Commentary: Multiple Risk Models in Pediatric Research—Considering the Context that Shapes Children's Health

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The consideration of context and culture in pediatric research has increased dramatically over the past decade. The journal's Special Section on Diversity and Health Disparities is a critical step towards generating manuscripts that focus on contextual and cultural issues that may explain differences in pediatric health outcomes across children from diverse backgrounds. The increased emphasis on acknowledging a range of processes that may affect children's psychological and health-related functioning has been followed by the use of more rigorous research methods, sophisticated statistical techniques, and larger sample sizes to address broad as well as specific questions regarding why context matters in relation to pediatric functioning. A theme that cuts across research that includes pediatric populations is that children's adjustment, health, and well-being needs to be managed within the context of the daily stresses that families encounter.

The context in which children and families function tends to be examined in pediatric psychology research with a focus on associations among discrete variables (e.g., child psychopathology) and functioning, conceptualized on one or two different levels (e.g., individual, family/cultural, and environmental). Although there may be methodological challenges to research focusing on a range of factors affecting functioning (child, family, school, and neighborhood), studies that do examine factors along several dimensions make the most valuable contribution to our understanding of the processes that will be useful to include in interventions for specific groups. The need to consider a family's cultural and contextual background in a sensitive manner has become more important in research focusing on the health-related adjustment of children at increased risk for poor outcomes. For example, families from urban settings may face stresses related to ethnic background, poverty, and urban residence (e.g., violence and exposure to allergens), all of which may complicate illness management and

increase psychological distress for the caregiver, child, and family system. We are still left with methodological challenges related to how to capture the complexity with which the child and family context impacts functioning.

The child development research arena has published studies utilizing cumulative risk models to capture the constellation of stresses that families face (Sameroff, Seifer, Baldwin, & Baldwin, 1993). The accumulation of exposure to multiple stressors, rather than exposure to a single stressor, has been associated with poor outcomes on multiple indicators of development, including psychosocial competence, psychopathology, and health (Evans & English, 2002). Most recently, pediatric psychology research has followed suit and some studies have applied cumulative risk models to better represent pediatric illness for urban and minority families. For example, our work has described the utility of multiple risk models for quantifying factors that urban children face that may have a cumulative impact on asthma morbidity (Koinis Mitchell et al., 2007). A multidimensional risk index was employed, testing cultural (e.g., discrimination), sociocontextual (e.g., poverty), and asthma-specific risks (e.g., exposure to triggers within the home) associated with children's asthma morbidity. This research showed that higher levels of cumulative risks were associated with more asthma morbidity after controlling for poverty level or asthma severity.

In the current issue of *JPP*, Everhart and colleagues' study (2008) moves the field forward in offering an innovative approach to examining the context in which caregivers help to support children's illness management. Their findings showed that caregiver quality of life (QOL) was best accounted for by a quadratic approach: a nonlinear association of risk factors related to the family setting (e.g., family burden) and illness status (e.g., asthma severity), rather than the summation of these factors. Results indicated that caregiver QOL worsened as risk factors

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accumulated and interacted with one another, suggesting that the relationship between risk and caregiver QOL is best represented by a quadratic function.

Several features of this study serve as examples of how pediatric psychology research can broaden the lens with which it assesses the context of pediatric functioning. The study focuses on two components of the family management process that are often overlooked; family processes (e.g., family burden) and caregiver functioning. Pediatric illness management certainly affects caregiver and family functioning, and arguably, caregiver functioning plays an essential role in the family illness management system (McQuaid, Walders, Kopel, Fritz, & Klinnert, 2005). Another compelling feature of the study is the statistical approach utilized to understand how family-related processes may affect parent functioning. By testing a quadratic trend, the investigators more truly represented the nature of the impact of family risks on caregiver QOL in their sample. Caregivers with multiple risks present experienced a sharper decline in QOL than a linear trend would have predicted.

Everhart and colleagues' study reminds us of the scientific and clinical utility of multiple risk models employed in pediatric research. Multiple risk models offer an opportunity to more accurately capture the social realities of families' lives. Families do not face one stressor in isolation. For example, urban families with children who have asthma may find managing their child's illness difficult because of the complicated treatment components (e.g., daily medication use) and specific urban risks (e.g., exposure to allergens) that challenge effective asthma control. Multiple risk models can allow for the consideration of the salience of specific risks for each family or groups of families. Although all risk factors do not have equivalent meaning and may represent varying levels of experience, multiple risk studies allow numerous risk factors to be considered jointly, and the association between the number of risks families face and outcomes can be examined (Evans & English, 2002). Some multiple risk approaches also allow us to quantify the severity of the risk being faced, and whether or not the process actually constitutes a risk factor for specific families (Koinis Mitchell et al., 2007). For example, by utilizing statistical criteria that are sample-specific, families can actually qualify for a risk based on whether they are at the top 25% of the sample on that specific risk.

There are several critical areas of inquiry to pursue for pediatric studies employing multiple risk indicators. More research is needed that specifies which risks in combination may be particularly important for specific

psychological and health outcomes. Not all risk factors will pose as actual risks for all families and all outcomes. The duration of exposure to risks, as well as the intensity of exposure, needs to be taken into account. Longitudinal approaches are necessary to test pathways of influence between specific sociocontextual stressors and outcomes across a range of pediatric disease groups.

From an intervention standpoint, Everhart and colleagues' results suggest that focusing on one risk at a time (e.g., reducing family burden) in the continuum of potential multiple risks families face (using a step-based approach), may make a difference in improving child or parent outcomes (e.g., caregiver QOL). Interventions that are structured based on the realities or complexity of families' lives may be better suited to meet and address families' needs and concerns. Results from studies utilizing multiple risk approaches remind us that families' lives are complicated. This complexity needs to be recognized for families to feel supported and heard, and for change to take place.

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