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# Using latent profile and transition analyses to understand patterns of informant ratings of child depressive symptoms<sup>☆</sup>



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## ABSTRACT

The present study examined the latent profiles of child, parent, and teacher ratings of child depressive symptoms in a developmental sample of children from Hawaii at two time points (2nd and 3rd grade). The study attempted to identify patterns of agreement and discrepancy among raters and correlates of these patterns to test a new theory for understanding rating disagreements as Divergent Operations. Three profiles best described the ratings at both time points: Child-Only High Depression, Child-Only Mild Depression, and Normative (non-depressed). Second and third grade measures of child social skills, externalizing symptoms, attention problems, and language and academic competence confirmed the distinctiveness of these classes which provides support for a Divergent Operations perspective. Latent transition analyses suggested that depressive symptoms were relatively transient for each class. Implications regarding the measurement and identification of child depressive symptoms across development and the meaning and use of discrepant ratings are discussed.

## 1. Introduction

Best practice guidelines in child psychosocial assessment require that ratings be collected from multiple informants, with the aim of establishing convergence across sources and/or settings (Achenbach, McConaughy, & Howell, 1987; Richardson & Day, 2000). Despite the emphasis on obtaining informant agreement for the purpose of construct definitions and clinical decision-making, informant discordance is an extremely common phenomenon (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005). Instead of being viewed as useful, the presence of discordance has historically been conceptualized as an “artifact,” and thus not suitable for recognition as a meaningful variation in the context of child development and psychopathology (De Los Reyes, 2011). The existence of conflicting data is typically attributed to measurement error or mood-congruent informant bias. However, these assumptions are contradicted by data suggesting that low to moderate informant agreement is present in the most psychometrically robust assessment

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measures, and mood-congruent bias contributes minimally to the total variance in informant discrepancies (De Los Reyes, 2013).

Understanding the source of informant discrepancies is critical both for applied and developmental researchers. The limitations of single source, single method developmental studies are well-documented (see Holmbeck, Li, Schurman, Friedman, & Coakley, 2002). Thus, developmental studies commonly rely on multiple sources to define central constructs. One review found that 36% of informant-based papers published in *Child Development* and *Developmental Psychology* used multiple informants for one or more constructs (Ehrlich, Cassidy, & Dykas, 2011). Moreover, decisions about how to aggregate data from multiple sources are complicated and will influence study design, analytic approach, and the findings and conclusions that are ultimately drawn from any given developmental study (Holmbeck et al., 2002).

Several methods for aggregating data from multiple sources have been recommended. For instance, Piacentini, Cohen, and Cohen (1992) suggested an approach that equally weights informants, with endorsement by a single informant being sufficient, which they asserted is superior to empirically-derived weights (e.g., if parent, teacher, or student ratings indicate depression, the student is classified as having depression). Similarly, Bird, Gould, and Staghezza (1992) found that diagnoses derived from a simple approach using the endorsement of a symptom by any informant were comparable to those derived from a complex method where statistical procedures were used to determine an optimal informant. Other researchers have attempted to identify the best rater based on child age, setting, and disorder or characteristics of the rater. For instance, Offord et al. (1996) reported evidence to suggest that perspectives from various types of informants should be differentially weighted based on the attributes of the disorder of interest (e.g., parent and teacher agreement for conduct disorder is low and endorsement by either reporter reflects a distinct presentation of the disorder). Others have provided recommendations for which rater and rating circumstances (inpatient/outpatient, younger/older, and internalizing/externalizing) should be given differential preference (e.g., parent or teacher ratings are emphasized for conduct disorder, while self-report ratings are emphasized for depression) (Smith, 2007). Several studies have also examined characteristics of the rater (such as maternal depression) that increase informant discrepancies (e.g., ratings provided by a parent with depression should be interpreted with caution) (Renouf & Kovacs, 1994; Youngstrom, Izard, & Ackerman, 1999).

All of these attempts to study aggregation methods and to understand factors related to discrepancies are generally based on the assumption that informant agreement is the ideal and that aggregation methods eliminate the confusion that arises from discordance, rather than directing equal attention to patterns of concordance and discordance. Instead of viewing discordance as an indicator of measurement error, the nature of specific disagreements between raters can be used to understand the manner in which various disorders and their subtypes present (or fail to present) across different circumstances. In contrast to perspectives associated with typical informant aggregation methods, Cantwell, Lewinsohn, Rohde, and Seeley (1997) argued that each rater may be accurate even when they disagree:

This lack of agreement could be due to different informants providing different but equally valid information. For example, a child may manifest a deviant behavior in school but not at home, or vice versa. Thus, both the parent and the teacher could be “right” even though their diagnostic assessments do not agree (p. 661).

Given the potential variability in the presentation of symptoms across environments and interpersonal relationships, when discordance emerges, the specific details of the disparity can be a rich source of information.

### 1.1. Childhood depressive symptoms

The challenges for understanding informant discrepancies are especially salient for childhood internalizing symptoms like depression. Much has been written about how internalizing problems often go unnoticed and untreated in children (Emslie & Mayes, 1999; Williams, O'Connor, Eder, & Whitlock, 2009). The very name “internalizing” implies that the most prominent symptoms occur within the child, which is why child self-report is considered the gold standard for measuring these symptoms (Angold et al., 1987).

Accurate identification of child internalizing symptoms is especially important given the well-established international burden of depressive and anxiety disorders for individuals and society (Ferrari et al., 2013; Merikangas et al., 2010). Up to 20% of youth will experience a major depressive disorder (MDD) by the time they reach adulthood. Moreover, the prevalence of MDD among adolescence increased by 37% from 2005 to 2014. Prior studies have also revealed that sub-threshold depressive symptoms in childhood and adolescence often result in the same level of impairment as depressive diagnoses, and depressive or anxious symptoms in childhood serve as a risk factor for suicide and subsequent MDD (Balázs et al., 2013; Ialongo, Edelsohn, & Kellam, 2001). Thus, identifying youth with internalizing symptoms and providing intervention early holds promise for reducing the risk of enduring negative consequences for the child. School psychologists are well-positioned to assist with accurate screening and intervention of internalizing symptoms in youth (Herman, Merrell, Reinke, & Tucker, 2004; Herman, Reinke, Parkin, Traylor, & Agarwal, 2009).

### 1.2. Developmental considerations

Developmental considerations are central to the measurement of child internalizing symptoms. Some researchers suggest that cognitive developmental factors influence the reliability and validity of child ratings of their mood related symptoms (Lewis et al., 2012; Nicholls & Miller, 1984; Ostrander, Nay, Anderson & Jensen, 1995; Reinke & Ostrander, 2008). Normal developmental transformations in the stability of key cognitive structures along with developmental variation in the potency of various environmental factors may contribute to how children's mood states are expressed (see Ostrander & Herman, 2006). Through middle childhood, child reports of depressed mood are typically linked to what is happening in the proximal environment. Thus, fluctuations in child ratings of their own symptoms may be a result of changing environmental circumstances combined with the fact that

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