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The Needs-to-Goals Gap: How Informant Discrepancies in Youth Mental Health Assessments Impact Service Delivery

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Highlights

- Service professionals assess youth mental health using multiple informants.
- Multiple informants' reports commonly result in discrepant outcomes.
- This paper describes the Needs-to-Goals Gap framework.
- This paper links work on informant discrepancies to implementation science.
- The framework describes how informant discrepancies impact individual clients.

Abstract

Over 60 years of research reveal that informants who observe youth in clinically relevant contexts (e.g., home, school)—typically parents, teachers, and youth clients themselves—often hold discrepant views about that client's needs for mental health services (i.e., *informant discrepancies*). The last 10 years of research reveal that these discrepancies reflect the reality that (a) youth clients' needs may vary within and across contexts and (b) informants may vary in their *expertise* for observing youth clients within specific contexts. Accordingly, collecting and interpreting multi-informant data comprise "best practices" in research and clinical care. Yet, professionals across settings (e.g., health, mental health, school) vary in their use of multi-informant data. Specifically, professionals differ in how or to what degree they leverage multi-informant data to determine the goals of services designed to meet youth clients' needs. Further, even when professionals have access to multiple informants' reports, their clinical decisions often signal reliance on one informant's report, thereby omitting reports from other informants. Together, these issues highlight an understudied research-to-practice gap that limits the quality of services for youth. We advance a framework—the *Needs-to-Goals Gap*—to characterize the role of informant discrepancies in identifying youth clients' needs and the goals of services to meet those needs. This framework connects the utility of multi-informant data with the reality that services often target an array of needs within and across contexts, and that making decisions without *accurately* integrating multiple informants' reports may result in suboptimal care. We review evidence supporting the framework and outline directions for future research.

Keywords: Converging Operations, Diverging Operations, Multiple Informants, Mental Health Services, Operations Triad Model

Generating the "evidence" in "evidence-based practices" requires a research process supported by sound assessment. This process requires gathering, interpreting, and using evidence to guide core elements of service delivery. In fact, this process comprises the bedrock on which we build foundational principles of evidence-based practices in youth (i.e., child and adolescent) mental health. At the start of this process, research aimed at improving mental health functioning might focus on identifying those needs that require services. For instance, researchers might find that youth clients in a school or health care system have needs for services surrounding academic and social skills—needs commonly associated with multiple mental health conditions (e.g., attention-deficit hyperactivity disorder [ADHD], anxiety, autism, depression, conduct problems; American Psychiatric Association [APA], 2013). These formative "needs assessment" studies guide efforts to develop and test interventions designed to meet youth clients' needs. Intervention evaluation studies then inform efforts to identify programs supported by evidence and "ready" for professionals to use in applied settings (e.g., schools and health care systems).[1] Thus, throughout this process, evidence informs key decisions regarding service delivery. In these respects, research on evidence-based practices has long involved identifying *research-to-practice gaps*. These gaps reflect circumstances in which (a) practice is inconsistent with the available evidence; (b) there is little-to-no evidence to inform practice; or (c) researchers fail to engage stakeholders in adapting practices so that they are consistent with the best available evidence and appropriate for the service setting (e.g., Carnine, 1997; Lyon et al., 2020; Weisz et al., 2019).

The core thesis of this paper is that we must now extend work on research-to-practice gaps to an understudied gap that exists within our dominant approach to estimating youth clients' needs. We hold that a research-to-practice gap exists in how we gather and interpret

[1]We use the term "professionals" throughout, so as to promote an inclusive stance toward those who deliver services across the myriad settings where youth clients receive care, including health, mental health, and school settings.

reports from multiple informants—most often parents, teachers, and youth clients themselves (e.g., De Los Reyes et al., 2019a; Weisz et al., 2005). The gap on which we focus—the *Needs-to-Goals Gap* in service delivery—reflects current practices through which data derived from multi-informant assessments inform key elements of service delivery, namely setting the *goals* of services to meet clients' *needs*. In this paper, we review evidence indicating that dominant practices in school and health care systems prevent professionals from using and interpreting informants' reports in ways that capture context-specific information about clients' needs. In essence, these practices conflict with the science on multi-informant assessments. As long as this gap exists, youth clients' needs will continue to be addressed using services that fail to accurately identify and target therapeutic goals within the specific contexts in which clients' needs manifest. Thus, we (a) provide an overview of the state of the literature on multi-informant assessments; (b) highlight key ways in which this empirical knowledge is not systematically translated into practice, resulting in a unique research-to-practice gap that promotes a disconnect between individual client's needs and the goals of services they receive; (c) propose a framework for understanding this Needs-to-Goals Gap; (d) review evidence for this framework; and (e) highlight directions for future research. In particular, we highlight throughout that, although the Needs-to-Goals Gap framework focuses on commonly used multi-informant assessment modalities, the framework capitalizes on examining patterns of informants' reports in reference to independent assessments leveraging distinct modalities (e.g., observed behavior).

Use of Multi-Informant Assessments in Youth Mental Health Research

Across the clinical translational science process, one practice permeates all work regarding service delivery: use of multiple informants' reports to estimate youth clients' needs. These multiple informants provide reports in response to assessment tools designed to estimate

clients' needs (for a review, see Hunsley & Mash, 2007). These informants also provide reports about factors linked to youth clients' goals, which often capture domains to be targeted for change in services (e.g., parenting, peer relations, social competence; De Los Reyes et al., 2019b; De Los Reyes & Ohannessian, 2016; Fiks et al., 2012). Importantly, these same informants provide the reports that researchers often use to estimate intervention response (e.g., via randomized controlled trials; see Weisz et al., 2005). Further, they play a major role in the delivery of school-based services. For instance, procedures used to identify a student as eligible for special education services are delineated in federal law (i.e., "Protection in Evaluation"); these procedures consist of comprehensive evaluations that include multiple methods derived from multiple informants (*Individuals with Disabilities Education Improvement Act, H.R. 1350, 108th Congress,* 2004). Thus, in research, policy, and practice, the multi-informant approach is viewed as instrumental to accurately estimate youth clients' needs.[2] Two key observations in research support this view about the multi-informant approach to assessment: (a) multiple informants commonly provide discrepant estimates of youth clients' needs and (b) these discrepant estimates often reflect clinically relevant variations in clients' needs.

Informant Discrepancies in Youth Mental Health Assessments

Mental health scholars have long acknowledged that no single "gold standard" measure fully captures or estimates a youth client's mental health (for reviews, see De Los Reyes, 2011; Richters, 1992). The absence of a single mental health measure necessitates relying on multiple instruments to estimate clients' needs (Hunsley & Mash, 2007). Further, the robust observation

[2]From the outset, we must acknowledge the reality that the implementation of measurement-based care—of which use of multi-informant assessments comprises a key element—is quite low in service settings (see Lewis et al., 2019). In fact, the current state of practices regarding the multi-informant approach to assessment drove our development of the framework advanced in this paper. As such, below we discuss barriers to implementing a multi-informant approach to assessment, and in our framework we highlight that the clinical value of the multi-informant approach lies in its ability to facilitate implementation of personalized approaches to service delivery.

of discrepancies between informants' reports of clients' needs indicates that these informants provide non-redundant information. On average, researchers observe relatively low correspondence levels between two informant's reports of the same youth, and in fact, two meta-analyses conducted roughly 25 years apart identified the *same* mean correspondence estimate (i.e., $r = .28$; Achenbach et al., 1987; De Los Reyes et al. 2015). Additional meta-analytic work finds that these relatively low correspondence estimates appear in multi-informant assessments conducted cross-culturally as well as across clinical populations, assessment purposes, developmental periods, and assessed domains (for reviews, see De Los Reyes et al., 2019a; 2019b). These low correspondence levels translate to discrepancies in the inferences drawn from research findings. For instance, intervention effects range from small-to-large (e.g., Cohen's *d* ranging from 0.2 to 0.8+; Cohen, 1988), depending on the informant providing reports to estimate these effects (e.g., Casey & Berman, 1985; De Los Reyes & Kazdin, 2006; Weisz et al., 1987, 1995). Similarly, the detection of associated features of clients' needs, or whether clients experience co-occurring needs (i.e., comorbidity) varies considerably by informant (e.g., Offord et al., 1996; Rubio-Stipec et al., 2003; Youngstrom et al., 2003). All of these findings culminate in a clear reality about developing, testing, and implementing youth mental health services: *The foundation of research focused on service delivery hinges on understanding and accurately interpreting informant discrepancies in assessments of youth clients' needs*.

Conceptual and Empirical Links between Informant Discrepancies and Service Delivery

Contexts, Contingencies, and Situational Specificity

The last decade of work on conceptualizing and examining informant discrepancies focuses on two key factors. First, when youth clients experience the mental health needs that most often initiate services (e.g., autism, depression, conduct problems), they display

considerable variations in the social contexts in which they display these needs, including home and school contexts, as well as interactions with same-age peers (for a review, see Dirks et al., 2012). By logical extension, no two clients' needs manifest the exact same way, even when their needs stem from the same mental health domain. For example, two clients displaying needs related to social anxiety might vary, such that one client displays impairments primarily linked to difficulties with school performance in group contexts (e.g., class projects and presentations), whereas the other client displays impairments stemming from social performance in individual contexts (e.g., initiating one-on-one conversations with unfamiliar peers). Similar contextual variations manifest with needs related to ADHD, such that a client's needs might manifest in school contexts to a greater degree than in home contexts, or vice-versa. Alternatively, clients displaying either of these conditions—or in fact any other mental health condition—might display needs related to these conditions across multiple contexts (e.g., Fergusson et al., 2009; Lerner et al., 2017; Makol & Polo, 2018). In fact, the possibilities of context-specific and/or cross-contextual clinical presentations of service needs are reflected in diagnostic criteria for several of these conditions (e.g., ADHD, social anxiety disorder, conduct disorder, panic disorder, APA, 2013). Thus, clinical research, clinical experiences, and diagnostic practices support the notion that clients vary in *where* their needs manifest.

Second, clients' behavior might vary in the contexts in which their needs manifest, in part, because contexts themselves vary. Within contexts there exist *contingencies*: Factors that precipitate and/or maintain a client's needs (Kazdin, 2013; Skinner, 1953). For example, a parent's disciplinary methods at home might differ from the disciplinary methods educators use at school (e.g., teachers and staff), resulting in a client whose needs manifest in one context and not another. As another example, interactions with peers at school might contain aversive or

hostile factors (e.g., teasing) that clients do not encounter at home. Thus, mental health services require adaptation to "fit" the contingencies surrounding clients' needs. Indeed, contingencies central to addressing a client's needs might manifest cross-contextually or in context-specific ways. Because contingencies inform planning the services that clients receive, assessments used to guide decision-making must leverage information sources that, collectively, harbor the ability to capably "track" clients' needs within and across contexts. Indeed, with their notion of *situational specificity*, Achenbach and colleagues (1987) posited that relatively low cross-informant correspondence reflected variations in youth behavior across contexts (e.g., home, school, peer interactions). In line with this notion, Kraemer and colleagues (2003) conceptualize informants as "satellites" triangulating on the location of a common object or target (e.g., building or a person). Within an array of satellites tasked with locating a target in space, one does not achieve accurate triangulation by relying on data produced by a single satellite, or by placing all of the satellites in a common location. Rather, one optimizes location accuracy by *triangulating* on the target, and placing the satellites in *distinct* points in space. In doing so, each satellite collects unique pieces of information relevant to the target's location.

In an analogous sense, each informant involved in a youth client's needs assessment exists within an "array" of informants tasked with indexing the situational specificity of these needs. Informants such as parents or teachers "stand in" as representative observers of a client's needs as they manifest in a given context. In the case of the youth client, observations of their own behavior traverse the contexts observed by parents and teachers, and might also include contexts unique to themselves (e.g., peer interactions that neither parent or teacher observe). Within this framing, informant discrepancies signal, in part, between-informant differences in their *expertise* or knowledge about the context(s) surrounding youth clients' needs. Consider a

teacher who reports relatively high levels of hyperactivity in a youth client that a parent fails to corroborate. This discrepancy may reflect a reality in the client's clinical presentation. Here, the client displays higher levels of hyperactivity in school relative to home, and the teacher has expertise in directly observing the client's functioning at school; an expertise that, relatively speaking, the parent lacks. Conversely, for a youth client who displays needs across the contexts in which informants observe them (e.g., home and school), the parent and teacher reports might agree as to the presence of these needs because both the parent (home) and teacher (school) have an expertise in observing the client within contexts and contingencies relevant to their needs.

If informant discrepancies provide data germane to the contexts and contingencies that precipitate and/or maintain a client's needs, then these discrepancies have the potential to inform service planning (e.g., home, school; see De Los Reyes & Kazdin, 2006; De Los Reyes et al., 2019b). Granted, much like using satellites to locate targets in space, one cannot merely *assume* that informants vary as to their expertise in observing clients' needs within specific contexts, *and* that these variations in expertise inform our understanding of clients' needs. Indeed, informants might differ on factors beyond context-relevant expertise (e.g., occupational status, education history, family experiences), and these factors may or may not be relevant to understanding clients' needs. For these reasons, the multi-informant approach to assessment requires (a) conceptualizing patterns of data derived from informants and (b) a means for *verifying* data from informants who presumably vary in the contexts in which they observe clients. Recent advances in theory and methodology address these two exact issues.

Operations Triad Model

Recent conceptual work provides a foundation for identifying patterns between informants' reports of youth clients' needs and determining what these patterns might reflect.

Specifically, the Operations Triad Model (De Los Reyes et al., 2013) proposes three combinations of cross-informant reporting patterns, accompanied by their underlying meaning. We present a graphical depiction of the Operations Triad Model in Figure 1. Briefly, the Operations Triad Model includes operational definitions for three reporting patterns. First, under *Converging Operations* (Figure 1a), when a youth client's needs manifest invariantly or consistently across the contexts in which informants observe youth clients, informants' reports ought to agree in estimates of the client's needs. Second, under *Diverging Operations* (Figure 1b), when a youth client's needs meaningfully vary across contexts (e.g., home vs. school), informants' reports ought to disagree in estimates of the client's needs. That is, Diverging Operations reflect those scenarios in which informant discrepancies contain *domain-relevant information*: Data that inform our understanding of the very needs about which informants provide reports and, by extension, inform our ability to design services to meet clients' needs. This information could include data relevant to the contingencies maintaining clients' needs.

Third, sometimes disagreements between informants' reports reflect *Compensating Operations* (Figure 1c): Disagreements between informants that do not reflect domain-relevant information, but rather *measurement confounds*. By *measurement confounds*, we mean disagreements that reflect characteristics of the measurement process that are *irrelevant* to understanding clients' needs (see also Millsap, 2011). These may include the psychometric properties of the measures informants completed and/or rater characteristics that produce disagreements but bear no relation to clients' needs (e.g., mood-congruent biases, see Nunnally & Bernstein, 1994; Richters, 1992). In fact, professionals across settings—research and clinical alike—have the ability to *significantly* reduce the likelihood of measurement confounds clouding the interpretability of informant discrepancies, whether one seeks to interpret discrepancies

observed in a sample of clients or when delivering services to an individual client. The process is akin to ruling out nuisance variables in between-groups experiments (see Hsu, 1989), namely by administering parallel instruments across informants. By *parallel*, we mean use of instruments that hold crucial measurement properties constant, such as item content and response options (e.g., Achenbach & Rescorla, 2001). Equating informants' reports in this way allows professionals to rule out some of the between-informant differences on measurement characteristics that could otherwise parsimoniously account for any discrepancies observed between reports (see also De Los Reyes et al., 2013).

Importantly, informant discrepancies exist to a significant extent and at large magnitudes, even when assessors administer parallel instruments to informants (see De Los Reyes et al., 2015). Yet, some key aspects of examining informant discrepancies warrant comment. Specifically, decades of psychometric work make clear that measurement confounds may impact individual informant's reports (Hunsley & Mash, 2018). When these confounds affect the instruments themselves they likely affect the psychometric soundness of scores reflecting informant discrepancies (see also De Los Reyes et al., 2013). As a result, we recommend that researchers measure informant discrepancies using well-established instruments.

Second and relatedly, one should not expect use of parallel measures to completely remove aspects of informant discrepancies explained by Compensating Operations. Indeed, to make this assumption would be tantamount to assuming that, so long as informants complete parallel measures, then all variance in measures of informant discrepancies would be completely confound-free or fully accounted for by Diverging Operations. As we describe below, over the last decade, the key advances in the literature on how to understand and interpret informant discrepancies have come from studies that have not only incorporated sound approaches to

measuring or modeling informant discrepancies, but also independent measures of factors reflecting Diverging Operations (e.g., laboratory observations of domain-relevant behaviors; for a review see De Los Reyes et al., 2019a). In this respect, detecting aspects of informant discrepancies explained by Compensating Operations involves (a) including measures of factors reflecting measurement confounds (e.g., mood-congruent biases, social desirability, developmental level of the client; for a review, see De Los Reyes et al., 2015) and (b) testing for the degree to which these confounds explain variance in informant discrepancies, above-and-beyond any variance explained by domain-relevant information (i.e., Diverging Operations). In sum, the Operations Triad Model facilitates identifying patterns of cross-informant reports and conceptualizing what they might reflect. In fact, these conceptualizations inform another crucial aspect of this process: Designing studies to *test* or verify what these patterns reflect.

Leveraging Principles of Measurement Validation to Examine Informant Discrepancies

The last decade has seen a surge of research across multiple study designs that supports the main tenets of the Operations Triad Model (e.g., controlled laboratory research, uncontrolled field research). In essence, these studies leverage basic principles of *measurement validation* to test hypotheses about what informant discrepancies reflect (see also Hinkin, 1995; Hunsley & Mash, 2007; Kazdin, 2013). Refer back to Figure 1, in particular comparisons of Figures 1b and 1c. The possibility of both Diverging *and* Compensating Operations scenarios indicate that informant discrepancies do not automatically signal measurement confounds. To test for the presence of informant discrepancies that reflect domain-relevant information, measurement validation studies informed by the Operations Triad Model involve comparing patterns of cross-informant reports to *independent assessments*. Much like any criterion-related validation study in psychometric research (see Nunnally & Bernstein, 1994), these independent assessments harbor

two key characteristics. First, they serve as domain-relevant validity indicators, and as a result must be instruments that produce data germane to understanding youth clients' needs. Second, these indicators must be derived from sources other than the informants reporting about youth clients' needs. This facilitates ruling out confounds that cloud interpretations of links between informants' reports and criterion variables (i.e., criterion contamination; see Garb, 2003).

Measurement validation studies informed by the Operations Triad Model capitalize on a key feature of youth mental health assessment, namely that professionals tend to collect reports from individuals whom quantitative methodologists term *structurally different* informants (for a review, see Eid et al., 2008). These are informants who provide reports based on observations of behavior from within distinct, domain-relevant contexts (see also Kraemer et al., 2003). If informant discrepancies contain the domain-relevant information defined by Diverging Operations, then the likely source of this domain-relevance stems, in part, from variations in the social contexts where informants observe clients. To test these notions, this approach capitalizes on the structural characteristics (i.e., contexts and contingencies) inherent in not only informants' reports, but also in scores taken from the independent assessments that serve as validity indicators. In fact, prior work indicates that data from these validity indicators—which include such modalities as trained observers' ratings of youth behavior in naturalistic settings, and youth performance on laboratory tasks (e.g., parenting, peer interactions; see De Los Reyes et al., 2020; De Los Reyes & Makol, in press-a,b)—correspond at relatively low levels with both informants' reports and each other (Clarkson et al., 2020; De Los Reyes et al., 2020; Meyer et al., 2001). Thus, these measurement validation studies test links between the structural characteristics distinguishing informants' reports from each other, and the structural characteristics of independent assessments.

In linking variations in informant discrepancies to variations in independently assessed validity indicators, the last 10 years of these validation studies have ruled out the possibility that *all* discrepancies reflect measurement confounds (for a review, see De Los Reyes et al., 2019a). As such, informant discrepanices may contain domain-relevant information. For example, parent and teacher reports of preschool children's disruptive behavior display discernable patterns, such that some parent-teacher dyads agree in their reports whereas other dyads disagree; when compared against independent assessments of children's behavior, these instances in which a teacher endorses disruptive behavior that the parent does not (and vice versa) signal context-specific displays in actual behavior during the independent assessment (De Los Reyes et al., 2009). Further, independent teams have replicated the ability to detect these patterns of parent and teacher reports across clinical populations and mental health domains (e.g., Fergusson et al., 2009; Hartley et al, 2011; Lerner et al., 2017; Makol et al., 2021; Sulik et al., 2017).

The ability to detect discernable, clinically meaningful patterns in reports is not limited to assessments that include reports from parents and teachers. For instance, recent work involved identifying patterns of reports of internalizing problems (i.e., anxiety, mood, somatic complaints) taken from adolescents and parents who sought acute or inpatient care for the adolescent (Makol et al., 2019). In this study, parent-adolescent reporting patterns reflected varying kinds of endorsements of adolescent internalizing problems, including endorsements (a) specifically by parents, (b) specifically by adolescents, (c) at high levels across parent and adolescent reports, or (d) at low levels across parent and adolescent reports. Importantly, Makol and colleagues examined these patterns of parent and adolescent reports using a measurement validation approach, by incorporating independent assessments of the characteristics of acute care services. The parent-adolescent reporting patterns distinguished adolescents on such characteristics as

length of hospital stay and whether hospital staff needed to administer intensive treatment regimens during care (e.g., locked door seclusion, standing antipsychotics). This work demonstrates the utility of parent-adolescent reporting patterns in predicting domain-relevant criteria germane to services that address youth clients' needs. In fact, recent work demonstrated that, when integrated with an informant who observes adolescent behavior outside of the home, parent and adolescent survey reports of adolescent social anxiety predicted independent assessments of observed social anxiety, at magnitudes one rarely sees when using social anxiety surveys to predict observed anxiety (i.e., βs = 0.47–0.67; Makol et al., 2020).

Conceptual and Methodological Considerations

Taken together, an emerging body of work supports the notion that, if properly harnessed, informant discrepancies can serve as tools that contribute to, rather than impede, the effective delivery of services. Like any emerging body of work, a variety of questions require further attention. For example, before the Operations Traid Model, models for interpreting informant discrepancies—and multivariate data generally—largely assumed that measurement confounds account for the discrepancies between the informants' reports (e.g., Bauer et al., 2013; Edgeworth, 1888; Garner et al., 1956; Richters, 1992). Thus, prior work informed by the Operations Triad Model has focused on whether Diverging Operations accounts for at least some of the variance in informant discrepancies. Yet, it would be incorrect to assume that *all* of the variance in informant discrepancies reflects Diverging Operations. Therefore, beyond continued use of parallel instruments to examine informant discrepancies, a crucial next step in this work involves developing independent assessments of factors reflecting Compensating Operations. Indeed, as in research testing for the presence of Diverging Operations scenarios, tests for the presence of Compensating Operations scenarios ought to disentangle the methodological features

of the multi-informant assessments one uses to measure informant discrepancies from the features of the independent assessments used as validity indicators. For instance, research on whether informant discrepanices reflect mood-congruent biases or social desirability might involve the use of observational measures or performance-based tasks designed to assess these factors. Equally important is the notion that factors conceptualized as confounds might also contain domain-relevant information. For example, a parent's mood state might *cause* bias in their ratings (see Richters, 1992). That same mood state also factors into the development and maintence of youth clients' needs (see also De Los Reyes & Makol, in press-b; Goodman & Gotlib, 1999). Thus, independent assessments of factors reflecting Compensating Operations need to isolate variance *specific* to measurement confounds (e.g., memory distortions).

Another consideration revolves around the applicability of the work we reviewed to individual clients. That is, the measurement validation approach we described provides *researchers* with the tools for detecting informant discrepancies that reflect Diverging Operations scenarios. That said, we currently lack standardized, consensus procedures that allow *professionals* to identify Diverging Operations scenarios for individual clients. This is a long-standing concern, as no guidelines exist for using, administering, and interpreting multi-informant assessments of clients' needs generally (Beidas et al., 2015). Thus, the state of the science on understanding and integrating multi-informant data in ways that assume that informant discrepancies reflect Diverging Operations (e.g., Kraemer et al., 2003; Laird, 2020) all focus on interpreting and modeling these discrepancies at the sample level.

Now, all this is not to say that client-level approaches *cannot* be developed, tested, and implemented. In fact, recent work charts a path toward developing these approaches (for a review, see Talbott and De Los Reyes, in press). As others have noted (e.g., Makol et al., 2020),

approaches to integrating multi-informant data are like any other data aggregation technique. That is, one can apply widely used procedures designed to enhance the interpretability of individual-level summary scores from client assessments (e.g., total scores from a parent report on a behavioral checklist) to integrated scores. An example of these procedures would involve creating normative scores based on model solutions from sample-level data. To the degree that a professional also has access to clients' scores on performance-based measures linked to their service needs (e.g., impulsivity task) or putatively "objective" data (e.g., ratings from trained observers; official records), they can create a client-level version of the validation tests used in prior work (e.g., De Los Reyes et al., 2009; Makol et al., 2019). Thus, a crucial step in research on the Operations Triad Model involves developing client-level paradigms for distinguishing informant discrepancies that reflect Diverging and/or Compensating Operations scenarios.

Implications for Service Delivery

If the informant discrepancies commonly observed in assessments of youth clients' needs contain domain-relevant information germane to understanding these needs, what are the implications of these discrepancies for service delivery? Addressing this question requires probing two aspects of service delivery: (a) the process through which youth clients receive services and (b) the determinative factors regarding the nature of those services. Specifically, youth clients do not typically seek out services on their behalf; rather, the referral source is typically an adult authority figure such as a caregiver (e.g., biological or adoptive parent, legal guardian) or school professional (Hunsley & Lee, 2014). In many locales, this one figure makes crucial decisions regarding care, including working with teams of professionals to establish the goals of care. This goal setting involves determining the specific contexts in which the client requires services and the contingencies emdeded in these contexts.

The work we summarized also raises an interesting proposition, namely that informant discrepancies may improve the ability of professionals to link therapeutic techniques to the specific contexts in which clients' needs manifest. In fact, the state of the science on mental health interventions calls for just this kind of work. Specifically, in a recent meta-analysis, Weisz and colleagues (2019) tracked the effects of mental health interventions over time, as indexed by effect sizes from 453 controlled trials published between 1963 and 2016. This review revealed that, across multiple domains of youth clients' needs (i.e., anxiety, ADHD, depression, conduct problems), mental health interventions appear to have *plateaued* in their effects. That is, more recent controlled trials yielded effect size estimates that failed to significantly exceed estimates observed in the controlled trials conducted in the distant past. Further, we have long known that (a) even well-established, thoroughly tested mental health interventions are not universally effective; and (b) many youth clients receive services that fail to address all their needs (e.g., Becker et al., 2018; Lyon et al., 2020; Wiltsey Stirman & Beidas, 2020). Thus, not only do we currently see a plateau in the effects of mental health interventions, but also an *urgent need* to push past this plateau. Thus, Weisz and colleagues called for developing means for personalizing interventions and embedding them within the specific contexts in which youths' needs manifest. Put simply, within multi-informant assessments there exists the potential to gather the kind of context-specific information *necessary* to personalize interventions for youth clients, so long as professionals leverage multi-informant data for the precise, contextual information they yield.

However, what if the prevailing processes by which professionals use, interpret, and integrate multi-informant data introduce barriers to optimizing multi-informant assessments toward personalizing service delivery for clients? What if a gap exists between the science of multi-informant assessments and the practice of using data from multiple informants to drive

clinical decision-making? What if this gap results in treatment approaches that ignore data that might otherwise boost the precision and effectiveness of care? Understanding the degree to which informant discrepancies influence clinical decisions requires a framework for testing questions surrounding the links between (a) the contexts in which youth clients' needs manifest, (b) the informants who observe these needs, and (c) the processes by which professionals work with key stakeholders to set the goals of clients' services.

The Needs-to-Goals Gap Framework

Conceptual Overview

Multi-informant assessments facilitate the ability of professionals to make crucial decisions at multiple points of service delivery. Our framework focuses on two assessment processes in which multi-informant data may have considerable impacts on care: (a) needs assessments and (b) goal setting. Thus, our framework requires us to explicitly delineate the similarities and differences between these two processes and their links to service delivery.

Needs

Assessing *needs* involves characterizing the mental health domains that are malleable and motivate families to seek, and professionals to provide, services. The importance of assessing needs is self-evident, in that they are instrumental in determining the general focus of services. Developing this focus at the outset of service delivery facilitates initial planning of what services might entail, including matching specific interventions to the client's identified needs. In fact, that different needs might require different services is clearly evident from the suite of available interventions, such as methylphenidate titration and/or behavior therapy for ADHD, exposure-based treatments for anxiety, parent training for conduct problems, and cognitive-behavioral interventions for depression (e.g., Evans et al., 2018; Weisz & Kazdin, 2017). Yet, a core feature

of the techniques embedded within these interventions is that, for each client, these techniques need to be adapted or tailored to the contingencies driving the client's needs. In these respects, identifying the intervention approach is not the end-point regarding service delivery: evidence-based delivery systems cannot follow a "one-size-fits-all" approach (see Paul, 1967).

Goals

Variations in clients' clinical presentations dictate the importance of not only identifying needs but also setting the *goals* of services. Ideally, goal setting involves a *shared decision-making* process (see also Langer & Jensen Doss, 2018). Here, the youth client and their family, as well as the team of professionals, collaborate to select goals to guide all elements of service planning. In this respect, goal setting provides professionals with an opportunity to address discrepant views among stakeholders in the clients' needs for services. Further, goal setting results in several key elements of service delivery. Specifically, this process facilitates the *therapeutic alliance* (i.e., a shared trust among stakeholders and professionals), increases the engagement of youth and families in treatment, and directs professionals to tailor services to key features of the needs that stakeholders and/or informants involved in needs assessments endorse as crucial (e.g., Becker et al., 2018; Hawley & Weisz, 2003; Horvath & Luborsky, 1993).

Taken together, *needs assessments* allow professionals to identify the general focus of services for a client, whereas *goal setting* brings the professional's attention to tailoring services to achieve particular outcomes based on that client's needs. We distinguish needs assessments from goal setting processes in a way that harkens back to the classic quote from Paul (1967): "*What* treatment, by *whom,* is most effective for *this* individual with *that* specific problem, and under *which* set of circumstances?" Here, needs assessments inform goal setting. Whereas needs assessments guide the process of identifying the general problem to be targeted—including the

larger context(s) in which needs manifest—goal setting is central to the intervention planning process. As such, goal setting results from a fine-grained analysis and detection of the client's needs with attention to the contingencies that maintain these needs. In essence, goal setting informs the "*what*, *whom*, *this*, *that*, and *which*" of services, as emphasized by Paul (1967).

For instance, a needs assessment might result in identifying a client's conduct problems that manifest in the school context, and this is a promising start to service delivery. Yet, to ensure that the assessment process results in goal setting that effectively meets the client's needs, the intervention team must then proceed to identify the contingencies for behavior in the school. Thus, following the needs assessment, an assessor might complete a *functional behavioral assessment* (FBA) designed to further probe the client's needs, identify relevant contingencies, and facilitate accurate goal setting (Dunlap & Kern, 2018; Hanley et al., 2003). By construction, the accuracy of this FBA depends on informants' observations of the client in that context. In this case, the FBA allows a school professional to determine the specific antecedent conditions that precipitate the client's conduct problems and the consequences of behavior (e.g., attention and/or escape) that maintain these conduct problems. Consider that, following these steps along the goal setting process, the school intervention team decides to deliver a behavioral intervention designed to reduce the frequency of the youth client's disruptive, off-task behavior, and increase their frequency of on-task, engaged behavior in the classroom. To achieve this outcome, members of the school intervention team, in collaboration with the youth client, set a goal to increase the number of class periods (including transitions between class) in which the client receives teacher ratings of satisfactory or better for on-task, engaged behavior (see Maggin et al., 2015). These could include adapting evidence-based strategies to both reduce off-task disruptive behavior and increase on-task academic engagement (see Kern et al., 2017; Maggin et al., 2016).

Thus, capturing contingencies within a FBA involves identifying specific antecedents for the behavior as well as the consequences of the behavior, allowing the intervention to be tailored for individual needs, and thus more likely to be effective (for a review, see Gage et al., 2012). In sum, goal setting for individual clients "picks up" where needs assessments "leave off." Goal setting allows professionals to use evidence to establish—in collaboration with a specific client—objectives for the services they will receive.

The Needs-to-Goals Gap Framework as an Extension of the Operations Triad Model

The Operations Triad Model and its constituent components directly inform the concepts underlying the Needs-to-Goals Gap framework. If the multi-informant approach to assessment facilitates characterizing the contexts in which clients' needs manifest (see Figure 1), then it logically follows that, under most circumstances, this same approach should also inform goal setting. When delivering services, taking a multi-informant approach to goal setting hinges on whether the needs assessment supports such an approach. Thus, a key premise underlying the Needs-to-Goals Gap framework involves including informants in the needs assessment who collectively harbor expertise about all of the contexts in which the youth functions. Professionals can then approach goal setting with data to inform procedures such as FBAs. The expertise informants provide during the needs assessment can inform, at goal setting, whether FBAs ought to be constructed to identify contengencies that manifest similarly across contexts (i.e., *parallel* FBAs) or contingencies that manifest differently across contexts (i.e., *independent* FBAs).

In line with these considerations, we graphically depict in Figure 2 the main tenets of the Needs-to-Goals Gap framework. In line with the Operations Triad Model, the Needs-to-Goals Gap framework delineates links between goal setting for service delivery and patterns of multi-informant needs assessments consistent with Converging Operations (Figure 2a), Diverging

Operations (Figure 2b), and Compensating Operations (Figure 2c). Below we describe how each of these components factor into evidence-based approaches to goal setting. We also discuss how professionals can structure assessments that produce informant discrepancies that maximally reflect Diverging Operations and minimally reflect Compensating Operations.

Converging Operations (Figure 2a). Professionals commonly rely on a single informant within a particular setting to initiate and maintain mental health services for a youth client, and this informant is typically the client's caregiver (e.g., Hunsley & Lee, 2014) or teacher (e.g., Kern et al., 2017). If prior work on needs assessments indicates that caregivers have expertise for observing the client's behavior in one specific context (home) and teachers in another (school), then it is reasonable to assume that this context-specific expertise also applies to goal setting for service delivery. As with the client's needs assessment, the process of selecting and using informants for goal setting carries with it some key assumptions about the contingencies through which a professional tailors services to fit the client's needs. With regard to Converging Operations, a professional might reasonably hypothesize that if the client's needs manifest consistently across contexts, then the contingencies that elicit or maintain their needs share commonalities across contexts. If so, then similar, if not identical, service goals might characterize manifestations of the client's needs across these contexts (e.g., interactions with adults). Such a hypothesis would call for the administration of parallel FBAs to determine whether the contingencies that maintain the client's needs, in fact, manifest cross-contextually.

For example, consider a client whose needs manifest across both home and school. Let us assume that the exact same goals of services for that client (e.g., increasing on-task engagement with schoolwork or homework, reducing aggressive and disruptive behavior, increasing compliance with requests made by authority figures) characterize tailored services for that client

and their contexts (i.e., home and school). The cross-contextual consistency in the client's needs and the goals of services to address those needs may point to using the same techniques to address contingencies across home and school. For instance, the same principles of negative reinforcement within coercive interactions (Patterson, 1982) may be operating within interactions between the young child at home and at school, authority figures in both contexts, and other children in both contexts (see Smith et al., 2014). Thus, the professional might implement home- and school-specific renditions of intervention techniques focused on consistently setting rules, specifically labeling and praising alternative behaviors targeted for reinforcement, and judicious use of time out procedures for rule violations (see also Kazdin, 2013; Kazdin & Rotella, 2009). Further, the cross-contextual nature of the contingencies linked to the client's needs means that the professional—from an assessment standpoint—may be justified in limiting goal setting to a single informant (e.g., parent), even if that informant only has expertise in observing the client's needs as they manifest in a specific context (e.g., home).

Under Converging Operations scenarios, it would be reasonable to treat the informant referring the youth client for services as a proxy informant to determine service goals, even if those goals apply to the client's needs as they manifest in contexts outside of the informant's expertise. In these respects, goal setting for clients whose multi-informant needs assessments fit patterns consistent with Converging Operations may strike the proper balance among multiple considerations—including measurement accuracy, efficiency, and clinical feasibility—by relying on a limited set of informants to set goals. Indeed, when barriers exist to engaging an informant from one context, Converging Operations scenarios may allow a professional to rely on an informant from another context, because they essentially serve as an effective proxy.

That said, it is important to keep a few considerations in mind with regard to Converging Operations and the Needs-to-Goals Gap framework. First, informant discrepancies characterize the *grand majority* of multi-informant assessments of clients' needs (see Achenbach et al., 1987; De Los Reyes et al., 2015, 2019a). Thus, we expect these Converging Operations scenarios regarding goal setting to occur rather infrequently or with the *minority* of youth clients to whom professionals deliver services. Second, from a therapeutic standpoint, relying on a single informant to set goals might yield unintended consequences. That is, key stakeholders who were not involved in goal setting may lack the motivation to adhere to or be involved in service activities designed to reach the identified goal(s) (see also Becker et al., 2018; Hawley & Weisz, 2003). Third, another therapeutic consideration revolves around the possibility that a client's needs may not necessarily stay fixed over the course of care. Indeed, if a client's needs change over the course of care, this may necessitate a change in goal setting. Further, a lapse in taking a multi-informant approach during goal setting—and presumably, subsequent stages of service delivery—may result in an inability to learn about whether a client's contingencies changed during the course of care to reflect scenarios other than Converging Operations. Although it is *possible* for a client's needs to manifest in ways reflective of Converging Operations, the default approach should involve incorporating multiple informants' reports across contexts.

Diverging Operations (Figure 2b). Relative to Converging Operations, an evidence-based approach to goal setting takes on a distinct structure when Diverging Operations best characterizes the patterns of reports observed in a multi-informant assessment of the client's needs. Indeed, consider the implications of Diverging Operations, particularly when informants involved in the assessment vary in their expertise for observing the client's needs in specific contexts. Here, informants' reports indicate that a client's needs meaningfully differ across

contexts, and thus, the goals of services tailored to address the client's needs will apply differently across contexts. Diverging Operations scenarios signal a need to engage informants across contexts, even when there are multiple barriers to doing so (e.g., large geographic distances between service settings and the client's home and/or school).

For clients whose needs reflect Diverging Operations, an evidence-based approach to goal setting for services targeting identified needs among clients must also leverage multiple informants' data. This is because if the client's needs vary across contexts, then by definition, the contingencies that elicit and/or maintain the client's needs also vary across these contexts. Such a clinical presentation would call for the construction of independent FBAs to detect context-specific contingencies (e.g., at school), and these FBAs are best-informed by leveraging the expertise of the informant who routinely observes behavior in that context (e.g., a teacher) and therefore has access to a broad sample of behavior relevant to that context.

Indeed, consider the alternative, default scenario in goal setting for youth clients, whereby the informant most often tasked with initiating care on the client's behalf often drives the identification of service goals (i.e., client's parent or teacher). What if in these typical referral scenarios, the informant making the referral lacks expertise in observing the client within the context(s) in which they display their mental health needs (e.g., parent initiates a referral because of a concern expressed by school professionals)? Here, the informant might harbor little-to-no expertise with observing the client's needs and the contingencies that maintain them (e.g., interactions with same-age unfamiliar peers [Cannon et al., 2020; Glenn et al., 2019; Hofmann et al., 1999]; and interactions with adults [De Los Reyes et al., 2009]). By logical extension, relying exclusively on this informant's report to also set the goals of services may lead to omitting important information necessary to tailor services to address the client's needs. In this way, a

multi-informant approach to goal setting facilitates reducing gaps between the client's needs and the development of service goals designed to address these needs.[3]

These issues factor prominently in the most well-established mental health services designed to address adolescent clients' social anxiety-related needs, namely exposure-based therapies (Alfano & Beidel, 2011). Indeed, the latest evidence underscores the importance of tailoring therapeutic exposures, such that they accurately simulate the social environments that elicit clients' needs outside of the therapeutic setting (Raggi et al., 2018). Otherwise, a poor match in this tailoring process between a client's needs and the contingencies that maintain these needs raises the risk that any gains the client makes over the course of care will fail to generalize across contexts or dissipate over time, or perhaps the client may not improve at all (see also Sewart & Craske, 2020). If a client's clinical presentation is marked by context-specificity in their needs for services, the professional may lack justification in limiting goal setting to one informant, particularly if that informant's context of expertise falls outside of the key context(s) targeted for service delivery. In these respects, goal setting for clients whose multi-informant needs assessments fit patterns consistent with Diverging Operations must push beyond efficiency to ensure accuracy in devising beneficial service goals. In fact, it might be more apt to consider Diverging Operations as those scenarios that call for professionals to *persist* in collecting multi-informant data, despite barriers to feasibility and efficiency.

Compensating Operations (Figure 2c). When Compensating Operations characterizes the patterns of reports observed in a multi-informant assessment, an evidence-based approach to goal setting incorporates reports from multiple informants. However, the manner in which a

[3]Relatedly, within Diverging Operations scenarios, the multi-informant approach to assessment might also facilitate the identification of contexts that enhance a child's engagement with desired behaviors. Such information might guide goal setting designed to maintain or foster positive behaviors in contexts germane to the client's functioning.

professional uses and interprets reports collected during goal setting reflects some important differences from goal setting linked to Diverging Operations. Unlike a Diverging Operations scenario, the informant discrepancies observed during the needs assessment would best be explained by measurement confounds. Yet, by definition, these discrepancies do not necessarily signal *no* contextual variations in clients' needs. Indeed, Compensating Operations scenarios merely signal *inconclusive evidence* for contextual variations in a client's needs, leaving open the possibility of needs that manifest cross-contextually *or* only within a specific context.

The uncertainties in assessment encountered within Compensating Operations scenarios necessitate ongoing needs assessments (e.g., direct observations in the school setting, parent interview) following initial attempts at goal setting and intervention. These scenarios may also call for a FBA strategy that blends the approach one takes in Converging and Diverging Operations scenarios, namely delivery of parallel FBAs to possibly detect contingencies that might manifest similarly across contexts (e.g., home and school), as well as independent FBAs to possibility detect context-specific contingencies.[4]

In sum, the Needs-to-Goals Gap framework guides professionals to structure assessments that yield a holistic understanding of clients' needs across domain-relevant contexts. The framework prompts two questions:

[4]Compensating Operations scenarios introduce additional complexities. Consider a scenario in which the client's needs appeared to be specific to unstructured social activities at school (i.e., recess); these same kinds of activities did not appear to elicit the client's needs at home (e.g., weekend activities with family). However, assume that this appearance reflected the reality that the assessor failed to hold measurement characterisitcs constant between parent and teacher reports. An example might be the use of a 5-item survey to collect the teacher's report but a two-hour structured interview to collect the parent's report. Thus, a measurement confound during the needs assessment explained the discrepancies between the parent and teacher reports. The client's needs might manifest at home and school, or perhaps they might only manifest in one context (e.g., school). Yet, ruling out either one of these scenarios requires continued engagement with informants across contexts. This might involve revising the assessment procedures to include the administration of parallel instruments across informants that professionals collect during care (e.g., use of parallel survey and/or interview procedures to collect parent and teacher reports).

- *Which informants best position me to accurately characterize the client's needs, the contexts in which they occur, and the contingencies that maintain them?*
- *Which informants facilitate my selection of additional modes of assessment to guide goal setting and the development of an intervention plan?*

Empirical Support

The Needs-to-Goals Gap framework establishes parameters for goal setting that link clients' service goals to the multi-informant assessments used to characterize their needs. In this sense, Figures 2 and 3 provide us with a baseline set of needs assessment and goal setting conditions, grounded in the science of multi-informant assessment. Briefly, the selection and use of assessments to inform decision-making flows from an evidence-based process, whereby a professional first carries out a multi-informant needs assessment to determine the larger context(s) where the client's needs manifest. Depending on whether a client's needs conform to patterns of multi-informant reports that fit Converging, Diverging, or Compensating Operations, the professional proceeds to the next step of service planning. At this step, the professional now has an evidence-based guide to detect specific contingencies that precipitate and/or maintiain the client's needs and thus informs goal setting. With this in mind, the Needs-to-Goals Gap framework hinges on whether evidence indicates that current assessment practices in service delivery appear inconsistent with the main tenets of the framework and the science of multi-informant assessment more broadly. We review below evidence supporting the Needs-to-Goals Gap framework and its relevance to assessment practices in service delivery, which we discovered based on a rigorous set of review procedures (see **Online Supplementary Material**).

Areas of Research Relevant to the Needs-to-Goals Gap Framework

Support for the Needs-to-Goals Gap framework comes from several areas of work, including : (a) identifying barriers to using and interpreting multi-informant assessments; (b) understanding decision-making when confronted with informant discrepancies; and (c) determining the degree to which informant discrepancies predict service outcomes.

Barriers to Using and Interpreting Multi-Informant Assessments. Multiple, persistent barriers to collecting and sharing data from multiple informants may create needs assessment and goal setting processes that drastically depart from the procedures depicted in Figure 3. These barriers include: (a) administrative constraints; (b) conceptual and linguistic differences between professionals' training and practice; (c) differences in expectations for the sharing of data by professionals across systems of care; (d) limitations to the sharing of data associated with one's role in a given system; (e) absence of specific processes to coordinate data-sharing; (f) privacy laws in health care and education that limit access to multiple informants (e.g., Health Information Portability and Accountability Act [HIPAA]; Family Educational Rights and Privacy Act [FERPA]); (g) lack of continuity in care; and (h) fiscal constraints such as the lack of resources in some low income communities and schools (Power et al., 2013).

Prior work indicates that the barriers noted previously may be *maintained* by both professionals' views of the utility of involving multiple informants and their patterns of decision-making when confronted with discrepancies in their views. In a formative study addressing views among professionals about the utility of multiple informants, Loeber and colleagues (1990) administered a 44-item survey consisting of descriptions of behaviors reflecting common youth mental health needs, including attention/hyperactivity, conduct, internalizing, and oppositional problems. Participants made ratings based on the following prompt:

> Please rate the utility of the child, mother, and teacher information for determining whether a certain behavior constitutes a symptom. Circle a rating for all three informants on each item before proceeding to the next item. 0 = not useful, 1 = slightly useful 2 = moderately useful, 3 = very useful. (p. 137)

Participants' responses revealed some striking views about informants and their ability to contribute useful information to youth clients' needs assessments. Results for attention/hyperactivity problems revealed teachers to be viewed as the informant whose report had the greatest utility, relative to parents and youth. In contrast, parents tended to be viewed as the informant whose report had the greatest utility for assessing oppositional, conduct, and internalizing problems. For one instance—the worry component of internalizing problems—participants viewed youth as the informant whose report had the greatest utility.

More recent experimental work confirms the impact the views observed by Loeber and colleagues (1990) might have on actual decision-making. Specifically, in a controlled experiment, Marsh and colleagues (2020) randomly assigned professionals to observe and rate a series of vignettes which depicted parents' and youths' reports of therapeutic improvement resulting from treatment for commonly diagnosed internalizing and externalizing conditions. Within these vignettes, researchers exposed participants to graphs of treatment improvement that included parents' and youths' reports side-by-side. On these graphs, researchers randomly varied which informant reported greater improvements, relative to the other informant (e.g., parent > youth, youth > parent). Following exposure to these vignettes, participants made improvement ratings of their own. Consistent with Loeber and colleagues (1990), professionals tended to make improvement ratings based on the premise that optimal informants exist for rating treatment response. For instance, when professionals made treatment improvement ratings for an

externalizing condition, these ratings were more aligned with parents' reports, specifically when parents reported lower improvements, relative to youth. Conversely, when professionals made treatment improvement ratings for an internalizing condition, these ratings were more aligned with youths' reports, specifically when youth reported lower improvements, relative to parents.

Decision-Making When Confronted With Informant Discrepancies. If professionals hold views about which informants serve as "optimal" sources to assess specific youth clients' needs, then these views might impact professionals' abilities to both gather context-sensitive data about needs and set goals in context-sensitive ways. Yet, the ultimate impact these views have on decision-making hinges, in part, on *how often* professionals encounter informant discrepancies in perceived service goals. Here, several sets of findings factor prominently. For instance, in a sample of 381 youth clients aged 7-18 years receiving outpatient services at community mental health clinics, an intake assessment involving separate clinical interviews with parents and youth clients prompted each to describe their perceived service goals (i.e., for child: "the major problems for which you feel you need help"; for parent: "the major problems for which your child needs help"; Yeh & Weisz, 2001). Researchers then coded these responses in reference to items on a standardized instrument, allowing for direct comparisons of parent- and youth-endorsed goals relative to a common "rubric" of service goals. Nearly 2/3 (63%) of parent-youth dyads could not agree on a specific goal of services, and when goals were examined by general domain (e.g., aggressive behavior, anxious/depressed), roughly 1/3 of dyads failed to agree. Importantly, none of these effects were predicted by youth demographics such as gender and age. This lack of demographic effects is in keeping with meta-analyses on cross-informant correspondence in youth mental health. Specifically, cross-informant correspondence levels are

not moderated by youth gender (Achenbach et al., 1987), and the latest large-scale meta-analysis in this area found that age did not moderate correspondence either (De Los Reyes et al., 2015).

Yeh and Weisz (2001) made their findings in a setting reflective of service delivery for youth mental health clients (i.e., community mental health clinics), indicating that the informants who most often participate in goal setting for youth clients often hold discrepant views of these goals. Disagreements between parent- and youth-endorsed goals also manifest within specialty clinics focused on a circumscribed set of youth mental health needs. For instance, in prior work on parent- and youth-indentified goals of treatment for pain (Fisher et al., 2017), researchers prompted 122 adolescents aged 11-17 years and their parents to select, from among a set of 21 activities linked to adolescents' pain-related disability, two activities they would wish the adolescent to increase in frequency over the course of treatment (e.g., going to school, sports, sleep). Within this study, only 7% of parent-adolescent dyads "matched" or agreed on both of the activity-related goals they selected, and roughly 40% did not agree on any activity-related goals.

In a study of discrepancies in perceived goals within a sample of youth receiving outpatient treatent for youth anxiety, Hoffman and Chu (2015) prompted 95 youth aged 7-17 years and their parents each to select the top three problems they wished to target during treatment. Based on the treatment goals selected, the research team coded 25 qualitatively distinct categories across diagnostic- (e.g., social anxiety, depression, inattention), symptom- (e.g., sleep problems, suicidal ideation), and impairment-related domains (e.g., academic achievement, family functioning, somatic symptoms). Consistent with Fisher and colleagues (2017) and Yeh and Weisz (2001), Hoffman and Chu found that fewer than half of the parent-youth dyads in the sample (44%) agreed on one goal, only 2% agreed on all three goals, and about one-third of the sample did not agree on any of the treatment goals. Perhaps more

troubling is that some specific goals for social anxiety and peer relations had been identified by roughly 36% of parents and 33% of youth. Yet, the researchers observed some of the lowest levels of agreement for these commonly-identified problems (i.e., kappa = .17 for parent-youth agreement on social anxiety/peer relations). Further, Hoffman and Chu also observed non-significant relations between youth gender and age and agreement on treatment goals.

When professionals encounter informant discrepancies in treatment goals, their decisions tend to be aligned with one informant's report more so than the reports of other informants. In a follow-up investigation of 315 participants recruited from several of the community mental health clinics in the Yeh and Weisz (2001) sample, Hawley and Weisz (2003) examined agreement among parent, youth, and professional views of the goals of services. When considering professionals' views, over 3/4 (76.8%) of parent-youth-professional triads could not agree on a specific goal of services, and when goals were examined by general domain, almost 1/2 (44.4%) of triads failed to agree. As was the case for Yeh and Weisz (2001), this study found that youth age did not relate to variations in cross-informant agreement.

In light of the relatively high discrepancies among informants' views of service goals, the question arises as to whether professionals' views on these goals align with one informant moreso than the other. Indeed, Hawley and Weisz (2003) found that professionals' goals tended to agree more with parent-endorsed goals compared to youth-endorsed goals, particularly for those goals focused on the youth client's behavior. However, for those goals focused on family or environmental problems, professionals' views on goals agreed more with youth- compared to parent-endorsed goals. Importantly, this differential weighting of informants' reports appears across multiple investigative teams, samples, and service delivery contexts, including diagnostic assessments (Brown-Jacobsen et al., 2011; DiBartolo et al., 1998; Grills & Ollendick, 2003;

Youngstrom et al., 2004), assessments of functional impairments (Kramer et al., 2004), and assessments of treatment response (De Los Reyes et al., 2011).

Differentially weighting informants' reports when making clinical decisions is not a concern in and of itself, and may be a logical consequence of discrepant data (see also Marsh et al., 2018). Indeed, within a Diverging Operations scenario, an evidence-based clinical decision (i.e., via discrepancies observed within a needs assessment) would involve a professional progressing to goal setting based on reports from a context-specific informant or set of informants (see Figure 3). What the Needs-to-Goals Gap framework highlights is the possibility that this decision may not reflect "true" variations in clients' needs. For instance, consider a situation in which a professional's decision aligns more so with the parent's report than the reports of other informants. If the parent was also the referral source for services, there exists the possibility that this decision stemmed from a confirmation bias on the part of the professional (see also Lilienfeld et al., 2014; Tversky and Kahneman, 1974). That is, the parent gave the professional the initial information to drive the needs assessment and goal setting for the youth client. This scenario creates the potential for the professional to "seek out" or emphasize information that confirms their initial ideas about service delivery, and deemphasize information that contradicts these ideas, such as discrepant reports about service needs or goals from informants other than the parent. In effect, the Needs-to-Goals Gap framework highlights the need for future research that probes decisions that professionals make when confronted with informant discrepancies in perceived service needs and/or goals. In particular, we expect the Needs-to-Goals Gap framework to inspire the design of paradigms for distinguishing *context-sensitive decisions* that a professional makes about an individual youth client's needs and service goals from those that reflect *decision-making errors* (e.g., confirmation biases).

Informant Discrepancies as Predictors of Service Delivery and Client Outcomes.

Prior work documenting links between informant discrepancies and clinical decision-making raises the question as to whether Needs-to-Goals Gaps present at the outset of youth mental health services predict the outcomes of these services.[5] Studies addressing this question take an approach consistent with the Operations Triad Model, in that they test links between informant discrepancies observed on surveys completed by informants before service delivery to validity criteria reflecting the outcomes of those services (e.g., diagnoses from clinical interviews).

An early test focused on the lack of agreement between two different approaches to arriving at mental health diagnoses that often form the foundation of goal setting in youth outpatient services, namely standardized versus unstructured clinical interviews (Rettew et al., 2009). In youth services, researchers have observed low agreement in the outcomes of these two interview approaches, with clinical interviews more likely to lead to circumstances in which interviewers over-diagnose *and* under-diagnose, relative to standardized interviews (Jensen & Weisz, 2002). In service settings, use of clinical interviews reflects the normative practice

[5]The issues raised by the Needs-to-Goals Gap framework relate to existing work in services research, namely work on the therapeutic alliance and shared decision-making models of care. Building a proper therapeutic alliance among key stakeholders (e.g., parents and youth) is seen as instrumental in keeping clients engaged in therapy (e.g., Hawley & Weisz, 2003; Horvath & Luborsky, 1993). Similarly, shared decision-making models involve taking an inclusive stance toward incorporating the service preferences, values, and goals among stakeholders in therapy; key to this process involves collecting information on these domains from stakeholders (see Langer & Jensen Doss, 2018). In fact, in services research for ADHD, we know that the majority of parent informants willingly share data related to ADHD symptoms with teachers, and that many parents will review teacher-reported ADHD symptom data when provided with the opportunity (Michel et. al., 2018). We see the Needs-to-Goals Gap framework as distinct from these therapeutic literatures in several important ways. Specifically, whereas the alliance and shared decision-making literatures focus on issues directly relevant to the therapeutic bonds built in therapy, the Needs-to-Goals Gap framework adds a complementary insight by drawing explicit links between the contexts where clients' needs manifest and the informants who have the requisite expertise for observing signs of these needs. These informants might be directly involved in service delivery as stakeholders in those services (e.g., parents and youth) or only indirectly involved as an informant used to identify clients' needs, set service goals, and/or monitor responses to interventions (e.g., teacher). Further, the Needs-to-Goals Gap framework focuses on unpacking the relevance of multi-informant assessments of clients' needs and/or goal setting, and indeed, the role that assessment practices have in creating gaps between clients' needs and goals. As such, the Needs-to-Goals Gap framework has key implications for assessments conducted in service delivery settings and more broadly, may inform interpretations of assessments conducted in other areas of service research (e.g., alliance, shared decision-making).

relative to use of standardized interviews (e.g., Jensen-Doss & Hawley, 2011). Thus, we might treat this observed discrepancy between diagnoses generated from clinical and standardized interviews as one marker of a Needs-to-Goals Gap in service delivery. This is because use of clinical interview approaches results in both missing diagnoses that a standardized interview approach would likely identify, and making diagnoses that a standardized interview approach would likely rule out. Further, as mentioned previously, the clinical interview reflects, in most service delivery settings, the key means through which a professional identifies needs that subsequently inform therapeutic goals. Thus, we can presume that use of an unstructured clinical interview may translate to goal setting practices that, on average, omit identifying goals relevant to clients' needs that a standardized interview would have otherwise detected. In fact, work by Jensen-Doss and Weisz (2008) found that, relative to low agreement between clinical and standardized interviews, high agreement between interviews predicts fewer therapy no-shows, fewer cancellations, and decreased risk of therapy dropout, as well as improved service outcomes. Low agreement tends to characterize the outcomes of diagnoses between clinical and standardized interviews. Thus, these findings support the idea that a Needs-to-Goals Gap may often portend suboptimal therapeutic processes and service outcomes.

We also see evidence supporting the Needs-to-Goals Gap framework in studies testing links between parents' and youth clients' baseline levels of agreement and service outcomes. These studies leveraged samples collected as part of randomized controlled trials of services designed for specific needs, namely internalizing problems (e.g., anxiety and post-traumatic stress disorder). Because of the circumscribed nature of clients' needs in these samples (i.e., all clients received services for the same or similar conditions), baseline assessments of clients'

needs likely served as fallible proxies of clients' service goals. Importantly, each study demonstrated a link between level of informant discrepancies and service outcomes.

For instance, Humphreys and colleagues (2017) found that relative to treatment non-responders, treatment responders displayed greater levels of parent-youth agreement on baseline post-traumatic stress disorder symptoms. Similarly, Becker-Haimes and colleagues (2018) found that those parent-youth dyads who increased in their levels of anxiety symptom agreement over the course of treatment tended to experience the most positive treatment outcomes. Interestingly, this same study found that when youth clients self-reported fewer symptoms relative to parent reports, these clients were less likely to be diagnosis-free following treatment. Findings from a third study suggest that these effects may generalize to instances in which associated features of clients' symptom presentations comprise the treatment goal (Zilcha-Mano et al., 2021). In this study, parent-youth agreement on low or high baseline levels of family accommodation of the client's anxiety behaviors (i.e., a domain of family functioning targeted during treatment) predicted lower severity of youth clients' anxiety later on in treatment, relative to parent-child agreement on moderate baseline levels of family accommodation. Thus, prior work supports the idea that Needs-to-Goals Gaps at the outset of services predict the outcomes of those services.

Recommendations for Future Research

Mechanisms Linking Needs-to-Goals Gaps and Service Outcomes

The Needs-to-Goals Gap framework informs several directions for future research. In particular, we cited prior work linking informant discrepancies to service outcomes (Becker-Haimes et al., 2018; Humphreys et al., 2017; Zilcha-Mano et al., 2021). In each of these studies, we identified particular patterns of cross-informant reports that predicted negative service outcomes, namely instances in which parents endorsed needs that youth clients did not endorse.

Incidentally, this was also a key pattern observed in the Makol and colleagues (2019) study of parent-adolescent discrepancies in intake assessments conducted in acute care. Why might these outcomes occur? It is important to highlight the notion that, when parents endorse needs that the youth client fails to corroborate, and the client is the central figure linked to the goals set for services, one might reasonably hypothesize that the client is disengaged from the services at the outset of care. If this particular pattern of informant discrepancies serves as a marker of client disengagement, then addressing this kind of Needs-to-Goals Gap in service delivery might involve developing techniques to improve engagement during care (see Becker et al., 2018).

One engagement technique might involve initiating services by focusing on a goal set through mutual consensus building with two or more stakeholders (e.g., parent, youth, and teacher). However, a Needs-to-Goals Gap in service delivery might manifest in a variety of ways, including a gap that reflects inaccurate detections of clients' needs and/or service goals. For instance, consider a client whose needs manifest cross-contextually, but the goal setting assessment inaccurately places emphasis on only one context. Here, the Needs-to-Goals Gap in service delivery might result in suboptimal service outcomes not for issues stemming from client disengagement, but rather, because services resulted in addressing the client's needs within a limited number of contingencies. This may increase the risk for suboptimal service outcomes, such as the client displaying continued needs following services, or achieving therapeutic gains that either dissipate over time or fail to generalize across relevant contexts. The exposure-based therapy example cited previously constitutes one example of this type of Needs-to-Goals Gap.

These examples illustrate the notion that if the Needs-to-Goals Gap in service delivery manifests in a variety of ways, then it is likely that multiple mechanisms explain the links to poor service outcomes. Indeed, this idea suggests that efforts to develop techniques for reducing

Needs-to-Goals Gaps in service delivery will likely be multi-faceted in nature, and dependent on such factors as the kinds of informants used in needs and/or goal setting, the context(s) in which the client's needs manifest, and the services available to address the client's needs.

Transdiagnostic Relevance of the Needs-to-Goals Gap Framework

The prior work that we reviewed linking informant discrepancies to service outcomes focused exclusively on services addressing youth internalizing concerns (Becker-Haimes et al., 2018; Humphreys et al., 2017; Zilcha-Mano et al., 2021). Thus, questions remain as to the relevance of the Needs-to-Goals Gap framework for services addressing concerns other than youth internalizing concerns. It is beyond the scope of this paper to delineate the relevance of the Needs-to-Goals Gap framework for all manifestations of youth clients' needs. That said, one understudied area involves understanding the implications of the Needs-to-Goals Gap framework for services addressing youth externalizing concerns, particularly youth ADHD. Our focus on ADHD stems from several aspects of the condition and services designed to address it. Specifically, a core criterion of ADHD involves identifying symptoms and impairments that manifest across contexts (e.g., APA, 2013). The key "best practice" for making this cross-contextual determination involves a multi-informant approach to assessment that includes reports taken from home-specific (parent) and school-specific (teacher) informants (e.g., Hunsley & Mash, 2007; Shemmassian & Lee, 2016). Importantly, a variety of evidence-based interventions exist to address ADHD-related needs (Weisz & Kazdin, 2017). These interventions include services focused on modifying the home context with relevant informants (e.g., parent behavioral training) and/or the school context (e.g., teacher delivery of behavioral interventions) and/or the individual child, across contexts (e.g., child organizational skills training; for reviews see DuPaul et al., 2020; Evans et al., 2018). Thus, professionals have the assessment and intervention

approaches available to link needs assessment and goal setting processes for ADHD to the specific contexts in which youth clients' needs manifest. As such, research supports the need to apply the Needs-to-Goals Gap framework to service delivery for youth ADHD.

Prior work provides circumstantial evidence to suggest that Needs-to-Goals Gaps may indeed exist for services delivered to youth clients with ADHD-related needs. Decades of research indicate that informant discrepancies often occur in ADHD assessments, and these discrepancies may create uncertainties as to tailoring services to the specific contexts in which youth clients' needs manifest. For instance, a prior study of an outpatient sample of youth examined informant discrepancies in prevalence estimates of ADHD, and found these estimates to vary widely from zero youth in the sample to most youth in the sample, depending on the method of combining parent and teacher reports (i.e., ADHD diagnosis if both informants endorsed a diagnosis vs. at least one endorsed a diagnosis) and the method for gathering their reports (i.e., interview vs. rating scale; see Table 5 of Valo & Tannock, 2010). Thus, informants who observe youth clients within different contexts (i.e., parent at home vs. teacher at school) may vary as to whether they perceive a youth as displaying ADHD-related needs, and as mentioned previously, these informants also factor prominently in the administration and outcomes of ADHD interventions. In fact, professionals point to informant discrepancies in ADHD reports as key obstacles to not only making accurate diagnoses but also determining the goals of service delivery (e.g., Epstein et al., 2008; Leslie et al., 2004; Wolraich et al., 2010). This is particularly important to consider when more than one parent or guardian and more than one teacher provide reports about the client's needs, as meta-analytic work indicates that discrepancies would likely manifest when multiple caregivers and multiple teachers provide reports (Achenbach et al., 1987; De Los Reyes et al., 2015). Discrepancies among these

informants' reports of clients' needs might also be valuable for goal setting. For example, discrepancies in teacher ratings at different times of day (e.g., before lunch, at the end of the day) can help to inform treatment regimens and titration of medication, or reveal the need for adaptations to a behavioral intervention given the expectations of a particular academic setting (e.g., a hands-on science lab compared to a lecture-oriented class; see Talbott et al. 2021).

Importantly, in ADHD assessments the process of establishing service goals often relies exclusively on parents as informants, regardless of whether goals for services reflect needs at home and/or school (e.g., Fiks et al., 2012). Further, barriers to obtaining data from teachers and youth may contribute to a greater reliance on parent reports (e.g., Corkum et al., 2015). Here too, there may be consequences to excluding ratings from certain stakeholders. For example, if the youth client is excluded from intervention decision-making and goal setting related to their needs assessments, they may be less engaged in their own treatment (see Langer & Jensen Doss, 2018).

An additional consideration stems from the diagnostic criteria stipulating the presence of ADHD-related needs across multiple contexts. If professionals rely on parents to guide various elements of needs assessments and goal setting, the question arises as to whether evidence supports relying on parents to identify service goals across home and school contexts. A key study by de Nijs and colleagues (2004) calls this practice into question. In this study, both parent reports about youth ADHD displayed at school and teacher reports about youth ADHD displayed at home shared little correspondence with the report from the informant who directly observed youth in that context (i.e., teacher report about school symptoms and parent report about home symptoms). In fact, the kappa (κ) coefficients for both parent reports of home symptoms and teacher reports of home symptoms ($\kappa = .14$), as well as parent reports of school symptoms and teacher reports of school symptoms ($\kappa = .12$), fell far below the within-informant κ's for home

and school symptoms for both parent ($\kappa = .74$) and teacher ($\kappa = .96$). This low, within-context correspondence betwen ADHD reports (e.g., teacher-reported school symptoms vs. parent-reported school symptoms) also fell far below the high correspondence seen between reports of externalizing behaviors from two informants observing behavior in the same context (e.g., two parents, two teachers; see Achenbach et al., 1987; De Los Reyes et al., 2015).

The findings by de Nijs and colleagues (2004) support a core idea of the Needs-to-Goals Gap framework: *Professionals rarely encounter high cross-informant agreement*. For a minority of clients experiencing ADHD-related needs, a professional might be justified in relying on a single informant to set service goals. That said, a professional's default assessment conditions should incorporate reports from parents *and* teachers. Indeed, consider a professional who ultimately decides to plan a child's intervention goals around addressing school-based, ADHD-related needs. In line with routine practices, this planning is only based on parent-identified goals and their reports about their child's ADHD-related needs. However, what would happen if the teacher's ADHD report did not reveal significant symptoms and impairments? This scenario lucidly illustrates the presence of a Needs-to-Goals Gap in service delivery. In fact, the pattern of discrepancies between parent and teacher reports indicates that, in this scenario, the student's needs may be specific to the home and not the school. Is this a common phenomenon in service delivery? Does it impact ADHD-related services? These questions merit further study.[6]

[6] In considering these issues, a question arises: Do informant discrepancies simply reflect the arbitrary nature of the criteria (i.e., number of symptoms required for a diagnosis)? For instance, perhaps reports from parents and teachers would agree more if the criteria were flexibly applied to their reports, such that the number of symptoms needed for a diagnosis were weighted based on typical base rates of reports for each informant. This also does not fully explain informant discrepancies in ADHD assessments. Specifically, the lack of correspondence is not merely an issue of differences across informants on thresholds for rating ADHD, as making ADHD impairment or symptom criteria more flexible does not significantly reduce informant discrepancies (Malhi et al. 2008). Further, work leveraging item response theory techniques finds that parents and teachers perceive the individual ADHD symptoms themselves in similar ways, even if their overall symptom endorsements differ (Gomez, 2007). Taken together, prior work indicates that parent-teacher discrepancies in ADHD reports result not from psychometric issues or the lack of veracity in these informants' reports, but rather from context-specific displays of children's behavior.

Barriers to Identifying and Addressing Needs-to-Goals Gaps in Service Delivery

A key feature of implementation science involves identifying specific barriers that might impede addressing research-to-practice gaps in service delivery (see also Wiltsey Stirman, & Beidas, 2020). Delineating the specific means by which we might address barriers linked to Needs-to-Goals Gaps in service delivery awaits further study. That is, we articulated areas of research where evidence indicates these gaps might already manifest (i.e., services for youth clients' internalizing-related needs), and where they might also manifest (e.g., services for youth clients' ADHD-related needs). Yet, at this point it would be premature to delineate exactly how to address these gaps within service delivery settings. Indeed, within research samples and clinical populations for which scholars and professionals identify Needs-to-Goals Gaps, a key issue will involve detecting and understanding barriers to addressing or bridging these gaps.

For instance, based on prior work (e.g., Beidas et al., 2015; De Los Reyes et al., 2015; Loeber et al., 1990; Marsh et al., 2020; Scott & Lewis, 2015), we expect multiple barriers to impede collecting reports of youth clients' needs, not only from multiple informants, but also at multiple points in service delivery (e.g., intake assessments and over the course of care). To this end, we see the Needs-to-Goals Gap framework as a means for characterizing the *costs* of failing to optimize multi-informant assessments for the domain-relevant information they provide. In doing so, the framework also highlights what professionals *gain* from optimizing use of the multi-informant assessment approach. The costs and gains associated with multi-informant assessment data may serve to increase buy-in among professionals, as they factor into effective *and* efficient delivery of services. In these respects, considerable work in implementation science focuses on the uptake of evidence gathered by professionals in the absence of partnerships with researchers; this represents a promising approach to reducing gaps between the science of

assessment and routine practice (see Wiltsey Stirman & Beidas, 2020). Thus, implementation science approaches may facilitate examining barriers to addressing Needs-to-Goals Gaps.

Concluding Comments

The discrepancies commonly observed between informants' reports of youth clients' needs reflect, in large part, the notion that (a) clients' needs may vary within and across contexts and (b) informants vary in the *expertise* they have for observing clients within the specific contexts where their needs manifest. The services youth clients receive are intimately linked to the social contexts in which they develop and cope with mental health challenges. If professionals do not adapt their approaches to goal setting to accommodate the contexts in which youth clients' needs manifest, then professionals risk creating gaps between the goals they set for services and the degree to which those services adequately address clients' needs. To synthesize and improve clarity on these issues, we advanced a framework (Needs-to-Goals Gap; Figures 2 and 3) informed by well-established principles underlying the use and interpretation of multi-informant assessments of youth mental health (Operations Triad Model; Figure 1; De Los Reyes et al., 2013). The framework harbors considerable heuristic value, and we expect it to serve as a useful hypothesis-generating tool. In line with this, we recommended several directions for future work, including research seeking to (a) identify the mechanisms linking Needs-to-Goals Gaps in service delivery to service outcomes and (b) reduce the barriers to incorporating multi-informant assessment paradigms that facilitate detecting Needs-to-Goals Gaps (e.g., costs and time burdens associated with collecting and interpreting multi-informant data). These gaps likely manifest across service settings, clients' presenting concerns, and the informants used in needs assessments and/or goal setting processes. As such, we expect the Needs-to-Goals Gap framework to inform efforts to reduce research-to-practice gaps in youth services generally.

References

Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, *101*(2), 213-232. https://doi.org/10.1037/0033-2909.101.2.213

Achenbach, T.M., & Rescorla, L.A. (2001). *Manual for the ASEBA school-age forms & profiles*. University of Vermont Research Center for Children, Youth, & Families.

Alfano, C.A., & Beidel, D.C. (2011). *Social anxiety in adolescents and young adults: Translating developmental science into practice*. American Psychological Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.

Bauer, D.J., Howard, A.L., Baldasaro, R.E., Curran, P.J., Hussong, A.M., Chassin, L., & Zucker, R.A. (2013). A trifactor model for integrating ratings across multiple informants. *Psychological Methods*, *18*(4), 475-493. https://doi.org/10.1037/a0032475

Becker, K.D., Boustani, M., Gellatly, R., & Chorpita, B.F. (2018). Forty years of engagement research in children's mental health services: Multidimensional measurement and practice elements. *Journal of Clinical Child and Adolescent Psychology*, *47*(1), 1-23. https://doi.org/10.1080/15374416.2017.1326121

Becker-Haimes, E.M., Jensen-Doss, A., Birmaher, B., Kendall, P.C., & Ginsburg, G.S. (2018). Parent–youth informant disagreement: Implications for youth anxiety treatment. *Clinical Child Psychology and Psychiatry*, *23*(1), 42-56. https://doi.org/10.1177/1359104516689586

Beidas, R.S., Stewart, R.E., Walsh, L., Lucas, S., Downey, M.M., Jackson, K., . . .Mandell, D.S. (2015). Free, brief, and validated: Standardized instruments for low-resource mental

health settings. *Cognitive and Behavioral Practice, 22*(1), 5-19. https://doi.org/10.1016/j.cbpra.2014.02.002

Brown-Jacobsen, A.M., Wallace, D.P., & Whiteside, S.P.H. (2011). Multimethod, multi-informant agreement, and positive predictive value in the identification of child anxiety disorders using the SCAS and ADIS-C. *Assessment*, *18*(3), 382-392. https://doi.org/10.1177/1073191110375792

Cannon, C.J., Makol, B.A., Keeley, L.M., Qasmieh, N., Okuno, H., Racz, S.J., & De Los Reyes, A. (2020). A paradigm for understanding adolescent social anxiety with unfamiliar peers: Conceptual foundations and directions for future research. *Clinical Child and Family Psychology Review*, *23*(3), 338-364. https://doi.org/10.1007/s10567-020-00314-4

Casey, R.J., & Berman, J.S. (1985). The outcomes of psychotherapy with children. *Psychological Bulletin*, *98*(2), 388-400. https://doi.org/10.1111/1469-7610.00159

Clarkson, T., Kang, E., Capriola-Hall, N., Lerner, M.D., Jarcho, J., & Prinstein, M.J. (2020). Meta-analysis of the RDoC social processing domain across units of analysis in children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, *49*(3), 297-321. https://doi.org/10.1080/15374416.2019.1678167

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Corkum, P., Bessey, M., McGonnell, M., & Dorbeck, A. (2015). Barriers to evidence-based treatment for children with attention-deficit/hyperactivity disorder. *ADHD Attention Deficit and Hyperactivity Disorders*, *7*(1), 49-74. https://doi.org/10.1007/s12402-014-0152-z

De Los Reyes, A. (2011). More than measurement error: Discovering meaning behind informant discrepancies in clinical assessments of children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, *40*(1), 1-9. https://doi.org/10.1080/15374416.2011.533405

De Los Reyes, A., Alfano, C.A., & Beidel, D.C. (2011). Are clinicians' assessments of improvements in children's functioning "global"?. *Journal of Clinical Child and Adolescent Psychology*, *40*(2), 281-294. https://doi.org/10.1080/15374416.2011.546043

De Los Reyes, A., Augenstein, T.M., Wang, M., Thomas, S.A., Drabick, D.A.G., Burgers, D., & Rabinowitz, J. (2015). The validity of the multi-informant approach to assessing child and adolescent mental health. *Psychological Bulletin, 141*(4), 858-900. https://doi.org/10.1037/a0038498

De Los Reyes, A., Drabick, D.A.G., Makol, B.A., & Jakubovic, R. (2020). Introduction to the special section: The Research Domain Criteria's units of analysis and cross-unit correspondence in youth mental health research. *Journal of Clinical Child and Adolescent Psychology*, *49*(3), 279-296. https://doi.org/10.1080/15374416.2020.1738238

De Los Reyes, A., Cook, C.R., Gresham, F.M., Makol, B.A., & Wang, M. (2019b). Informant discrepancies in assessments of psychosocial functioning in school-based services and research: Review and directions for future research. *Journal of School Psychology*, *74*, 74-89. https://doi.org/10.1016/j.jsp.2019.05.005

De Los Reyes, A., Henry, D.B., Tolan, P.H., & Wakschlag, L.S. (2009). Linking informant discrepancies to observed variations in young children's disruptive behavior. *Journal of Abnormal Child Psychology*, *37*(5), 637-652. https://doi.org/10.1007/s10802-009-9307-3

De Los Reyes, A., & Kazdin, A.E. (2006). Conceptualizing changes in behavior in intervention research: The range of possible changes model. *Psychological Review, 113*(3), 554-583. https://doi.org/10.1037/0033-295X.113.3.554

De Los Reyes, A., Lerner, M.D., Keeley, L.M., Weber, R., Drabick, D.A.G., Rabinowitz, J., & Goodman, K.L. (2019a). Improving interpretability of subjective assessments about

psychological phenomena: A review and cross-cultural meta-analysis. *Review of General Psychology*, *23*(3), 293-319. https://doi.org/10.1177/108926801983764

De Los Reyes, A., & Makol, B.A. (in press-a). Interpreting convergences and divergences in multi-informant, multi-method assessment. In J. Mihura (Ed.), *The Oxford handbook of personality and psychopathology assessment*. (2nd ed.). Oxford.

De Los Reyes, A., & Makol, B.A. (in press-b). Informant reports in clinical assessment. In G. Asmundson (Ed.), *Comprehensive clinical psychology*. (2nd ed.). Elsevier.

De Los Reyes, A., & Ohannessian, C.M., (2016). Introduction to the special issue: Discrepancies in adolescent-parent perceptions of the family and adolescent adjustment. *Journal of Youth and Adolescence*, *45*(10), 1957-1972. https://doi.org/10.1007/s10964-016-0533-z

De Los Reyes, A., Thomas, S.A., Goodman, K.L., & Kundey, S.M.A. (2013). Principles underlying the use of multiple informants' reports. *Annual Review of Clinical Psychology, 9*, 123-149. https://doi.org/10.1146/annurev-clinpsy-050212-185617

de Nijs, P.F., Ferdinand, R.F., de Bruin, E.I., Dekker, M.C., van Duijn, C.M., & Verhulst, D.C. (2004). Attention-deficit/hyperactivity disorder (ADHD): parents' judgment about school, teachers' judgment about home. *European Child and Adolescent Psychiatry*, *13*(5), 315-320. https://doi.org/10.1007/s00787-004-0405-z

DiBartolo, P.M., Albano, A.M., Barlow, D.H., & Heimberg, R.G. (1998). Cross-informant agreement in the assessment of social phobia in youth. *Journal of Abnormal Child Psychology*, *26*(3), 213-220. https://doi.org/10.1023/A:1022624318795

Dirks, M.A., De Los Reyes, A., Briggs-Gowan, M., Cella, D., & Wakschlag, L.S. (2012). Annual Research Review: Embracing not erasing contextual variability in children's

behavior-theory and utility in the selection and use of methods and informants in developmental psychopathology. *Journal of Child Psychology and Psychiatry*, *53*(5), 558-574. https://doi.org/10.1111/j.1469-7610.2012.02537.x

Dunlap, G., & Kern, L. (2018). Perspectives on (functional) behavioral assessment. *Behavioral Disorders, 43*(2), 316-321. https://doi.org/10.1177/0198742917746633

DuPaul, G.J., Evans, S.W., Mautone, J.A., Owens, J.S., & Power, T.J. (2020). Future Directions for psychosocial interventions for children and adolescents with ADHD. *Journal of Clinical Child and Adolescent Psychology*, *49*(1), 134-145. https://doi.org/10.1080/15374416.2019.1689825

Edgeworth, F.Y. (1888). The statistics of examinations. *Journal of the Royal Statistical Society*, *51*(3), 598-635. Retrieved from https://www.jstor.org/stable/2339898

Eid, M., Nussbeck, F. W., Geiser, C., Cole, D. A., Gollwitzer, M., & Lischetzke, T. (2008). Structural equation modeling of multitrait-multimethod data: Different models for different types of methods. *Psychological Methods, 13*(3), 230-253. https://doi.org/10.1037/a0013219

Epstein, J.N., Langberg, J.M., Lichtenstein, P.K., Mainwaring, B.A., Luzader, C.P., & Stark, L.J. (2008). Community-wide intervention to improve the attention-deficit/hyperactivity disorder assessment and treatment practices of community physicians. *Pediatrics*, *122*(1), 19-27. https://doi.org/10.1542/peds.2007-2704

Evans, S.W., Owens, J.S., Wymbs, B.T., & Ray, A.R. (2018). Evidence-based psychosocial treatments for children and adolescents with attention deficit/hyperactivity disorder. *Journal of Clinical Child and Adolescent Psychology*, *47*(2), 157-198. https://doi.org/10.1080/15374416.2017.1390757

Fergusson, D.M., Boden, J.M., & Horwood, L.J. (2009). Situational and generalised conduct problems and later life outcomes: Evidence from a New Zealand birth cohort. *Journal of Child Psychology and Psychiatry, 50*(9), 1084-1092. https://doi.org/10.1111/j.1469-7610.2009.02070.x

Fiks, A.G., Mayne S., Hughes, C.C., DeBartolo E., Behrens C., Guevara, J.P., & Power, T. (2012). Development of an instrument to measure parents' preferences and goals for the treatment of Attention-Deficit-Hyperactivity Disorder. *Academic Pediatrics*, *12*(5), 445-455. https://doi.org/10.1016/j.acap.2012.04.009

Fisher, E., Bromberg, M.H., Tai, G., & Palermo, T.M. (2017). Adolescent and parent treatment goals in an internet-delivered chronic pain self-management program: Does agreement of treatment goals matter? *Journal of Pediatric Psychology*, *42*(6), 657-666. https://doi.org/10.1093/jpepsy/jsw098

Gage, N.A., Lewis, T.J., & Stichter, J.P. (2012). Functional behavioral assessment-based interventions for students with or at risk for emotional and/or behavioral disorders in school: A hierarchical linear modeling meta-analysis. *Behavioral Disorders*, *37*(2), 55-77. https://doi.org/10.1177/019874291203700201

Garb, H.N. (2003). Incremental validity and the assessment of psychopathology in adults. *Psychological Assessment*, *15*, 508-520. http://dx.doi.org/10.1037/1040-3590.15.4.508

Garner, W.R., Hake, H.W., & Eriksen, C.W. (1956). Operationism and the concept of perception. *Psychological Review, 63*(3), 149-159. https://doi.org/10.1037/h0042992

Glenn, L.E., Keeley, L.M., Szollos, S., Okuno, H., Wang, X., Rausch, E., . . . De Los Reyes, A. (2019). Trained observers' ratings of adolescents' social anxiety and social skills within controlled, cross-contextual social interactions with unfamiliar peer confederates. *Journal*

of Psychopathology and Behavioral Assessment, *41*(1), 1-15. https://doi.org/10.1007/s10862-018-9676-4

Gomez, R. (2007). Australian parent and teacher ratings of the DSM-IV ADHD symptoms: Differential symptom functioning, and parent-teacher agreement and differences. *Journal of Attention Disorders, 11*(1), 17-27. https://doi.org/10.1177/1087054706295665

Goodman, S.H., & Gotlib, I.H. (1999). Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychological Review, 106*(3), 458-490. https://doi.org/10.1037/0033-295X.106.3.458

Grills, A.E., & Ollendick, T.H. (2003). Multiple informant agreement and the Anxiety Disorders Interview Schedule for parents and children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*(1), 30-40. https://doi.org/10.1097/00004583-200301000-00008

Hanley, G.P., Iwata, B.A., & McCord, B.E. (2003). Functional analysis of problem behavior: A review. *Journal of Applied Behavior Analysis*, *36*(2), 147-185. https://doi.org/10.1901/jaba.2003.36-147

Hartley, A.G., Zakriski, A.L., & Wright, J.C. (2011). Probing the depths of informant discrepancies: Contextual influences on divergence and convergence. *Journal of Clinical Child and Adolescent Psychology, 40*(1), 54-66. https://doi.org/10.1080/15374416.2011.533404

Hawley, K.M., & Weisz, J.R. (2003). Child, parent, and therapist (dis)agreement on target problems in outpatient therapy: The therapist's dilemma and its implications. *Journal of Consulting and Clinical Psychology*, *71*(1), 62-70.

https://doi.org/10.1037/0022-006X.71.1.62

Hinkin, T.R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967-988. https://doi.org/10.1177%2F014920639502100509

Hoffman, L.J., & Chu, B.C. (2015). Target problem (mis) matching: Predictors and consequences of parent–youth agreement in a sample of anxious youth. *Journal of Anxiety Disorders*, *31*, 11-19. https://doi.org/10.1016/j.janxdis.2014.12.015

Horvath, A.O., & Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. *Journal of Consulting and Clinical Psychology, 61*(4), 561-573. https://doi.org/10.1037/0022-006X.61.4.561

Hsu, L.M. (1989). Random sampling, randomization, and equivalence of contrasted groups in psychotherapy outcome research. *Journal of Consulting and Clinical Psychology, 57*(1), 131-137. https://doi.org/10.1037/0022-006X.57.1.131

Humphreys, K.L., Weems, C.F., & Scheeringa, M.S. (2017). The role of anxiety control and treatment implications of informant agreement on child PTSD symptoms. *Journal of Clinical Child and Adolescent Psychology*, *46*(6), 903-914. https://doi.org/10.1080/15374416.2015.1094739

Hunsley, J., & Lee, C.M. (2014). *Introduction to clinical psychology* (2nd ed.). Wiley.

Hunsley, J., & Mash, E.J. (Eds.). (2018). *A guide to assessments that work* (2nd ed.). Oxford.

Hunsley, J., & Mash, E.J. (2007). Evidence-based assessment. *Annual Review of Clinical Psychology, 3*, 29-51. https://doi.org/10.1146/annurev.clinpsy.3.022806.091419

Individuals with Disabilities Education Improvement Act, H.R. 1350, 108th Congress.

Jensen, A.L., & Weisz, J.R. (2002). Assessing match and mismatch between practitioner-generated and standardized interview-generated diagnoses for clinic-referred children and

adolescents. *Journal of Consulting and Clinical Psychology, 70*(1), 158-168. https://doi.org/10.1037/0022-006X.70.1.158

Jensen-Doss, A., & Weisz, J.R. (2008). Diagnostic agreement predicts treatment process and outcomes in youth mental health clinics. *Journal of Consulting and Clinical Psychology, 76*(5), 711-722. https://doi.org/10.1037/0022-006X.76.5.711

Kazdin, A.E. (2013). *Behavior modification in applied settings* (7th ed.). Waveland Press.

Kazdin, A.E., & Rotella, C. (2009). *The Kazdin method for parenting the defiant child: With no pills, no therapy, no contest of wills*. Houghton Mifflin Harcourt.

Kern, L., Mathur, S.R., Albrecht, S.F., Poland, S., Rozalski, M., & Skiba, R.J. (2017). The need for school-based mental health services and recommendations for implementation. *School Mental Health*, *9*(3), 205–217. https://doi.org/10.1007/s12310-017-9216-5

Kramer, T.L., Phillips, S.D., Hargis, M.B., Miller, T.L., Burns, B.J., & Robbins, J.M. (2004). Disagreement between parent and adolescent reports of functional impairment. *Journal of Child Psychology and Psychiatry*, *45*(2), 248-259. https://doi.org/10.1111/j.1469-7610.2004.00217.x

Kraemer, H.C., Measelle, J.R., Ablow, J.C., Essex, M.J., Boyce, W.T., & Kupfer, D.J. (2003). A new approach to integrating data from multiple informants in psychiatric assessment and research: Mixing and matching contexts and perspectives. *American Journal of Psychiatry*, *160*(9), 1566-1577. https://doi.org/10.1176/appi.ajp.160.9.1566

Laird, R.D. (2020). Analytical challenges of testing hypotheses of agreement and discrepancy: Comment on Campione-Barr, Lindell, and Giron (2020). *Developmental Psychology*, 56(5), 970-977. https://doi.org/10.1037/dev0000763

Langer, D.A., & Jensen-Doss, A. (2018). Shared decision-making in youth mental health care: using the evidence to plan treatments collaboratively. *Journal of Clinical Child and*

Adolescent Psychology, *47*(5), 821-831. https://doi.org/10.1080/15374416.2016.1247358

Lerner, M.D., De Los Reyes, A., Drabick, D.G., Gerber, A.H., & Gadow, K.D. (2017). Informant discrepancy defines discrete, clinically useful autism spectrum disorder subgroups. *Journal of Child Psychology and Psychiatry*, *58*(7), 829-839. https://doi.org/10.1111/jcpp.12730

Leslie, L.K., Weckerly, J., Plemmons, D., Landsverk, J., & Eastman, S. (2004). Implementing the American Academy of Pediatrics attention-deficit/hyperactivity disorder diagnostic guidelines in primary care settings. *Pediatrics*, *114*(1), 129-140. https://doi.org/10.1542/peds.114.1.129

Lewis, C.C., Boyd, M., Puspitasari, A., Navarro, E., Howard, J., Kassab, H., Hoffman, M., Scott, K., Lyon, A., Douglas, S., Simon, G., & Kroenke, K. (2019). Implementing measurement-based care in behavioral health: A review. *JAMA Psychiatry*, *76*(3), 324-335. https://doi.org/10.1001/jamapsychiatry.2018.3329

Lilienfeld, S.O., Ritschel, L.A., Lynn, S.J., Cautin, R.L., & Latzman, R.D. (2014). Why ineffective psychotherapies appear to work: A taxonomy of causes of spurious therapeutic effectiveness. *Perspectives on Psychological Science*, *9*(4), 355-387. https://doi.org/10.1177/1745691614535216

Loeber, R., Green, S.M., & Lahey, B.B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informants on childhood psychopathology. *Journal of Clinical Child Psychology*, *19*(2), 136-143. https://doi.org/10.1207/s15374424jccp1902_5

Lyon, A.R., Dopp, A.R., Brewer, S.K., Kientz, J.A., & Munson, S.A. (2020). Designing the future of children's mental health services. *Administration and Policy in Mental Health and Mental*

Health Services Research, *47*(5)**,** 735-751. https://doi.org/10.1007/s10488-020-01038-x

Makol, B.A., De Los Reyes, A., Ostrander, R., & Reynolds, E.K. (2019). Parent-youth divergence (and convergence) in reports of youth internalizing problems in psychiatric inpatient care. *Journal of Abnormal Child Psychology*, *47*(10), 1677-1689. https://doi.org/10.1007/s10802-019-00540-7

Makol, B.A., & Polo, A.J. (2018). Parent-child endorsement discrepancies among youth at chronic-risk for depression. *Journal of Abnormal Child Psychology*, *46*(5), 1077-1088. https://doi.org/10.1007/s10802-017-0360-z

Makol, B.A., De Los Reyes, A., Garrido, E., Harlaar, N., & Taussig, H. (2021). Assessing the mental health of maltreated youth with child welfare involvement using multi-informant reports. *Child Psychiatry and Human Development*, *52*(1), 49-62. https://doi.org/10.1007/s10578-020-00985-8

Makol, B.A., Youngstrom, E.A., Racz, S.J., Qasmieh, N., Glenn, L.E., & De Los Reyes, A. (2020). Integrating multiple informants' reports: How conceptual and measurement models may address long-standing problems in clinical decision-making. *Clinical Psychological Science*, *8*(6), 953-970. https://doi.org/10.1177/2167702620924439

Maggin, D.M., Wehby, J.H., Farmer, T.W., & Brooks, D.S. (2016). Intensive interventions for students with emotional and behavioral disorders: Issues, theory, and future directions. *Journal of Emotional and Behavioral Disorders*, *24*(3), 127-137. https://doi.org/10.1177/1063426616661498

Maggin, D.M., Zurheide, J.L., Pickett, K.C., & Ballie, S.J. (2015). A systematic evidence review of the Check-In/Check-Out program for reducing student challenging behaviors. *Journal*

of Positive Behavior Interventions, *17*(4), 197-208. https://doi.org/10.1177/1098300715573630

Marsh, J.K., De Los Reyes, A., & Lilienfeld, S.O. (2018). Leveraging the multiple lenses of psychological science to inform clinical decision making: Introduction to the special section. *Clinical Psychological Science*, *6*(2), 167-176. https://doi.org/10.1177/2167702617736853

Marsh, J.K., Zeveney, A., & De Los Reyes, A. (2020). Informant discrepancies in judgments about change during mental health treatments. *Clinical Psychological Science*, *8*(2), 318-332. https://doi.org/10.1177/2167702619894905

Malhi, P., Singhi, P., & Sidhu, M. (2008). Impact of parent and teacher concordance on diagnosing attention deficit hyperactivity disorder and its sub-types. *The Indian Journal of Pediatrics*, *75*(3), 223-228. https://doi.org/10.1007/s12098-008-0049-y

Meyer, G.J., Finn, S.E., Eyde, L.D., Kay, G.G., Moreland, K.L., Dies, R.R., Eisman, E.J., Kubiszyn, T.W., & Reed, G.M. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist, 56*(2), 128-165. https://doi.org/10.1037/0003-066X.56.2.128

McCutcheon, A.L. (1987). *Latent class analysis*. Sage.

Michel, J.J., Mayne, S., Grundmeier, R.W., Guevara, J.P., Blum, N.J., Power, T.J., Coffin, E., Miller, J.M., & Fiks, A.G. (2018). Sharing of ADHD information between parents and teachers using an EHR-linked application. *Applied Clinical Informatics*, *9*(4), 892-904. https://doi.org/10.1055/s-0038-1676087

Millsap, E. (2011). *Statistical methods for studying measurement invariance*. Taylor & Francis.

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Offord, D.R., Boyle, M.H., Racine, Y., Szatmari, P., Fleming, J.E., Sanford, M., & Lipman, E.L. (1996). Integrating assessment data from multiple informants. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*(8), 1078-1085. http://dx.doi.org/10.1097/00004583-199608000-00019

Patterson, G.R. (1982). *Coercive family process*. Castalia Press.

Paul, G.L. (1967). Strategy of outcome research in psychotherapy. *Journal of Consulting Psychology, 31*(2), 109-118. https://doi.org/10.1037/h0024436

Power, T.J., Blum, N.J., Guevara, J.P., Jones, H.A., & Leslie, L.K. (2013). Coordinating mental health care across primary care and schools: ADHD as a case example. *Advances in School Mental Health Promotion*, *6*(1), 68-80. https://doi.org/10.1080/1754730X.2013.749089

Raggi, V.L., Samson, J.G., Felton, J.W., Loffredo, H.R., & Berghorst, L.H. (2018). *Exposure therapy for treating anxiety in children and adolescent: A comprehensive guide*. New Harbinger.

Rettew, D.C., Lynch, A.D., Achenbach, T.M., Dumenci, L., & Ivanova, M.Y. (2009). Meta-analyses of agreement between diagnoses made from clinical evaluations and standardized diagnostic interviews. *International Journal of Methods in Psychiatric Research*, *18*(3), 169-184. https://doi.org/10.1002/mpr.289

Richters, J.E. (1992). Depressed mothers as informants about their children: A critical review of the evidence for distortion. *Psychological Bulletin, 112*(3), 485-499. https://doi.org/10.1037/0033-2909.112.3.485

Rubio-Stipec, M., Fitzmaurice, G., Murphy, J., & Walker, A. (2003). The use of multiple informants in identifying the risk factors of depressive and disruptive disorders: Are they interchangeable? *Social Psychiatry and Psychiatric Epidemiology, 38*(2), 51-58. https://doi.org/10.1007/s00127-003-0600-0

Scott, K., & Lewis, C.C. (2015). Using measurement-based care to enhance any treatment. *Cognitive and Behavioral Practice*, *22*(1), 49-59. https://doi.org/10.1016/j.cbpra.2014.01.010

Sewart, A.R., & Craske, M.G. (2020). Inhibitory learning. In J. S. Abramowitz & S. M. Blakey (Eds.), *Clinical handbook of fear and anxiety: Maintenance processes and treatment mechanisms* (pp. 265–285). American Psychological Association.

Shemmassian, S.K., & Lee, S.S. (2016) Predictive utility of four methods of incorporating parent and teacher symptom ratings of ADHD for longitudinal outcomes. *Journal of Clinical Child and Adolescent Psychology, 45*(2), 176-187. https://doi.org/10.1080/15374416.2014.971457

Skinner, B.F (1953). *Science and Human Behavior*. MacMillan.

Smith, J.D., Dishion, T.J., Shaw, D.S., Wilson, M.N., Winter, C.C., & Patterson, G.R. (2014). Coercive family process and early-onset conduct problems from age 2 to school entry. *Development and Psychopathology*, *26*(4), 917-932. https://doi.org/10.1017/S0954579414000169

Sulik, M.J., Blair, C., Greenberg, M., & Family Life Project Investigators (2017). Child conduct problems across home and school contexts: A person-centered approach. *Journal of Psychopathology and Behavioral Assessment, 39*(1), 46-57. https://doi.org/10.1007/s10862-016-9564-8

Talbott, E., & De Los Reyes, A. (in press). Making sense of multiple data sources: Using single case design research for behavioral decision making. In T.W. Farmer, E. Talbott, K.L. McMaster, D. Lee, & T. Aceves (Ed.), *Handbook of special education research: Theory, methods, and developmental processes*. Routledge.

Talbott, E., De Los Reyes, A., Power, T., Michel, J., & Racz, S.J. (2021). A team-

based collaborative care model for youth with attention deficit hyperactivity disorder in education and pediatric health care settings. *Journal of Emotional and Behavioral Disorders*, *29*(1), 24-33. https://doi.org/10.1177/1063426620949987

Tversky, A., & Kahneman, D. (1974, September 27). Judgment under uncertainty: Heuristics and biases. *Science*, *185*(4157), 1124-1131. https://doi.org/10.1126/science.185.4157.1124

Valo, S., & Tannock, R. (2010). Diagnostic instability of DSM-IV ADHD subtypes: effects of informant source, instrumentation, and methods for combining symptom reports. *Journal of Clinical Child and Adolescent Psychology, 39*(6), 749-760. https://doi.org/10.1080/15374416.2010.517172

Weisz, J.R., Kazdin, A.E. (Eds.) (2017). *Evidence-based psychotherapies for children and adolescents*. Guilford.

Weisz, J.R., Jensen Doss, A., & Hawley, K.M. (2005). Youth psychotherapy outcome research: A review and critique of the evidence base. *Annual Review of Psychology, 56*, 337-363. https://doi.org/10.1146/annurev.psych.55.090902.141449

Weisz, J.R., Kuppens, S., Ng, M.Y., Vaughn-Coaxum, R.A., Ugueto, A.M., Eckshtain, D., & Corteselli, K.A. (2019). Are psychotherapies for young people growing stronger? Tracking trends over time for youth anxiety, depression, attention-deficit/hyperactivity disorder, and conduct problems. *Perspectives on Psychological Science*, *14*(2), 216-237. https://doi.org/10.1177/1745691618805436

Weisz, J.R., Weiss, B., Alicke, M.D., & Klotz, M.L. (1987). Effectiveness of psychotherapy with children and adolescents: A meta-analysis for clinicians. *Journal of Consulting and Clinical Psychology*, *55*(4), 542-549. https://doi.org/10.1037/0022-006X.55.4.542

Weisz, J.R., Weiss, B., Han, S.S., Granger, D.A., & Morton, T. (1995). Effects of psychotherapy

with children and adolescents revisited: A meta-analysis of treatment outcome studies. *Psychological Bulletin*, *117*(3), 450-468. https://doi.org/10.1037/0033-2909.117.3.450

Wiltsey Stirman, S.W., & Beidas, R. S. (2020). Expanding the reach of psychological science through implementation science: Introduction to the special issue. *American Psychologist, 75*(8), 1033-1037. http://dx.doi.org/10.1037/amp0000774

Wolraich, M.L., Bard, D.E., Stein, M.T., Rushton, J.L., & O'Connor, K.G. (2010). Pediatricians' attitudes and practices on ADHD before and after the development of ADHD pediatric practice guidelines. *Journal of Attention Disorders*, *13*(6), 563-572. https://doi.org/10.1177/1087054709344194

Yeh, M., & Weisz, J.R. (2001). Why are we here at the clinic? Parent-child (dis)agreement on referral problems at outpatient treatment entry. *Journal of Consulting and Clinical Psychology, 69*(6), 1018-1025. http://dx.doi.org/10.1037/0022-006X.69.6.1018

Youngstrom, E.A., Findling, R. L., & Calabrese, J.R. (2004). Effects of adolescent manic symptoms on agreement between youth, parent, and teacher ratings of behavior problems. *Journal of Affective Disorders*, *82*(S1), S5-S16. https://doi.org/10.1016/j.jad.2004.05.016

Youngstrom, E.A., Findling, R.L., & Calabrese, J.R. (2003). Who are the comorbid adolescents? Agreement between psychiatric diagnosis, youth, parent, and teacher report. *Journal of Abnormal Child Psychology, 31*(3), 231-245. http://dx.doi.org/10.1023/A:1023244512119

Zilcha-Mano, S., Shimshoni, Y., Silverman, W.K., & Lebowitz, E.R. (2021). Parent-child agreement on family accommodation differentially predicts outcomes of child-based and parent-based child anxiety treatment. *Journal of Clinical Child and Adolescent Psychology*, *50*(3), 427-439. https://doi.org/10.1080/15374416.2020.1756300

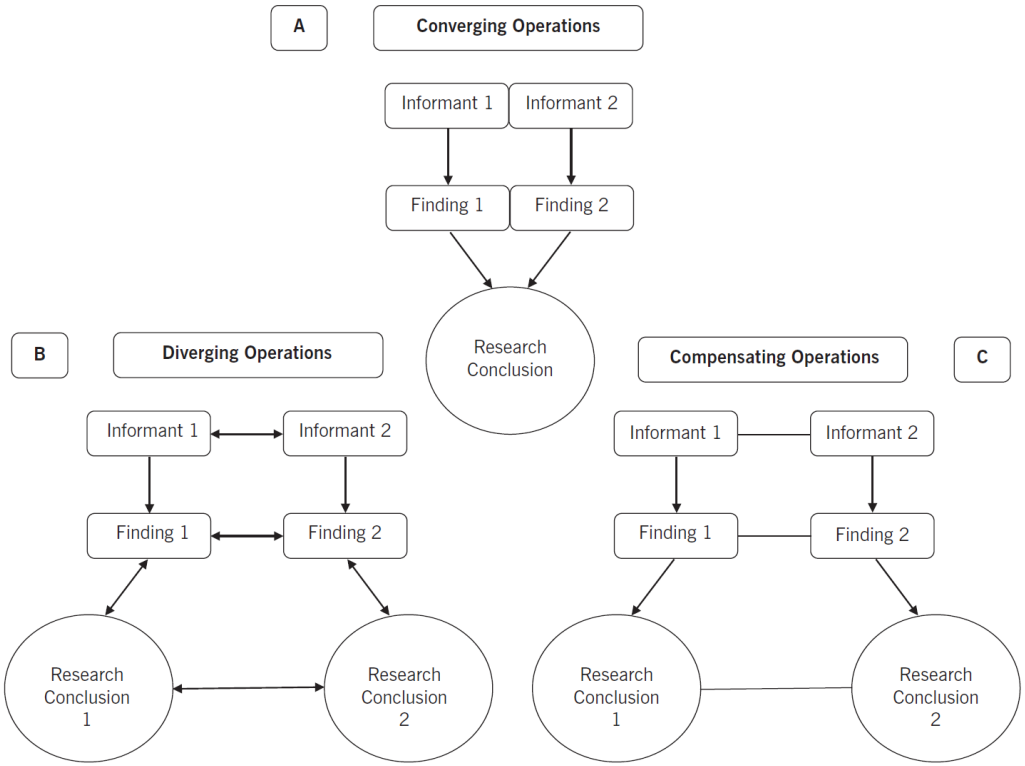


Figure 1. Graphical representation of the research concepts that comprise the Operations Triad Model. The top half (A) represents Converging Operations: a set of measurement conditions for interpreting patterns of findings based on the consistency within which findings yield similar conclusions. The bottom half denotes two circumstances within which researchers identify discrepancies across empirical findings derived from multiple informants' reports and thus discrepancies in the research conclusions drawn from these reports. On the left (B) is a graphical representation of Diverging Operations: a set of measurement conditions for interpreting patterns of inconsistent findings based on hypotheses about variations in the behavior(s) assessed. The solid lines linking informants' reports, empirical findings derived from these reports, and conclusions based on empirical findings denote the systematic relations among these three study components. Further, the presence of dual arrowheads in the figure representing Diverging Operations conveys the idea that one ties meaning to the discrepancies among empirical findings and research conclusions and thus how one interprets informants' reports to vary as a function of variation in the behaviors being assessed. Lastly, on the right (C) is a graphical representation of Compensating Operations: a set of measurement conditions for interpreting patterns of inconsistent findings based on methodological features of the study's measures or informants. The dashed lines denote the lack of systematic relations among informants' reports, empirical findings, and research conclusions. Originally published in De Los Reyes, Thomas, et al. (2013).

Figure 2. Graphical illustration of the Needs-to-Goals Gap framework. When professionals base their decisions regarding service goals on a single informant (e.g., client's parent), such a decision would be evidence-based insofar as the client's needs *and* the goals of services to address those needs manifest identically across domain-relevant contexts, such as home and school (a). However, when the evidence indicates that the client's needs and/or goals of services manifest differently across contexts (b), or the evidence is inconclusive as to whether the client's needs and/or goals of services manifest differently across contexts (c), professionals should base their decisions regarding service goals on the views of multiple informants (e.g., client's parent, client's teacher, client). A mismatch between assessment approaches (i.e., single vs. multiple informants) and the context(s) in which the client's needs manifest is thought to increase the risk of creating a Needs-to-Goals Gap in service delivery, whereby the goals set for service delivery fail to meet the client's needs.

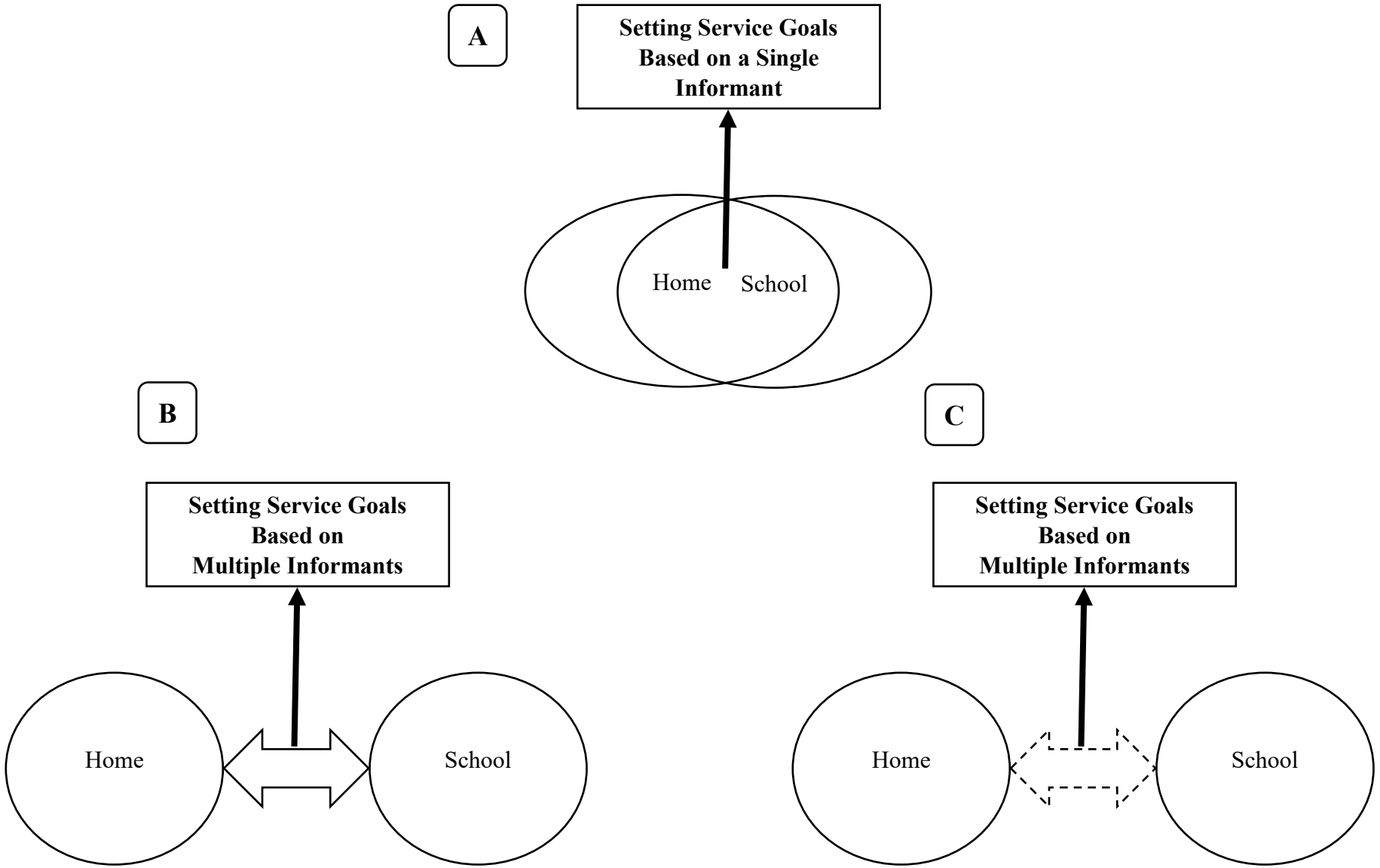
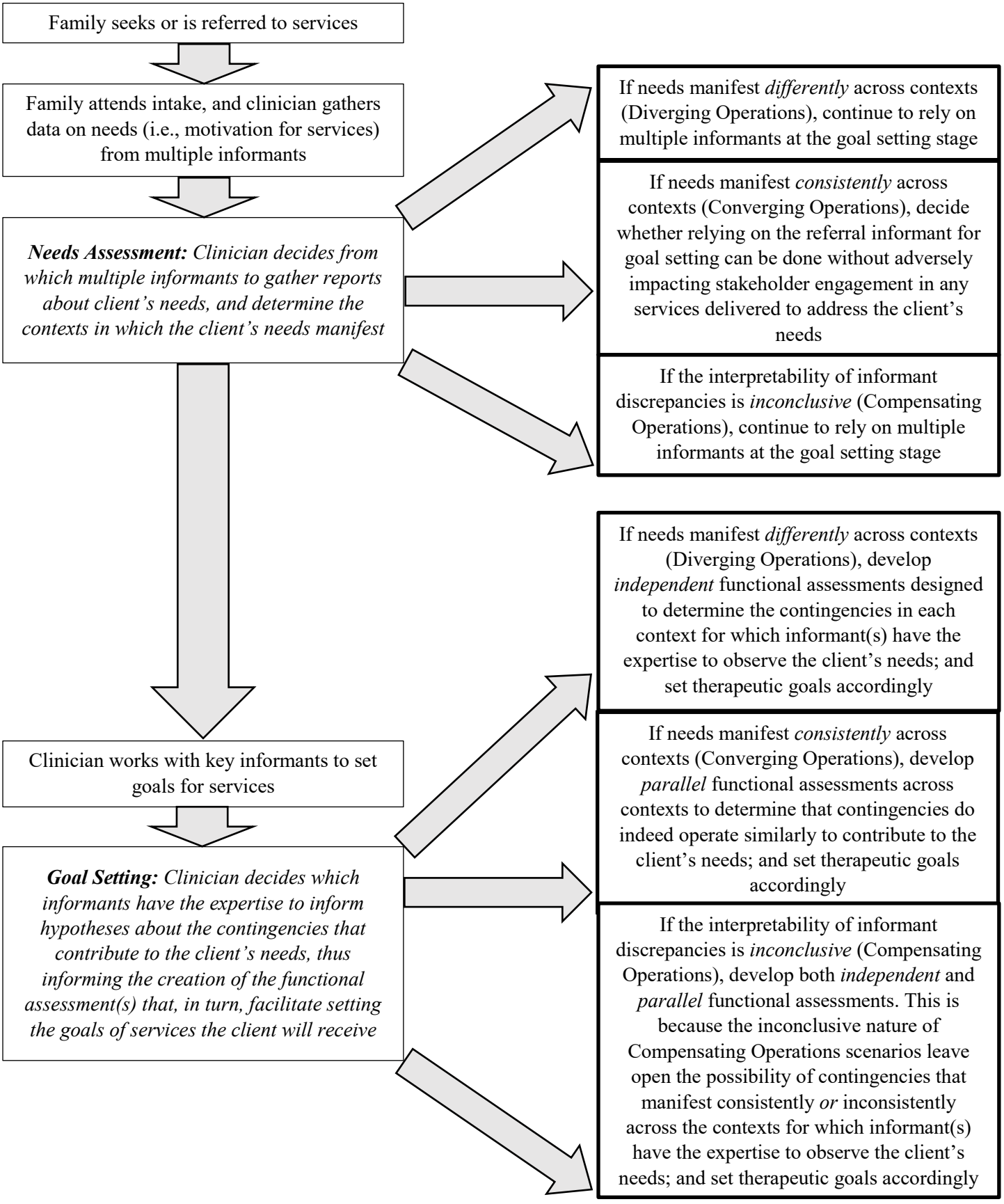


Figure 3. Graphical depiction of how needs assessment and goal setting processes conducted as part of service delivery might appear, if conducted consistent with the science of multi-informant assessment and the Needs-to-Goals Gap framework (Figure 2). In this depiction, we assume that caregivers initiate referral on behalf of the youth client.



Running Head: NEEDS-TO-GOALS GAP IN SERVICE DELIVERY

The Needs-to-Goals Gap: How Informant Discrepancies in Youth Mental Health Assessments Impact Service Delivery

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The Needs-to-Goals Gap: How Informant Discrepancies in Youth Mental Health Assessments Impact Service Delivery

ONLINE SUPPLEMENTARY MATERIALS

Literature Review Procedures

The purpose of our review was to identify studies that addressed two different kinds of phenomena germane to the Needs-to-Goals Gap framework: (a) clinical decision-making (i.e., how service professionals made decisions when informants provided discrepant data) and (b) the links between informant discrepancies and service outcomes. We considered these two phenomena crucial to interpreting whether existing evidence supported the Needs-to-Goals Gap framework. Specifically, the utility of the framework hinges on identifying discernable patterns in service professionals' decision-making when confronted with informant discrepancies, such as making decisions that correspond to a greater extent with one informant's report over other informants' reports (e.g., parent > client). In turn, the discernability and/or frequency of these patterns justifies testing the links between informant discrepancies and service outcomes.

In terms of the links between informant discrepancies and service outcomes, we considered this phenomenon central to understanding the clinical implications of the Needs-to-Goals Gap framework. That is, in order to determine the value in leveraging implementation science tools to understand and address gaps between clients' goals and needs, it would be crucial to identify studies that have directly tested whether informant discrepancies predict service outcomes. We interpreted these studies as "proof of concept" work akin to the use of controlled trials evidence of an intervention to justify implementation studies of that intervention. In essence, if prior work indicates that informant discrepancies *can* serve as markers of service outcomes, then not only does that work support key tenets of the Needs-to-

Goals Gap framework, but it also informs future work seeking to identify modifiable factors within informant discrepancies that, when addressed by service professionals over the course of care, improve clients' service outcomes.

To identify studies, we followed procedures used in two recent meta-analyses focused on estimating levels of cross-informant correspondence between informants' reports of youth mental health (De Los Reyes et al., 2015, 2019a). This approach ensured that we would capture all available studies germane to the Needs-to-Goals Gap framework. A key prerequisite of these studies involves researchers estimating levels of correspondence between reports. In this way, researchers studying the phenomena of interest—service professionals' reactions to informant discrepancies and links between discrepancies and service outcomes—document the presence of sufficient levels of informant discrepancies to justify addressing research aims. In turn, such a study, though not specifically focused on estimating levels of cross-informant correspondence, nonetheless gets identified via these procedures. In fact, a review of the studies included in De Los Reyes and colleagues' meta-analyses reveals scores of studies that met criteria for inclusion simply for reporting levels of cross-informant correspondence as part of the preliminary analyses of the studies. Consequently, following these procedures gave us confidence that we would identify any available evidence germane to the Needs-to-Goals Gap framework.

We leveraged the procedures from De Los Reyes and colleagues (2015, 2019a) by (a) reviewing articles that cited prior quantitative reviews of cross-informant correspondence (e.g., Achenbach et al., 1987; Meyer et al., 2001), and (b) entering relevant search terms into Google Scholar® and the Web of Science database (i.e., "informant" and "quantitative review"; "meta-analysis OR quantitative review OR systematic review"; "internalizing symptoms/problems/difficulties OR externalizing symptoms/problems/difficulties"). De Los

Reyes and colleagues' (2015, 2019a) meta-analyses identified studies that met specific inclusion criteria. These were all studies that (a) focused on informants' reports of youth at or under the age of 18 years; (b) examined correspondence between informants' reports of youth mental health (i.e., internalizing and/or externalizing concerns); (c) examined correspondence between reports completed by pairs of parents, teachers, and/or children (i.e., mother–father, parent–child, parent–teacher, teacher– child); and (d) were published in English. For De Los Reyes and colleagues (2015), this search strategy resulted in a list of 341 studies, with the most recent studies published in 2014. De Los Reyes and colleagues (2019a) included 268 studies from the prior meta-analysis, as well as studies published in 2015 and 2016 identified via an updated search. This resulted in a list of 314 studies, with the most recent studies published in 2016.

For the current review, we took a multifaceted approach to ensure both a thorough search of the literature and a resulting pool of studies that were directly relevant to the Needs-to-Goals Gap framework. This approach began with establishing additional inclusion criteria, beyond those used in the previous De Los Reyes and colleagues (2015, 2019a) meta-analyses. First, as the Needs-to-Goals Gap framework characterizes use and interpretation of informant discrepancies in the context of service delivery, we focused on studies that collected multi-informant data at a baseline assessment conducted within a clinical setting (e.g., university laboratory clinic, community mental health center, hospital), and preceding service delivery (i.e., receipt of an intervention based on the baseline needs assessment). Second, we sought to identify not only studies focused on informant discrepancies at baseline assessments, but also those studies testing links between discrepancies at baseline assessments and outcomes post-service delivery. Thus, another inclusion criterion focused on studies where researchers collected at least one service outcome data point following clients' receipt of services (e.g., diagnostic status,

symptom levels). These two inclusion criteria narrowed our search to studies that examined informant discrepancies in the context of service delivery.

A third criterion allowed us to isolate our search to only those studies that provided valid data regarding informant discrepancies. This is a crucial issue in work on these topics. Indeed, the interpretability of prior work testing the links between informant discrepancies and service outcomes has been hindered by use of questionable approaches to measuring these discrepancies, namely use of difference scores and similar metrics (for a review, see Laird, 2020). Briefly, metrics like difference scores—which typically consist of a score that results from substacting one informant's report from another informant's report—force a user to assume that the resulting score reflects a construct (i.e., informant discrepancies) not contained in the scores used to create it (i.e., the individual inforamnts' reports). Importantly, difference scores force a user to make this assumption, and without a means for testing the incremental value of the difference scores, relative to the "main effects" of the scores used to create it. This was a particularly salient issue with regard to studies focused on testing measures of informant discrepancies as predictors of service outcomes. Indeed, use of a difference score as a predictor results in effects that could be attributable to various factors beyond the construct of informant discrepancies (e.g., differential prediction of individual informant's reports). Including studies using these difference scores in our review would threaten the validity of our interpretations of the literature. Such a decision would be analogous to conducting a meta-analysis of treatment outcome studies and including in the study sample investigations using study designs that allow for drawing causal inferences of treatment effects (e.g., randomized controlled trial) as well as those that do not (e.g., pre-post designs). For these reasons, we further narrowed our search to only those studies leveraging current approaches to modeling or estimating informant discrepancies, such as polynomial

regression and response surface analytic techniques (see also De Los Reyes & Ohannessian, 2016).

Taken together, we applied the search procedures and inclusion criteria described previously in three ways. First, we applied our last three criteria germane to service delivery and currently recommended procedures for measuring informant discrepancies to the 341 studies and 314 studies identified in the De Los Reyes and colleagues (2015, 2019a) meta-analyses. Second, we updated the search and inclusion criteria procedures used in the previous meta-analyses to also include studies published between 2017 and 2021 (searches conducted between April 6, 2021 and April 10, 2021). Third, as an additional check we searched articles that have cited the De Los Reyes and colleagues (2015, 2019a) meta-analyses.

References Identified via Literature Review Procedures

Becker-Haimes, E.M., Jensen-Doss, A., Birmaher, B., Kendall, P.C., & Ginsburg, G.S. (2018). Parent–youth informant disagreement: Implications for youth anxiety treatment. *Clinical Child Psychology and Psychiatry*, *23*(1), 42-56. https://doi.org/10.1177/1359104516689586

Brown-Jacobsen, A.M., Wallace, D.P., & Whiteside, S.P.H. (2011). Multimethod, multi-informant agreement, and positive predictive value in the identification of child anxiety disorders using the SCAS and ADIS-C. *Assessment*, *18*(3), 382-392. https://doi.org/10.1177/1073191110375792

De Los Reyes, A., Alfano, C.A., & Beidel, D.C. (2011). Are clinicians' assessments of improvements in children's functioning "global"?. *Journal of Clinical Child & Adolescent Psychology*, *40*(2), 281-294. https://doi.org/10.1080/15374416.2011.546043

DiBartolo, P.M., Albano, A.M., Barlow, D.H., & Heimberg, R.G. (1998). Cross-informant agreement in the assessment of social phobia in youth. *Journal of Abnormal Child Psychology*, *26*(3), 213-220. https://doi.org/10.1023/A:1022624318795

Fisher, E., Bromberg, M.H., Tai, G., & Palermo, T.M. (2017). Adolescent and parent treatment goals in an internet-delivered chronic pain self-management program: Does agreement of treatment goals matter? *Journal of Pediatric Psychology*, *42*(6), 657-666. https://doi.org/10.1093/jpepsy/jsw098

Grills, A.E., & Ollendick, T.H. (2003). Multiple informant agreement and the Anxiety Disorders Interview Schedule for parents and children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*(1), 30-40. https://doi.org/10.1097/00004583-200301000-00008

Hawley, K.M., & Weisz, J.R. (2003). Child, parent, and therapist (dis)agreement on target

problems in outpatient therapy: The therapist's dilemma and its implications. *Journal of Consulting and Clinical Psychology*, *71*(1), 62-70. https://doi.org/10.1037/0022-006X.71.1.62

Hoffman, L.J., & Chu, B.C. (2015). Target problem (mis) matching: Predictors and consequences of parent–youth agreement in a sample of anxious youth. *Journal of Anxiety Disorders*, *31*, 11-19. https://doi.org/10.1016/j.janxdis.2014.12.015

Humphreys, K.L., Weems, C.F., & Scheeringa, M.S. (2017). The role of anxiety control and treatment implications of informant agreement on child PTSD symptoms. *Journal of Clinical Child and Adolescent Psychology*, *46*(6), 903-914. https://doi.org/10.1080/15374416.2015.1094739

Jensen-Doss, A., & Weisz, J.R. (2008). Diagnostic agreement predicts treatment process and outcomes in youth mental health clinics. *Journal of Consulting and Clinical Psychology, 76*(5), 711-722. https://doi.org/10.1037/0022-006X.76.5.711

Kramer, T.L., Phillips, S.D., Hargis, M.B., Miller, T.L., Burns, B.J., & Robbins, J.M. (2004). Disagreement between parent and adolescent reports of functional impairment. *Journal of Child Psychology and Psychiatry*, *45*(2), 248-259. https://doi.org/10.1111/j.1469-7610.2004.00217.x

Loeber, R., Green, S.M., & Lahey, B.B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informants on childhood psychopathology. *Journal of Clinical Child Psychology*, *19*(2), 136-143. https://doi.org/10.1207/s15374424jccp1902_5

Marsh, J.K., Zeveney, A., & De Los Reyes, A. (2020). Informant discrepancies in judgments about change during mental health treatments. *Clinical Psychological Science*, *8*(2), 318-332. https://doi.org/10.1177/2167702619894905

Yeh, M., & Weisz, J.R. (2001). Why are we here at the clinic? Parent-child (dis)agreement on referral problems at outpatient treatment entry. *Journal of Consulting and Clinical Psychology, 69*(6), 1018-1025. http://dx.doi.org/10.1037/0022-006X.69.6.1018

Youngstrom, E.A., Findling, R. L., & Calabrese, J.R. (2004). Effects of adolescent manic symptoms on agreement between youth, parent, and teacher ratings of behavior problems. *Journal of Affective Disorders*, *82*(S1), S5-S16. https://doi.org/10.1016/j.jad.2004.05.016

Zilcha-Mano, S., Shimshoni, Y., Silverman, W.K., & Lebowitz, E.R. (2021). Parent-child agreement on family accommodation differentially predicts outcomes of child-based and parent-based child anxiety treatment. *Journal of Clinical Child and Adolescent Psychology*, *50*(3), 427-439. https://doi.org/10.1080/15374416.2020.1756300