et al. 2006). Both long- and short-term adherence may be at serious risk. Many children on antidepressants do not continue medication for more than 6 months or even fill a second prescription after treatment initiation (Bushnell et al. 2016), and long-term adherence to atypical antipsychotics in adolescents has been reported to be poor (Pogge et al. 2005). Furthermore, long-term adherence to stimulant medication has been found to be less for children relative to adults, with expert opinions finding patient attitudes and patient–physician communication as common reasons for treatment discontinuation (Gajria et al. 2014).

While data on the adherence–outcome relationship are limited in pediatric psychopharmacology, nonadherence to sertraline has been associated with a nearly 30% reduction in response rates in adult depression (von Knorring et al. 2006). Psychiatric medication nonadherence is also a major contributor to drug-related emergency hospital admissions (Procyszyn et al. 2010), and poor medication adherence has been associated with increased rates of relapse and hospital readmission in patients with schizophrenia and bipolar disorder (Velligan et al. 2009). Conversely, greater adherence has predicted improved outcomes in treatment for pediatric attention-deficit/hyperactivity disorder (ADHD) and depression (Pappadopoulos et al. 2009; Woldu et al. 2011). Poor adherence is not restricted to psychiatry and remains a common problem in a variety of chronic health conditions in youth, including diabetes and asthma (Pai and McGrady 2014). Inadequate adherence is also costly in terms of financial expenditures. Increases in costs ranging from \$750 to \$2000 have been observed for each nonadhering patient in adult antidepressant treatment (Revicki et al. 1998; Thompson et al. 2000), and costs associated with vocational absenteeism due to antidepressant noncompliance are over \$1000 annually per nonadherent patient (Birnbaum et al. 2010). In contrast, adequate adherence to antidepressants has been associated with a reduction in overall medical costs (Cantrell et al. 2006).

Thus, adherence stands to be an important mechanism of outcome in pediatric psychiatry, especially given the frequent usage of psychiatric medications in youth and low observed adherence rates. Suboptimal individual-level outcomes can aggregate into a large-scale attenuation of therapeutic effects, leading to additional burden on the overall healthcare system when patients remain in active treatment for excessively long periods. Despite these wide ranging consequences, medication adherence in pediatric psychiatry remains an underexplored variable (McGuinness and Worley 2010).

In considering variables that have traditionally affected adherence, a number of factors have emerged. With regard to physical factors, side effects of medication and convenience of administration predict adherence (Mitchell 2006; Julius et al. 2009). Exemplars of these phenomena include patients who may find it easier to adhere to once-a-day medication dosing relative to multiple intraday doses, and patients who experience greater side effects can sometimes reduce the amount of medication they are taking when they experience these undesired effects. Demographic factors also have relationships with adherence, as there is evidence that girls and boys differ both in how positively they feel about psychiatric medications and in subsequent adherence (Laurier et al. 2010). Overall, adherence is worse for children relative to adults (Costello et al. 2004). In particular, adolescents can show increased difficulties with adherence (Matsui 2007); this may be due in part to parents frequently taking more responsibility for medication administration for younger youth while adolescents are less likely to receive parental direction (Hsin et al. 2010).

In addition to these factors, one unique aspect of adherence in psychiatry is that the pathology itself can reduce adherence (Smith and Shuchman 2005). This is particularly impactful, as a recursive process can exist where adherence to psychiatric intervention is reduced by psychopathology, and then this low adherence precludes improvements in psychopathology, which subsequently continues to impact adherence. For example, a depressed child may be less likely to be motivated to take medication, adhere more poorly, and remain more depressed as a product of this non-adherence, which subsequently continues to attenuate adherence as part of a vicious cycle.

Although physical, demographic, and psychopathology-related factors can affect adherence, they are not fully predictive of behavior, and at times provide only limited avenues for adherence improvement. Other psychosocial variables provide additional potential opportunities to improve adherence and merit further consideration, especially as significant variability has been observed among physicians with regard to their approaches to adherence (Drotar 2009). One traditional approach utilized for understanding medication adherence is the health beliefs model, which focuses on the perceived benefits of medications in contrast to perceived harms (Rosenstock 1966). A related framework that has also been applied to adherence behavior is social cognitive theory, which focuses on expectations for positive outcomes and expectations for ability to engage in adherence behavior (Bandura 1998). Approaches that have been based on these models have been successful for increasing adherence and health-promoting behavior in a number of medical conditions, including asthma and heart disease (Bandura 2004). Yet another approach to psychosocial variables in adherence has been the theory of planned behavior (TPB), which focuses on three components: patient attitudes toward adherence, patients' perceived subjective norms toward adherence, and patient expectations about their ability to engage in adherence (Ajzen 2011). The TPB model predicts engagement for a number of health behaviors, ranging from increases in exercise to reductions in risk-taking behavior (McEachan et al. 2011).

However, despite the extensive research supporting these models, they suffer from some shortcomings when applied to pediatric psychiatry. First, they were originally conceptualized in adults, and the complexity of these models is compounded in pediatric care as these variables can apply to both parents and children (Matsui 2007). Second, while these traditional approaches have made some inroads into predicting adherence, much variance remains to be explained (Riekert et al. 2014). Third, they are limited by their focus on patient-level behavior, neglecting patient-provider and family-based interactions, which can be critical in changing individual-level variables of youth patients (Clark and Janevic 2014). To address this limitation, models that incorporate the patient-provider interaction (such as therapeutic alliance) merit addressing in the context of adherence and outcome (Diamond 2012).

Considering the Role of Therapeutic Alliance in Pediatric Psychiatry

The therapeutic alliance focuses on the interaction between patient and clinician, and in adults has been conceptualized in terms of three components: the bond between clinician and patient, agreement on the tasks to be completed in therapy, and agreement on the therapeutic goals to be achieved (Bordin 1979). In children, these individual components have been identified as important, but at times have not emerged as separate factors and instead a one-factor model of alliance has been primarily found (Shirk et al. 2011). Differences between adult and pediatric alliance models have

arisen for a number of reasons, including distinct perspectives provided by children and the presence of multiple parties in therapy (e.g., parents and children; Zack et al. 2007). Additionally, children may not have the cognitive capacity to differentiate task and goals (which are more cognitively based) from the bond (which is more emotionally based; Shirk et al. 2011). With regard to the process of alliance in child therapy, alliance formation involves the clinician simultaneously serving in a position of active listening while also providing a directive framework for treatment (Shirk et al. 2011).

The alliance has been highlighted most extensively in the psychotherapy literature, where it has shown a robust effect on treatment outcome across psychotherapies (Horvath et al. 2011). Alliance can also predict other important child therapy processes such as patient engagement and retention (Garcia and Weisz 2002; Castro-Blanco and Karver 2010). While the necessity of the physician-patient relationship has been identified as critical in adherence for overall pediatric practice (Winnick et al. 2005), it has received very little attention in child psychiatry despite the patient-provider relationship being central to establishing a diagnosis and to making a treatment prescription.

Nevertheless, some empirical data have addressed the alliance in psychiatry. In adult depression, the average alliance throughout treatment accounts for 19% to 56% of variance in pharmacological treatment outcome (Krupnick et al. 1996; Weiss et al. 1997), and alliance can predict outcomes even when already accounting for technique effects from cognitive behavioral therapy (CBT) and/or antidepressant medication (Klein et al. 2003). Early alliance in treatment may be particularly predictive of antidepressant outcomes (Blatt and Zuroff 2005). Alliance may also have a specific effect on medication outcome, as it has displayed differential effects between active compounds and placebo medication in SSRI treatment for depression (Strunk et al. 2010). Alliance and expectancies have also predicted adherence and outcome in pharmacotherapy for bipolar disorder (Gaudiano and Miller 2006; Zeber et al. 2008; Sylvia et al. 2013) and in the usage of antipsychotic medication (Frank and Gunderson 1990; McCabe et al. 2012). Alliance may affect other therapy process variables as well, as the odds of medical treatment adherence are 2.16 times greater overall if a physician is a good communicator (Zolnieriek and Dimatteo 2009). These limited data indicate that alliance is not only an accessory to psychiatric treatment, but may in fact drive a significant proportion of the treatment process and subsequent outcome in pharmacotherapy.

A number of reasons have been posited regarding why alliance may affect treatment outcomes. One theory focuses on the sufficiency of strong alliance formation, which allows the patient to enact changes that might not otherwise be made alone (Norcross 2010). In this context, the alliance is the principal stimulus that leads patients to identify and enact positive change as a result of therapy. Another view is that alliance is a catalyst that helps patients engage in other therapy elements (Shirk and Karver 2006; De Nadai et al. 2014). Under this conceptualization, a strong alliance provides a foundation for communication in therapy that enhances patient engagement in specific techniques and interventions provided by the clinician, which then result in therapeutic change. Consistent with this perspective, alliance has been found to be consistently related to adherence in a number of mental health treatments and may work partially through improving expectancies for treatment (Thompson and McCabe 2012). In psychiatry, consistent with both views, it has been suggested that alliance can directly improve patient outcomes and may also indirectly improve outcomes through its positive effects on adherence (Priebe and

Mccabe 2008). Further quantification of these effects is needed in child psychiatry, which differs from traditional therapy with adults given the dual importance of both child-clinician as well as parent-clinician alliance (Joshi 2006) and that child and parent alliance may have some orthogonal contributions to mental health outcomes (Hawley and Weisz 2005; Bickman et al. 2012). While understudied, alliance affects both process and outcome variables in psychological and medical treatments.

Considering the Role of Motivation for Behavior Change in Pediatric Psychiatry

While patient motivation has been identified as a key principle in routine psychiatric practice (Chanut et al. 2005), its effects have been rarely quantified in pharmacotherapy for pediatric psychopathology. Motivation for behavior change in the context of psychopathology has most often been conceptualized in terms of the transtheoretical model for change, which posits that patients are often at different stages of readiness for change. This succession of stages includes precontemplation (has not considered change), contemplation (has some desire to change, but also some desire to maintain the status quo and has not initiated change), preparation (has started to take steps that lead to change), action (has initiated the change process), and maintenance (working to retain changes that have been made; Prochaska and DiClemente 2005). While it was originally derived in the context of substance use disorders, meta-analysis has supported the relationship between readiness for change and outcome in a number of psychotherapy approaches (Norcross et al. 2011). Interventions tailored to specific stages of change have displayed efficacy in changing behaviors ranging from smoking cessation to physical activity promotion (Marshall et al. 2003; Cahill et al. 2010), and the transtheoretical model has proven quite flexible, permitting for application to a wide range of behaviors (including exercise, domestic violence, and organ donation) and in a broad array of treatment settings, ranging from primary care to college campuses (Prochaska 2008; Lundahl et al. 2013).

Consistent with theory, better outcomes have been found in pharmacotherapy for depressed adolescents who are in the action stage of change at baseline (Lewis et al. 2009), and higher levels of precontemplation have been associated with less change during pharmacotherapy for adults with obsessive compulsive disorder (OCD; Pinto et al. 2007). Unfortunately, stages of change research has received relatively little attention in pediatric psychiatry, despite the robustness of its supporting literature across health conditions and its likely relevance for psychiatric research and practice (Cole et al. 2011). Notably, psychiatric disorders often present barriers to motivation for change that prevent successful intervention for change in the disorder itself (Jellinek et al. 2009), creating a self-sustaining barrier to symptom change. While patient motivation affects both distal patient symptom outcomes and proximal therapy process outcomes, the relative magnitude of its direct and indirect effects have rarely been calculated for any health condition, and it remains an understudied variable in pediatric psychiatric practice.

Considering the Role of Expectancies in Pediatric Psychiatry

Expectancies for psychiatric care can be distilled into two major aspects: what the patient expects his/her role to be in treatment (role expectancies) and what the patient expects for treatment outcome (outcome expectancies; Glass et al. 2001; Dew and Bickman 2005). Expectancies “set the stage” for treatment and can either augment

or diminish patient experiences and symptom response in mental health treatments (Delsignore and Schnyder 2007). Empirical findings support their relationship with psychological treatment outcome, as expectancies have predicted symptom reduction in CBT for pediatric OCD (Lewin et al. 2011), and meta-analysis has been used to highlight a relationship between expectancies and outcome across psychotherapy approaches (Constantino et al. 2011).

Of note, outcome expectancies do not exist in a therapeutic vacuum but rather work in tandem with other common factors, as patients with positive treatment expectancies have been found to have stronger alliances (Connolly Gibbons et al. 2003; Greenberg et al. 2006; Hersoug et al. 2010; Constantino et al. 2011) and adhere better to psychological treatments (Constantino et al. 2012). Alliance has also been demonstrated as a mediating mechanism whereby expectancies exert outcome effects in pharmacotherapy for both unipolar and bipolar depression (Meyer et al. 2002; Gaudiano and Miller 2006). This mechanistic relationship with alliance may be particularly strong, as Joyce et al. (2003) found that alliance could account for approximately one-third of the relationship between expectancies and outcome in psychotherapy. Motivation for change has also been associated with outcome expectations (McKee et al. 2007), though expectancies are distinct from motivation, as patients may be motivated for change yet still not expect notable positive changes from therapy (Arnkoff et al. 2002). This construct distinction has also been observed in pediatric psychotherapy, where parent outcome expectancies have been found to predict adherence above and beyond parent motivation for treatment (Nock et al. 2006).

Despite the wide ranging effects observed for psychological treatments, expectancies have received comparatively little attention in psychopharmacological interventions. With regard to extant data, adolescents’ outcome expectations for depression treatment have predicted outcomes across psychological and psychopharmacological modalities (Curry et al. 2006), and similar findings have been found in adult depression (Sotsky et al. 2014). Distinguishing patients with high and low expectations may provide a particularly stark contrast, as 90% of patients with strong expectancies showed treatment response in a single-blind trial of reboxetine for depression, in comparison to 33% of patients with low expectancies (Krell et al. 2004). It has been argued that common factors account for a majority of variance in adult antidepressant therapy for depression, and in particular expectancies may be a central mechanism for this effect (Kirsch 2013). In addition to these findings in depressive disorders, outcome expectancies have been related to adherence in ADHD treatment (Berger et al. 2008; McNicholas 2012).

Given these relationships, it is troubling that there may be lower expectations for primarily pharmacological approaches. Rapaport et al. (1996) found that when surveying depressed patients about possible sources of successful relief, medication alone was perceived as the least likely to help (8%), relative to talking therapy alone (25%) and combined medication and talk therapy (62%). Lax et al. (1992) also found that patients with OCD had stronger treatment expectations for psychological treatment relative to pharmacotherapy, though expectations were strong for both treatment modalities. Expectancies may also impact trials of clinical compounds, as response rates are higher in antidepressant trials when the medication under evaluation is compared to another active medication as opposed to placebo (Rutherford et al. 2009). Some data suggest that this finding may be due to higher expectancies for symptom reduction, given that when patients are certain they are receiving active treatment they expect better outcomes, as opposed to placebo-controlled trials where patients are uncertain if

they are in a group receiving treatment that will be helpful (Rutherford et al. 2010).

What Can Be Done About Common Factors in Pediatric Psychiatric Treatment?

While significant room for improvement remains with regard to common factors in pediatric psychiatry, fortunately there are a number of intervention protocols that can be implemented and further developed to improve treatment outcomes. One of the most researched of these protocols in pediatric psychiatry is motivational interviewing (MI; Haynes et al. 2008; Dean et al. 2010). MI can be used to help foster intrinsic patient motivation, can be delivered by physicians and allied health providers for a variety of conditions, and physician training in MI can result in enhanced patient outcomes (Rubio-Valera et al. 2011; Söderlund et al. 2011). Protocols for alliance skills training have also been developed (Meystre et al. 2013) and specific alliance skills training with psychiatric medication providers has resulted in not only improved alliances, but also improved adherence and outcome with psychotropic medication interventions in adults (Byrne and Deane 2011).

Expectancy enhancement protocols have also been developed (Constantino 2012). There is some evidence that expectancy itself works through neural mechanisms that regulate the experience of emotion (Enck et al. 2008; Rutherford et al. 2010), and thus expectancy enhancing interventions are not completely independent from biological interventions.

However, contemporary expectancy enhancement protocols are less developed than those for MI. Adherence improvement protocols, which frequently include elements from each of these approaches, have shown improvements in adherence behavior during treatment for a number of pediatric health conditions (Dean et al. 2010). While all of these protocols provide principles that are broadly applicable and can be applied to child psychiatry, further adaptation to the population of children who experience mental health difficulties is merited and may further enhance their effects.

The nature of these protocols could also alter the training of medical providers and the overall approach to patient care. For example, during initial training, coursework for treatment providers in interventions such as MI may be indicated. Additionally, given the need for and increased focus on personalized medicine (Hamburg and Collins 2010), protocols that focus on enhancing common factors facilitate the personalization of pharmacological approaches, and possibly reduce risks through decreasing nonadherence or increasing reporting of adverse events by patients through a strengthened therapeutic relationship. Such training and protocol application have unique elements to address in pediatric psychiatry, as multiple therapeutic parties have to be managed in the context of time constraints and variable frequency of visits.

Given these factors, an efficient approach is needed in order to monitor common factors such as alliance, both within- and between-sessions. One possible method would be through inclusion of a standardized common factors section in psychiatric patient notes, with individual lines allocated for a brief assessment of each common factor. Topics to be assessed for both parents and children could include whether there is agreement on the specific intervention chosen and its goals (alliance), factors that facilitate or inhibit desire to participate in treatment (motivation), positive and negative expectations for outcome and side effects, and factors that help or hinder medication administration. Given the variety of psychosocial issues that can affect administering medications daily (e.g., busy family schedule, family stress, possible equivocation on

the part of the parents regarding wanting to give their child a psychiatric medication and discomfort in feeling that their child may be “different”), valuable information that affects treatment outcome can arise in the context of a brief, standardized common factors assessment at each patient session.

Other opportunities to improve common factors exist through working with allied health providers. Children who receive psychiatric treatment frequently work with a separate psychotherapist or other behavioral health provider; potential for benefit exists by communicating with these other providers specifically about issues that either improve or impede common factors, for the dual purpose of improving psychopharmacological practice and establishing a synchronized message across providers. Increased feedback with pharmacy providers also stands to improve care; as automated, direct feedback on adherence via pharmacy refill records is now possible for a large number of patients given recent transitions to electronic medical records, which may help to highlight and ameliorate harmful and costly adherence problems. As of yet, systemic efforts to overcome barriers to implementing this process (e.g., proper synchronization and anonymization) have not received sufficient priority. Given this background, interventions to improve common factors do not exist in a vacuum, but rather may be relevant for system-wide efforts to enhance outcomes.

Conclusions

Adherence, therapeutic alliance, motivation for behavior change, and expectancies are common factors that cut across all pediatric psychiatric treatments. They are highly variable with clinical populations and can be harnessed to improve pharmacotherapy effects. They may even have independent treatment effects of their own, as what have been construed as “placebo effects” have a variety of neuroendocrine consequences (e.g., modulation of neurotransmitter and hormonal functioning, changes in brain-based metabolism; Finniss et al. 2010; Verhulst et al. 2013). These common factors also provide a reframing of pediatric psychiatric practice, which may affect clinical service, future research, and the training of medical providers. While it has been questioned whether the clinician-patient relationship is an adjuvant that fosters the implementation of active medications, or whether it provides a unique additive effect above and beyond pharmacotherapy (Priebe and McCabe 2008), the answer likely is some form of both; common factors serve as a necessary mechanism for achieving pharmacotherapy outcomes that can also add to them.

Unfortunately, they have been understudied, and while there is an intuitive sense that common factors matter in pharmacotherapy, we have little information regarding precisely how much they influence outcome—such effects may well be at a magnitude comparable to the interventions themselves. Given that there is a lack of knowledge about precisely why a number of medications are effective (e.g., SSRIs; Fernandez and Gaspar 2012) and why placebo effects are strong in some conditions, common factors research can provide new insight into how pharmacotherapy effects are achieved and new avenues to improve treatment. Additionally, they have immediate clinical relevance. For instance, if the first medication tried with a patient was ineffective or had significant adverse effects, a family may be pessimistic about the likelihood of success with another medication, expect serious side effects from other agents, and display some attenuation in alliance and motivation, all of which can diminish subsequent adherence. Accordingly, assessment and/or enhancement of a common factor by a treatment provider may be particularly indicated during times when medication changes are

considered. This assessment also provides a natural medium to initiate conversations regarding the broader context of treatment (e.g., strengths and difficulties in the home, school, and social contexts, working with other therapeutic providers, etc.). For many reasons, it is in the interest of pharmaceutical manufacturers, hospital and provider groups, training facilities, individual clinicians and researchers, and patients to address behavioral processes during treatment through further funding of research and the dissemination and implementation of current knowledge.

Clinical Significance

Current models of pediatric psychopharmacology posit medications as the impetus for clinical improvement, and other factors are frequently seen as auxiliary issues. Instead, common factors may be core mechanisms of symptom relief, as they provide necessary conditions for successful pharmacotherapy, work in tandem with medication to improve clinical outcomes, and also have independent therapeutic effects. They can also be used immediately to improve patient care, as intervention protocols to address these factors have been developed. Thus, additional attention to common factors can provide great benefit to clinical care, as what have traditionally been seen as dispositional mechanisms (i.e., motivation and expectancies) are actually modifiable, and there is significant variability observed in therapeutic alliance and adherence upon which to capitalize.

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