



Published in final edited form as:

Clin Psychol (New York). 2010 December ; 17(4): 272–280. doi:10.1111/j.1468-2850.2010.01219.x.

Developmental Psychopathology and the Diagnosis of Mental Health Problems among Youth

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Abstract

Recent years have evidenced a tremendous increase in research using a developmental psychopathology framework to examine clinical diagnoses among youth. Despite this increase, a relative dearth of literature systematically examines the development of co-occurring conditions among youth. In this introduction to the Special Issue on comorbidity among youth, we suggest that a developmental psychopathology perspective can provide an important foundation for the diagnosis of mental health problems among youth. As a potential framework for future investigations, we consider several developmental psychopathology principles that can inform assessment and diagnosis among youth psychological disorders. We use these principles as a foundation for considering co-occurring psychological disorders and provide potential explanations for comorbidity that can be addressed in future research that uses a developmental psychopathology perspective.

Research using a developmental psychopathology perspective has surged in recent decades and provides an important framework for diagnoses among youth (Beauchaine, 2003; Drabick, 2009a; Holmbeck & Kendall, 2002; Jensen & Hoagwood, 1997; Rutter & Sroufe, 2000; Steinberg, 2002). In this paper, we describe several ways in which a developmental psychopathology perspective can inform diagnostic decision-making. We discuss the relations between, and potential influence of, a developmental psychopathology perspective on comorbidity or disorder co-occurrence among youth. We describe several potential explanations for disorder co-occurrence and link the developmental psychopathology framework to these explanations. We intend to be illustrative and not exhaustive of the many explanations that may underlie co-occurring conditions, and in so doing, hope to provide suggestions and a framework for future investigations.

Use of a Developmental Psychopathology Emphasis

The value of a developmental psychopathology perspective can be seen in research involving a wide range of psychological conditions, including attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), conduct disorder (CD), anxiety disorders, depressive disorders, bipolar disorder, autism, and schizophrenia (Beauchaine, 2001; Bubier & Drabick, 2008; Carlson & Meyer, 2006; Dodge, 2009; Garber, Keiley, & Martin, 2002; Jensen et al., 1997; Miklowitz, 2004; Pine, Guyer, & Leibenluft, 2008; Silk et al., 2007; Viding & Blakemore, 2007). However, the influence of the developmental psychopathology perspective extends well beyond the consideration of diagnoses among youth. Rather, this perspective has had a broader and more complex influence on research considering issues such as contextual factors, categorical and dimensional models, risk and

resilience, and developmental pathways (Beauchaine, 2003; Cicchetti & Rogosch, 1996; Drabick, 2009a, 2009b; Hart & Marmorstein, 2009; Holmbeck & Kendall, 2002; Jensen & Hoagwood, 1997; Rutter & Sroufe, 2000; Silk et al., 2007; Steinberg & Avenevoli, 2000; Steinberg, 2002). We consider several developmental psychopathology principles that we believe are particularly relevant to diagnoses next.

Normative vs. Atypical Development

The developmental psychopathology perspective emphasizes that normative development provides a crucial and necessary comparison for determining whether youth behavior is atypical or problematic (Drabick, 2009a; Kendall & Comer, 2010; Rutter & Sroufe, 2000; Steinberg, 2002). For example, recognizing that although youth noncompliance among toddlers and adolescents may be distressing for parents, yet developmentally expected, facilitates the appropriate diagnosis of ODD only when the behavior occurs more frequently than would be observed among individuals of the same age and/or developmental level (American Psychiatric Association, 2000). Similarly, separation anxiety exhibited by a toddler, but not a preadolescent, is seen as developmentally appropriate. However, the wide range of what is considered “typical” often makes it challenging to differentiate normative and atypical behavior, such as when we have to distinguish between youth overactivity and behavior consistent with the syndrome of ADHD. In this case, *DSM* indicates that impairment from symptoms or behaviors must be present in at least two settings (APA, 2000); thus, the child who engages in impulsive and hyperactive behavior at both home and school would be more likely to meet diagnostic criteria than a child who is hyperactive at home only. The range of behaviors considered typical among different developmental periods also reflects the fact that individual differences exist among youth in terms of their cognitive and emotion regulation abilities, as well as our expectations that these abilities will change over time.

Identification of CD is potentially more challenging in adolescence. Ample developmental research indicates that the shift from childhood to adolescence is accompanied by increases in risk taking and sensation seeking, particularly in the presence of peers (Steinberg, 2008). Thus, engaging in behaviors consistent with CD in adolescence may be expected among some youth, but determining at what point these behaviors cause “clinically significant impairment” may be difficult. The requirement of three or more symptoms to meet diagnostic criteria for CD, as well as other-age related factors (e.g., staying out late and truancy must begin before age 13), can help us to distinguish among youth who are engaging in typical, though potentially distressing and impairing, risk-taking or sensation-seeking behavior from youth who qualify for a diagnosis of CD. Thus, the phrasing of many *DSM* specifiers and symptoms permits us to take developmentally expected behavior into account, though access to and knowledge of developmental norms is critically important for appropriate diagnostic decision-making.

Categorical vs. Dimensional Models

A second developmental psychopathology principle relevant to diagnoses among youth is the consideration of both categorical and dimensional models, given the relative dearth of evidence suggesting that diagnostic categories represent discrete syndromes (Beauchaine, 2003; Drabick, 2009a; Kazdin & Kagan, 1994; Rutter & Sroufe, 2000). Although *DSM* uses a categorical model for conceptualizing diagnoses, many symptoms cause clinically significant impairment at subthreshold levels (Angold, Costello, Farmer, Burns, & Erkanli, 1999b; Maser et al., 2009), reinforcing the importance of evaluating psychological symptoms using both categorical and dimensional approaches. Moreover, a dimensional approach could facilitate identification of children who are at risk for more severe or pernicious courses prior to the full presentation of symptoms (Bubier & Drabick, 2008,

2009; Drabick, 2009a, 2009b; Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001). Thus, consideration of categorical syndromes is important for a variety of reasons, including epidemiology, communication among professionals, treatment research, and obtaining services, yet dimensional models can facilitate acquisition of complementary information regarding risk, resilience, etiology, prevention, and intervention (Kazdin & Kagan, 1994; Rutter & Sroufe, 2000). Joint consideration of categorical and dimensional models would facilitate our understanding of the development, maintenance, prognosis, treatment, and course of a variety of psychological conditions, as well as the development of co-occurring psychological symptoms and comorbid syndromes (e.g., Bubier & Drabick, 2009).

Contextual Influences

Although there is wide agreement that contextual influences (e.g., parent-child, family, peer, neighborhood) are critical to consider in research involving psychopathology among youth (e.g., Boyce et al., 1998; Deater-Deckard, 2001; Hart & Marmorstein, 2009; Silk et al., 2007; Steinberg & Avenevoli, 2000), there is relatively little attention given to these influences in research involving *DSM* diagnoses. Indeed, the *DSM* has been criticized for a tendency to conceptualize disorders as existing within the individual (Beauchaine, 2003; Jensen & Hoagwood, 1997; Kazdin & Kagan, 1994; Rutter & Sroufe, 2000). The developmental psychopathology framework provides several possible research routes involving contextual factors. To illustrate, contextual factors have been considered as predictors of risk, resilience, symptom severity, course, prognosis, and treatment outcomes, and thus in the roles of correlates, mediators, and outcomes (Bubier, Drabick, & Breiner, 2009; Deater-Deckard, 2001; Dodge, 2009; Holmbeck & Kendall, 2002; Jensen & Hoagwood, 1997; Miklowitz, 2004; Steinberg, 2002; Steinberg & Avenevoli, 2000).

An alternative way to construe contextual factors in the development and/or maintenance of psychological symptoms is through the consideration of Individual \times Context interactions. Specifically, individuals engage in reciprocal and transactional relations with their contexts. For example, youth who exhibit a difficult temperament may be more likely to elicit negative or coercive responses from parents and peers. Over time, these difficulties in interpersonal reactions may contribute to an increase in the likelihood that youth with difficult temperaments will develop CD and/or depression (Patterson, 1993). Thus, it is the combination of individual and contextual factors that may lead to a particular outcome, as opposed to factors operating in isolation.

The importance of considering Individual \times Context interactions has been demonstrated in research using a developmental psychopathology perspective, including work illustrating that parental behaviors interact with child temperament (Bates, Pettit, Dodge, & Ridge, 1998; Colder, Lochman, & Wells, 1997) or child autonomic functioning (Bubier et al., 2009) to predict conduct problems (e.g., ODD, CD behaviors) among youth. Similarly, child temperament interacts with parental overprotection (Colder et al., 1997; Oldehinkel, Veenstra, Ormel, De Winter, & Verhulst, 2006) and with peer rejection (Brendgen, Wanner, Morin, & Vitaro, 2005) to predict youth depressive symptoms. As a final set of examples, the interaction of genetic polymorphisms and adverse environmental experiences (Dodge, 2009), maternal insensitivity (Bakermans-Kranenburg & van Ijzendoorn, 2006), and neighborhood factors (Hart & Marmorstein, 2009) predict conduct problems among youth. This empirical support buttresses the recognition that contexts do not have a uniform effect among youth. Indeed, negative contextual influences may lead to a variety of outcomes, including youth emotional or behavioral problems, as well as adaptive functioning. This possibility is consistent with the developmental psychopathology principle of multifinality, that is, the expectation that a single risk factor can lead to a variety of outcomes based on other aspects of the system (e.g., context) (Cicchetti & Rogosch, 1996). The related principle of equifinality, or the possibility that different processes can lead to the same

outcome (Cicchetti & Rogosch, 1996), provides an important foundation for our consideration of disorder co-occurrence. That is, although youth may meet diagnostic criteria for multiple conditions, the means by which they arrived at these diagnoses are likely highly variable and potentially consistent with a variety of explanations for the co-occurrence of disorder.

Comorbidity among Youth Disorders

Epidemiological research indicates that comorbidity, or disorder co-occurrence, is quite common among youth psychological disorders (Angold, Costello, & Erkanli, 1999a; Copeland, Shanahan, Costello, & Angold, 2009; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Crawford et al., 2008; Kendall, Brady, & Verduin, 2002; Kessler & Wang, 2008; Moffitt et al., 2007). In general, the presence of a comorbid condition is associated with increased symptom severity and impairment, more frequent and severe negative correlates and sequelae, differential treatment response, and distinct courses. Thus, consideration of comorbidity is critical for informing psychopathology models relevant to etiology, nosology, and intervention (Angold et al., 1999a; Bubier & Drabick, 2009; Clarkin & Kendall, 1992; Costello et al., 2003; Drabick, 2009b; Drabick et al., 2006; Verduin & Kendall, 2003). Although application of the term “comorbidity” within a medical disease model suggests a common underlying disease entity (Lilienfeld, Waldman, & Israel, 1994), the etiological mechanisms responsible for psychological disorders likely involve complex interactions among risk and resilience variables from multiple domains, consistent with a developmental psychopathology perspective. Thus, it is difficult to apply the medical disease model definition of comorbidity to mental health problems. Instead, we focus on disorder co-occurrence at the syndrome levels and present shared etiological processes as just one of many possible explanations for comorbidity among youth disorders.

Not surprisingly, the range of explanations for disorder co-occurrence is varied and broad (e.g., Angold et al., 1999a; Caron & Rutter, 1991; Drabick, 2009b; Klein & Riso, 1993). However, there is little systematically organized knowledge considering why these elevated levels of comorbidity exist. One impetus for this Special Issue was to highlight current knowledge regarding disorder co-occurrence across a range of conditions, relying on the expertise of individuals who have conducted research among youth with multiple psychological conditions. To provide a foundation for these papers, we describe several explanations that have been offered to account for comorbidity among youth disorders. We begin by describing several artifactual and methodological explanations for comorbidity, which suggest that comorbidity may be due to chance, sampling and assessment issues, or problems with the diagnostic system. We then turn to potential causal explanations, which suggest that comorbidity may arise because one disorder confers risk for another condition, or shared risk factors account for disorder co-occurrence. We reference principles of developmental psychopathology where appropriate, with the goal of illustrating the use of this perspective for informing diagnostic decision-making and disorder co-occurrence among youth.

Artifactual and Methodological Explanations

Chance—One artifactual explanation is that the comorbidity of two conditions is due to chance. Specifically, if the occurrence of two disorders is high, the chance of their co-occurrence also will be high. Epidemiological studies provide an unbiased estimate of comorbidity (e.g., compared to self-selected or clinic samples), and are most amenable to addressing questions related to base rates and chance. Although there is some variation based on the pairs of disorders considered in terms of rates of comorbidity, each paper in the Special Issue addresses comorbid conditions that have been shown to co-occur at greater than chance rates based on epidemiological studies (Angold et al., 1999a; Copeland et al.,

2009; Costello et al., 2003; Crawford et al., 2008; Kessler & Wang, 2008; Moffitt et al., 2007; Nock et al., 2007).

Methodological issues—A second artifactual explanation is sampling bias. The probability of seeking treatment is greater among individuals with more than one disorder (Berkson’s bias). Accordingly, clinic samples may produce artificially elevated rates of comorbidity (Angold et al., 1999a; Klein & Riso, 1993). Using comorbidity rates from epidemiological studies reduces concern with this issue. Nevertheless, as Caron and Rutter (1991) argued, as long as elevated rates of comorbidity have been demonstrated in community samples, clinic data can be useful and practical for examining the relations between disorders, and thus the papers in this Special Issue consider a range of data for understanding disorder co-occurrence. It is also possible that biases associated with the methodologies used to assess psychological syndromes (e.g., strategies, reporters, study designs) could account for elevated rates of their co-occurrence. To rule out methodological biases, researchers should demonstrate that the comorbidity of two conditions is not a function of, or specific to, the assessment strategies (e.g., semi-structured and structured interviews, checklists); reporters (parents, teachers, youth); samples (community, clinic, epidemiological); or study designs (cross-sectional, prospective). The pairs of comorbid conditions considered in this Special Issue have been identified across a range of methodologies and thus do not appear to be a function of these biases.

Population stratification—Population stratification refers to the possibility that two disorders have separate sets of risk factors that are common in the same subgroup of the population, thereby resulting in an apparent but artifactual comorbidity within that subgroup (Klein & Riso, 1993). For instance, maternal depression has been linked repeatedly to childhood depression (Frye & Garber, 2005; Hammen, Shih, & Brennan, 2004; Rice, Harold, & Thapar, 2005), and conduct problems are often related to family discord, which is more common among families where a parent suffers from depression (Patterson, DeBaryshe, & Ramsey, 1989; Patterson, 1993). Thus, because mothers with depression are more likely to experience marital discord, child depression and conduct problems may co-occur in samples with a disproportionate representation of mothers who are depressed. A developmental psychopathology approach that includes attention to issues of selection, sample generalizability, and contextual variables can minimize concerns related to population stratification.

Symptom overlap—Another artifactual explanation for comorbidity involves symptom overlap across diagnostic categories (Angold et al., 1999a; Klein & Riso, 1993). For example, because symptoms of inattention may occur as part of ADHD, anxiety, and mood disorders, a child who presents with symptoms of inattention may be more likely to meet diagnostic criteria for multiple conditions because this symptom appears in multiple categories. Increasing recognition of this issue has led researchers to examine rates of comorbidity with and without similar symptoms to try to unpack whether this artifactual explanation may underlie disorder co-occurrence, though symptom omission obviously modifies the defined syndrome under consideration (e.g., Gadow & Nolan, 2002; Gadow et al., 2004).

The comorbid condition is an atypical form of one condition—Another artifactual explanation for disorder co-occurrence is that the comorbid condition is a variant or atypical form of one condition (Klein & Riso, 1993). Because disorders can be manifested heterogeneously and include symptoms often associated with other disorders, observed comorbidity may be a function of alternative symptom expression. For instance, the now-dated notion that conduct disordered behaviors were a form of “masked depression”

(Kovacs et al., 1988; McCracken, Cantwell, & Hanna, 1993) is consistent with this explanation. According to the masked depression model, depression in childhood is not manifest in the same way among adults because of homotypic changes in symptoms across development. Instead, disruptive behavior was hypothesized to be a vehicle for acting out intense affect stemming from underlying depression among children. The utility of this explanation can be evaluated by comparing individuals with comorbid conditions (e.g., ADHD and CD) to individuals with only one condition (e.g., ADHD only or CD only) on etiological processes, risk and resilience factors, developmental pathways, and distal outcomes. This line of inquiry could address whether the comorbid condition is more similar to one of the pure or monomorbid conditions, and whether these similarities change as a function of the developmental period considered, and thereby rule out or provide support for this comorbidity explanation.

Causal Explanations

A potentially “causal” explanation for co-occurring conditions is simply that having one disorder causes or confers risk for the other. This explanation fits within a developmental psychopathology perspective that attends to developmental pathways, risk and resilience factors from multiple domains, and the transactional relations among individuals and their contexts. For example, youth who exhibit ADHD, anxiety, or CD may be at risk for developing depression. One model for these associations is that the primary psychological condition (e.g., ADHD, generalized anxiety disorder, or CD) may lead to difficulties in interpersonal and academic functioning. Over time, these difficulties in domains in which we would like youth to experience success may lead to the development of depression. Similarly, youth who exhibit ADHD may have difficulty attending to demands at home and school; with continued difficulties in these settings, these youth may subsequently meet diagnostic criteria for ODD (Angold et al., 1999a; Costello et al., 2003; Drabick et al., 2006; Gadow & Nolan, 2002; Gadow et al., 2004; Moffitt et al., 2007; Patterson et al., 1989).

Another possible explanation for disorder comorbidity is that each condition is associated with overlapping and unique factors, and comorbidity stems from shared risk factors or etiological processes (Angold et al., 1999a; Caron & Rutter, 1991; Klein & Riso, 1993). An approach that considers multifinality, similarities in pathogenesis, and risk factors drawn from multiple domains and using multiple levels of analysis would be useful for testing this explanation. For example, a number of psychological conditions have been linked to genetic mechanisms (Dodge, 2009; Hart & Marmorstein, 2009), child temperament (Muris & Ollendick, 2005), autonomic functioning (Beauchaine, 2001), peer rejection (Deater-Deckard, 2001), parental psychological difficulties (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998), and parent-child conflict (Loeber et al., 1998; Patterson et al., 1989), suggesting that some processes may act as shared risk factors or etiological processes for multiple conditions and thus may underlie comorbidity. Given the likelihood that shared risk or etiological processes are moderated or modified by additional risk or resilience variables, examining psychopathology at different points and through different transitions in development is crucial for addressing this comorbidity explanation. Nevertheless, few studies have compared these comorbidity explanations concurrently and within the same sample, or have used a developmental psychopathology perspective in examining co-occurring clinical diagnoses. Thus, it is unclear which explanations are most applicable to specific co-occurring conditions during different periods of life.

Concluding Thoughts

Although we believe that it is critical for research to consider multiple explanations for co-occurring conditions, we also believe that it is important for such research to use a developmental psychopathology perspective and consider normative vs. atypical

development, categorical and dimensional (subdiagnostic) models, the role of context, and developmental pathways that may lead to disorder co-occurrence. The paucity of research exploring the role of developmental processes in co-occurring conditions poses a crucial limitation. As children age, they experience a variety of expected developmental changes/challenges in terms of cognitive and emotion regulation abilities, sensation seeking and risk taking, and associations with peers, many of which are underpinned by neurobiological changes (e.g., Holmbeck & Kendall, 2002; Steinberg, 2002, 2008; Viding & Blakemore, 2007). These developmental changes often correspond to changes (increases, decreases) in symptom frequency or severity (Loeber et al., 1998), the addition of novel symptoms or behaviors to pre-existing problematic behaviors (i.e., heterotypic continuity; Angold et al., 1999a; Patterson, 1993), and the experience of comorbidity among youth. Moreover, factors may differentially confer risk or resilience, depending on the timing of their onset, presence or carry-forward effects of other risk factors, and their interactions with stressors associated with different developmental periods (Deater-Deckard et al., 1998; Rutter & Sroufe, 2000; Steinberg, 2002).

Consideration of the interactions among biological, psychological, and social factors within a developmental framework may seem onerous, but we suggest that this framework is important for evaluating the emergence and maintenance of co-occurring symptoms and disorders. Determining whether certain disorders are risk factors for, or emerge secondarily to, other conditions could suggest different etiological models and intervention efforts (Angold et al., 1999a; Clarkin & Kendall, 1992; Drabick, 2009a; Pine et al., 2008). Similarly, research that examines whether the monomorbid and comorbid versions of a disorder differ in terms of etiological processes, risk factors, course, treatment response, and outcomes is critical. Moreover, consideration of relevant developmental tasks and stressors, the developmental timing of risk and resilience processes, Child \times Context interactions, and developmental pathways is important for advancing our understanding of the co-occurrence of psychological symptoms and disorders. Such efforts could extend the burgeoning literature that considers biological and social contexts in risk and resilience for psychological outcomes (e.g., Dodge, 2009; Hart & Marmorstein, 2009; Silk et al., 2007; Viding & Blakemore, 2007) to augment our understanding of disorder co-occurrence among youth. We are grateful that the authors of the papers in this Special Issue embraced various aspects of our recommendations, and thus illustrate their applicability to common co-occurring conditions among youth. It is our hope that the papers in the Special Issue can frame additional research designed to improve and thus advance our understanding of comorbidity among youth.

Acknowledgments

Preparation of this manuscript was supported in part by NIMH grants 1K01MH073717-01A2 awarded to Deborah A. G. Drabick and MH MH080788 awarded to Philip C. Kendall.

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