

A Developmental Perspective on Adolescent Health and Illness: An Introduction to the Special Issues

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This and the next issue of the *Journal of Pediatric Psychology (JPP)* will include articles submitted for a special issue on “Adolescent Health and Illness,” the first issues of *JPP* devoted exclusively to research on adolescents. A review of recent issues of *JPP* as well as journals from the fields of clinical psychology and psychiatry reveals that adolescent health has been the focus of considerable scientific attention over the past several years. For example, the *Journal of Consulting and Clinical Psychology* publishes a special issue on health psychology every 10 years; for the first time, an article on “adolescent health psychology” will appear in the 2002 installment of this series (Williams, Holmbeck, & Neff, in press). Also, a former Section of Division 12 (the Section on Clinical Child Psychology) of the American Psychological Association (APA) is now Division 53 of APA and has been renamed the Society for Clinical Child and Adolescent Psychology. Related to this, the journal of this division has been renamed the *Journal of Clinical Child and Adolescent Psychology*. The Society for Research on Adolescence had its first conference in 1986 and published the first issue of its journal, the *Journal of Research on Adolescence*, in 1991. Given the intense focus on the second decade of life both in the media and in the scientific journals and academic societies, it seemed an opportune time to highlight recent empirical work on adolescents in pediatric psychology.

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In the “Call for Papers” for these issues, I sought manuscripts that focused on adolescents with chronic physical conditions as well as those that focused on adolescent health-related behaviors (e.g., smoking, substance use, sexual risk-taking). In response to the call, 27 papers were submitted across both of these areas. This issue of the journal includes six articles focusing on adolescents with chronic illnesses and physical conditions and the next issue includes six articles that focus on adolescent health behaviors. This is an introduction to both issues.

The Utility of a Developmental Perspective

Adolescence is a transitional developmental period between childhood and adulthood characterized by more biological, psychological, and social role changes than any other stage of life except infancy (Feldman & Elliott, 1990). Moreover, this stage of development is a critical period for the establishment of lifelong positive and risky health-related behaviors in both typically developing adolescents and in those with chronic conditions. It is also a time when one’s developmental and health trajectories can be altered dramatically in positive or negative directions. Given the changes that characterize adolescent development, it is not surprising that there are also significant changes in the types and frequency of health problems and psychologi-

cal disorders during this developmental period, as compared to childhood. Moreover, distinctions between normal and abnormal are sometimes less clear during this developmental period than they are in earlier developmental periods (e.g., the distinction between substance use experimentation vs. problem use; Cicchetti & Rogosch, 2002). Given that “change” is the defining feature of adolescence and given the opportunities for having a positive impact on a “system” already in a state of flux (Cicchetti & Toth, 1996), many pediatric and health psychologists have focused their sights on this critical period of development.

Because adolescent health and illness occur within a changing developmental context, the quality of research on adolescents likely will be advanced if a developmental perspective is adopted by investigators who study the second decade of life (Holmbeck et al., 2000; Seiffge-Krenke, 1998; Walander & Siegel, 1995). I often like to use the following litmus test to determine whether a particular piece of research involving adolescent participants has been conducted from a developmental perspective. Specifically, I pose the following question: Could the same study have been conducted on children or adults with the same hypotheses and measures? In other words, I examine whether the investigator has focused on constructs, variables, and measures uniquely relevant to adolescents, thus making the study developmentally oriented.

What variables are uniquely relevant to adolescent participants and what is to be gained by including measures of such variables in one’s research protocol? To answer this question, I first provide a brief overview of a developmental-contextual framework for the study of adolescent adaptation and adjustment, and I provide examples of how variables highlighted in the framework are relevant to the study of adolescent health and illness. Next, I discuss implications of the framework for designing research studies where adolescent participants are the focus. Finally, I review the 12 studies included in these two special issues of *JPP* and discuss their strengths and contributions as well as the degree to which these studies adopt a developmental perspective to the study of adolescents.

A Developmental-Contextual Framework for the Study of Adolescents

In this section, I provide an overview of a developmental framework for understanding adolescent ad-

aptation and adjustment (Figure 1; see Holmbeck et al., 2000, and Holmbeck & Shapera, 1999, for a more complete overview of the model). The model presented here is biopsychosocial, insofar as it emphasizes the biological, psychological, and social changes of the adolescent developmental period (see Figure 1). In addition to this focus on intra-individual development, I have also attempted to incorporate more recent discoveries from studies of contextual effects during adolescence (Steinberg, 1995).

At the most general level, the framework presented in Figure 1 illustrates how the primary developmental changes of adolescence have an impact on the developmental outcomes of adolescence via the interpersonal contexts in which adolescents develop. In other words, the developmental changes of adolescence have an impact on the behaviors of significant others, which, in turn, influence ways in which adolescents resolve the major issues of adolescence, namely, autonomy, sexuality, identity, and so on. For example, suppose that a preadolescent girl begins to physically mature much earlier than her age mates. Such early maturity will likely affect her peer relationships, because early maturing girls are more likely to date and spend time with older males than are girls who mature on time (Magnusson, Stattin, & Allen, 1985). Such changes in peer relations are, in turn, likely to influence an early maturing girl’s level of sexual activity and her sexual identity. In this way, the behaviors of peers in response to the girl’s early maturity could be said to *mediate* associations between pubertal timing and sexual outcomes (Baron & Kenny, 1986; Holmbeck, 1997, 2002). Such mediational influences may also be *moderated* by demographic, intrapersonal, and interpersonal variables (Figure 1; e.g., ethnicity, gender, socioeconomic status [SES], family relations). For example, early pubertal maturity may lead to early sexual debut *only* when family members react to early pubertal development in certain ways (e.g., with increased restrictiveness and supervision).

With respect to chronic illness, management of the disease is often at odds with normal adolescent strivings. For example, considerable evidence suggests that adherence to medical regimens decreases from childhood to adolescence (e.g., Anderson, Ho, Brackett, Finkelstein, & Laffel, 1997). With respect to the developmental framework, the cognitive changes of adolescence make it more likely that adolescents will think differently about adherence behaviors than they did during childhood. On the positive side, they are more able to solve problems

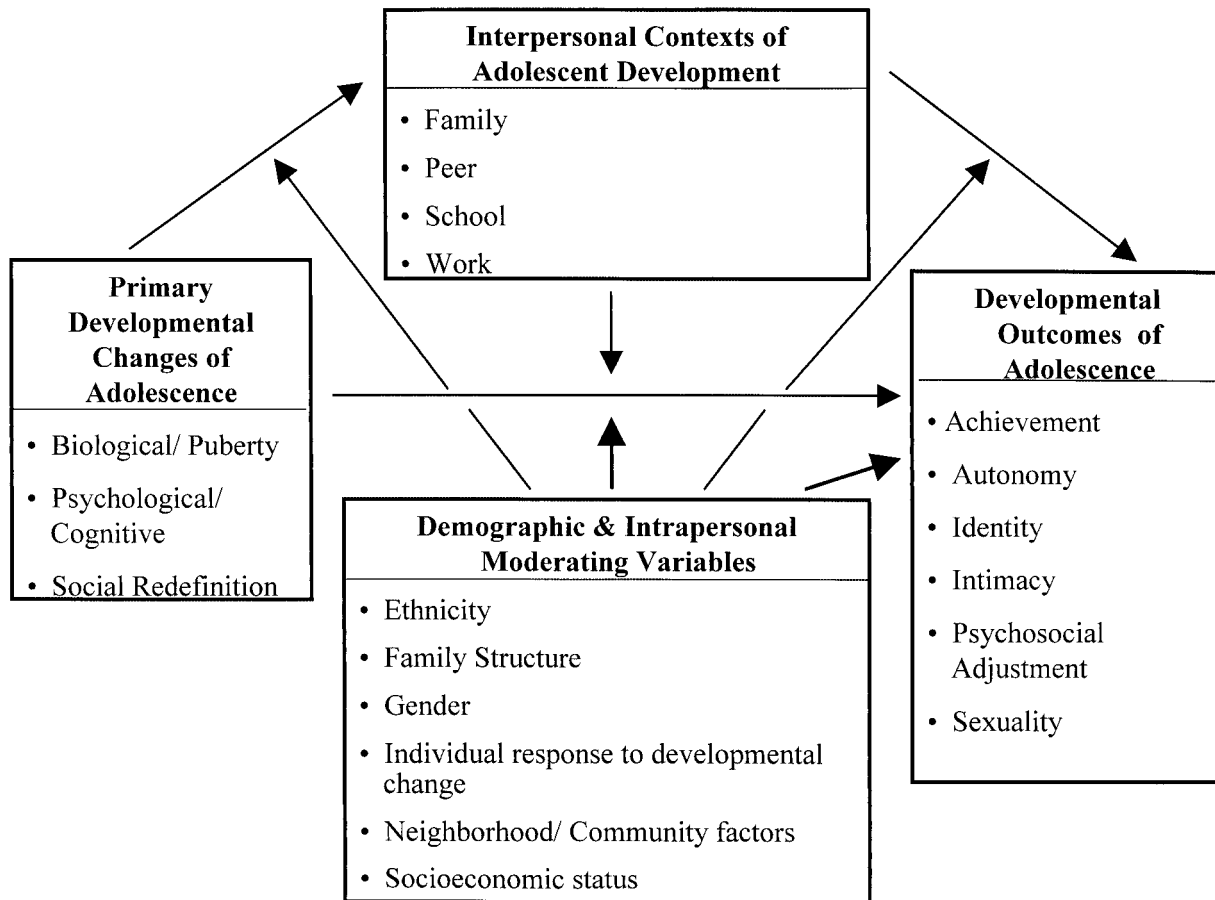


Figure 1. A framework for understanding adolescent development and adjustment (source: Holmbeck, G. N., & Shapera, W. [1999]. Research methods with adolescents. In P. C. Kendall, J. N. Butcher, & G. N. Holmbeck [Eds.]. *Handbook of research methods in clinical psychology* [2nd ed., pp. 634–661]. New York: Wiley; reprinted with permission).

and consider the future consequences and risks of their health behaviors (Thomas, Peterson, & Goldstein, 1997). On the negative side, they are more able to consider costs and benefits of their adherence behaviors. For example, an adolescent with type 1 diabetes may choose to be nonadherent to gain the full benefit of participation with his or her peer group (Brooks-Gunn, 1993). Of course, the impact of peers need not be negative. The degree to which an adolescent's peers are supportive of the child's attempts to be adherent may buffer (i.e., moderate) the impact of cognitive development on health behaviors. However, little research has been conducted that examines links between developmental change and health behaviors or factors that moderate such links.

Similarly, with respect to parent-child relations, increases in cognitive development during adolescence are likely to be associated with appropriate

increases in a child's management of his or her own illness if parental involvement in illness management evolves in tandem with the child's increasing cognitive sophistication (including increases in needs for privacy, control, and peer acceptance; Anderson & Coyne, 1993). Although speculative, it appears that a maladaptive "miscarried helping" process can ensue when such parental adaptations are not made (Anderson & Coyne, 1993). Recent findings suggest that excessive parental control during this period of development is linked with lower levels of autonomy, which are, in turn, associated with higher levels of problem behaviors (Holmbeck et al., 2002).

Chronic illness may also have an impact on the timing of puberty. In children with spina bifida, for example, the incidence of precocious puberty is higher in this population owing to premature activation of the hypothalamo-pituitary-gonadal axis

in some children with hydrocephalus (Greene, Frank, Zachmann, & Prader, 1985). Because children with spina bifida are also more likely to be socially isolated (Blum, Resnick, Nelson, & St. Germaine, 1991), such early puberty may produce developmental asynchronies with respect to physical and social development, which may, in turn, affect the developmental outcomes noted in Figure 1. The physical changes of puberty may be late in children with other conditions (e.g., cystic fibrosis; Sawyer, Rosier, Phelan, & Bowes, 1995) or may have a direct impact on the illness itself and affect illness management (e.g., diabetes).

Developmentally Oriented Research Strategies in Studying Adolescent Health and Illness

Research in the area of *developmental psychology* alerts us to the importance of considering the following (Graber & Brooks-Gunn, 1996): the timing (early vs. late) of developmental events, the cumulative impact of multiple events that occur simultaneously, and the fit between the developmental needs of an adolescent and the adolescent's environmental context. The field of *developmental psychopathology* has provided us with a vocabulary with which to explain phenomena that we have observed clinically and seek to examine empirically (e.g., developmental trajectories, resilience, risk and protective processes, continuity/discontinuity of adaptive and maladaptive processes, multifinality, equifinality; Cicchetti & Rogosch, 2002).

Despite the importance of contributions from the fields of developmental psychology and developmental psychopathology, pediatric health psychologists have been slow to incorporate developmental principles into their research and intervention work (Drotar, 1997; Wallander & Varni, 1998). For example, the timing of developmental events (e.g., puberty) may have added importance for the child with a chronic condition, but this has received little attention in the literature. Autonomy development is a highly salient issue for many adolescents with a chronic condition, but scant research has examined trajectories of autonomy development during the adolescent developmental period.

The concept of multifinality from the field of developmental psychopathology could be applied in studies of pediatric populations. This concept involves the notion that children born with the same chronic condition (at the same level of severity)

may end up with very different outcomes later in life. Studies from a multifinality perspective could also explain why some adolescents with substance-abusing parents end up abusing substances themselves and why others do not. The task for the researcher is to isolate factors that account for such differential outcomes. Also from a developmental psychopathology perspective, studies of atypical populations can provide information about constructs of interest to those who study typical development, particularly when the phenomena of interest occur with greater frequency in these atypical populations. For example, Quittner and Opipari (1994) examined parental differential attention to siblings in families where one child had cystic fibrosis. Given the potentially extreme levels of differential attention to siblings in such families (and the potential absence of differential attention in families of typically developing children), such a sampling strategy allowed the investigators to contribute knowledge about the "differential attention" construct.

What types of research designs permit examination of developmentally oriented research questions? In the "future directions" section of most articles in the *Journal of Pediatric Psychology*, scholars often suggest that future studies be longitudinal rather than cross-sectional, arguing that this strategy would allow one to track an outcome over time or to determine the causal ordering of the variables studied. The benefits of longitudinal studies go beyond these advantages, however. In a recent review of the literature on effects of illness on child and family adjustment, Wallander and Varni (1998) perhaps said it best: "General developmental processes should become more salient features of the conceptualizations of adjustment in this special group. Longitudinal designs need to become the norm" (p. 42).

In other words, the quality of research studies in the area of adolescent health and illness will improve if they are longitudinal *and* if indices of developmental level and variables developmentally-relevant to adolescents are included (e.g., pubertal status, changes in cognitive developmental level, changes in level of peer intimacy, autonomy development, changes in parenting behaviors; see Figure 1). It is not enough to simply document whether a certain outcome increases or decreases over time (Steinberg, 2002). Instead, it is of interest to track important outcomes over time (e.g., adherence and quality of life in studies of pediatric populations *or* substance use, sexual activity, and positive health

behaviors in studies of adolescent health) as a function of changes in important developmental processes (Drotar, 1997; Wallander & Varni, 1998). For example, it may be of interest to isolate different adherence trajectory groups, such that some adolescents remain adherent, some exhibit decreases in adherence, while others exhibit increases. It may then be of interest to examine how such trajectory groups differ developmentally or as a function of concurrent changes in developmentally relevant individual, family, or peer variables. Simply put, a study of adolescents becomes developmentally oriented when the researcher includes measures that tap constructs such as those noted in Figure 1 and when development and outcome are both tracked longitudinally.

By examining development and outcome over time, one acknowledges that both are processes than evolve. From a developmental perspective, one could make the case that many problems related to adolescent health behaviors and the management of illness during adolescence occur, at least in part, because of difficulties in managing the normative developmental events and milestones of the adolescent period. If this is true, it further emphasizes the utility of a developmental perspective.

The Studies in these Special Issues of *JPP*

As noted earlier, half of the papers accepted for these two issues are studies of adolescents with a chronic condition (Bearman & La Greca, 2002; Coakley, Holmbeck, Friedman, Greenley, & Thill, 2002; Logan, Radcliffe, & Smith-Whitley, 2002; Madsen, Roisman, & Collins, 2002; Pendley et al., 2002; Seiffge-Krenke, 2002). The other half are studies of adolescent health behaviors (Aloise-Young, Cruickshank, & Chavez, in press; Bachanas et al., in press; Boutelle, Neumark-Sztainer, Story, & Resnick, in press; Chassin, Presson, Rose, Sherman, & Prost, in press; Rae, Sullivan, Razo, George, & Ramirez, in press; Williams, Colder, Richards, & Scalzo, in press). The latter articles will appear in the next issue of *JPP*. Of the studies on chronic physical conditions, four examined adolescents with type 1 diabetes, and there was one each on adolescents with sickle cell disease and spina bifida. Of the six adolescent health studies, two focused on adolescent smoking, one focused on self-assessed health, one focused on obesity, one focused on risky sexual behaviors, and one focused on adolescent health risk behaviors more generally.

The studies included in these issues have several notable strengths. First, many of the studies focused on the interpersonal contexts of adolescence, as noted in Figure 1. Specifically, several studies examined parent or family factors as predictors (Chassin et al., in press; Logan et al., 2002) or outcomes (Coakley et al., 2002; Seiffge-Krenke, 2002). In several cases, fathers were also included in the studies (Chassin et al., in press; Coakley et al., 2002; Seiffge-Krenke, 2002). Other articles focused on the peer (Bachanas et al., in press; Bearman & La Greca, 2002; Pendley et al., 2002) or school context (Aloise-Young et al., in press). Second, differences in findings as a function of gender (Bearman & La Greca, 2002; Boutelle et al., in press; Coakley et al., 2002; Rae et al., in press; Seiffge-Krenke, 2002; Williams et al., in press) and ethnicity (Aloise-Young et al., in press; Bachanas et al., in press; Boutelle et al., in press) were highlighted in several articles.

Third, relevant developmental factors are considered in several studies (see Figure 1). Age is a primary variable in some of the articles (Bearman & La Greca et al., 2002; Madsen et al., 2002; Pendley et al., 2002). Moreover, pubertal change was the focus of one article (Coakley et al., 2002). Relatedly, several of the articles were longitudinal (Chassin et al., in press; Coakley et al., 2002; Seiffge-Krenke, 2002; Williams et al., in press).

Finally, although self-report data collection strategies were the norm, other methods were also used: coding of observed family interaction data (Coakley et al., 2002; Seiffge-Krenke, 2002) and a laboratory attitudes task (Chassin et al., in press). Moreover, multiple informants were used in several studies (Chassin et al., in press; Coakley et al., 2002; Logan et al., 2002; Pendley et al., 2002; Seiffge-Krenke, 2002). Some of those that did not include multiple informants had very large sample sizes (Aloise-Young et al., in press; Boutelle et al., in press). One study examined reports of pediatric psychologists (Rae et al., in press). Another study was a measure development investigation (Bearman & La Greca, 2002).

A Look to the Future

Given the diversity of topics of interest to the readers of *JPP*, I was not able to include papers on all topics relevant to the study of adolescent health and illness. For example, only one intervention or prevention study was submitted for the special issues (Madsen et al., 2002), although there was also

a paper on help-seeking behaviors (Logan et al., 2002). Such a lack of submissions on interventions is consistent with the lack of treatment studies on adolescents in the child-clinical and pediatric literatures. Also, no studies of medical adherence were accepted for the special issues. Very few studies examined process-oriented mediational or moderational models and few included measures of developmental level. A resiliency perspective was also not represented in the studies published here; why is it that some adolescents remain psychologically and physically healthy even when major risk factors are present (Williams et al., in press)? Although studies focusing on the transition to early adolescence were represented, no papers focused specifically on the period of emerging adulthood (Arnett, 2000). Particularly for adolescents with chronic conditions, this late adolescent developmental period is critical for the development of self-reliance skills. It will also be of interest to integrate across the adolescent illness and adolescent health research strategies. For example, increases in substance use during adolescence likely complicate the medical treatments of adolescents with chronic illnesses.

In reviewing the developmentally relevant constructs in Figure 1, one soon realizes that measures are not available for many of these variables. Perhaps most important, we know very little about the cognitive developmental correlates of adolescent risky behaviors; more work on measure development in the areas of adolescent cognitive development and decision making is needed (Williams et al., in press).

With respect to adolescent health psychology,

the blurring of boundaries between typical and atypical complicates the assessment of clinically significant change in treatment studies and the determination of whether treated individuals differ significantly from normative samples (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999). Knowledge of normative development (and developmental changes) informs not only the accurate identification of those in need of services but also the proper range for determinations of the quality of treatment outcomes (Kendall & Sheldrick, 2000).

In closing, I hope that this collection of articles will stimulate more research on adolescent health and illness, particularly in areas not covered by the 12 papers accepted for these special issues. Adolescence is a "critical period," when lifelong health behaviors are consolidated. Because "change" is the defining feature of the adolescent developmental period, this is also a period of development when we can expect to have a significant impact with effective interventions. But I believe that advances in our knowledge of the second decade of life will be possible only if developmentally oriented variables are included in research conducted longitudinally. In this way, we will come to better understand the unfolding of health and risk behaviors over time and be in a better position to design empirically supported prevention and intervention strategies to benefit both typically developing adolescents and those with chronic physical conditions.

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