

# Introduction to the Special Issue: The Physical Health Consequences of Childhood Maltreatment—Implications for Public Health

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Received and accepted February 9, 2010

Childhood maltreatment, including physical and sexual abuse as well as child neglect, is highly prevalent with recent estimates from the Department of Health & Human Services (Gaudiosi, 2009) reporting over 750,000 documented cases annually in the United States. While the link between maltreatment and deleterious psychological and social functioning is well established, there has been increasing speculation over the past decade that childhood maltreatment might also have a detrimental effect on physical health. However, the majority of reports connecting childhood maltreatment to physical health outcomes derive from uncontrolled, correlational, observational studies, and rely heavily on retrospective self-reports of adults recalling childhood abuse histories. As such, these types of research designs provide little control over retrospective recall bias, make it difficult to evaluate the relative impact of childhood maltreatment over other types of adversity or potential confounds, and hence, do not necessarily facilitate causal inference when examining specific health outcomes. In this era of shrinking resources, it is especially important to put forth empirical research that has the potential to maximally impact pediatric health outcomes and public policy that would benefit child abuse prevention and treatment efforts.

This special issue emphasizes state of the art methodologies and focuses on the explication of potential mechanisms that might help explain the connection between childhood maltreatment and physical health outcomes. Examples of methodological advances included in this special issue are: meta-analysis, longitudinal prospective study, mediational modeling, extensive statistical control for potential confounds, inclusion of substantiated/confirmed childhood maltreatment victims, and

one-to-one demographic matching of subjects in control conditions. The compiled papers also include inquiry into multiple levels of human functioning including psychopathology, immune function, brain activity, neurocognitive function, autonomic nervous system activity, and gene  $\times$  environment interactions. In addition to identifying the potential for deleterious effects of childhood maltreatment, several articles introduce and test models of physiologic protective factors that might serve to buffer the effects of childhood maltreatment on the development of psychopathology in pediatric samples. Hence, this special issue is an opportunity to bring together and synthesize rigorous research in order to bolster strong inference and to function as a key resource aimed at improving pediatric care for victims of childhood maltreatment.

## Special Issue

There are two broad sections to this special issue: (a) documenting the relationships between childhood maltreatment and general physical health outcomes across a wide range of conditions and complaints, and (b) examining the impact of childhood maltreatment on a number of biological systems that may have long-term implications for overall physiologic functioning and quality of life.

The first section, focused on general health outcomes, includes several articles documenting the relationship between childhood maltreatment and several distinct health outcomes. Irish, Kobayashi, and Delahanty (2010) bring together 31 studies in a comprehensive meta-analysis examining the long-term physical health effects attributable to childhood sexual abuse. The meta-analysis includes

studies of general health functioning as well as gastroenterological, gynecological, pain, cardiopulmonary, and obesity outcomes. Mean effect size estimates demonstrated small to moderate effects for most outcomes assessed suggesting that childhood sexual abuse is consistently associated with more frequent and/or more severe long-term physical health outcomes across several different domains. In an extensive literature review of 32 studies conducted in several different countries, Oswald, Heil, and Goldbeck (2010) examined data on developmental delays and mental health functioning in children placed in foster care. The authors concluded that, consistent across studies, these children were exposed to higher rates of maltreatment and displayed impairments across several developmental outcomes as well as higher rates of both internalizing and externalizing disorders.

Houck and colleagues (2010) report original research examining whether sexual abuse was related to higher rates of risky sexual behavior in a sample of adolescents after controlling for the presence of psychiatric disorders. Indeed, sexually abused adolescents were significantly more likely to report having engaged in sexual intercourse, had sex within the past 90 days, and less likely to report using condoms during intercourse. The larger implications of these results suggest that, as a result of heightened sexual risk-taking behaviors, childhood sexual abuse victims may be especially susceptible to more general pediatric health concerns such as sexually transmitted infections and teenage pregnancy. Topitzes and colleagues (2010) analyzed prospective, longitudinal data from victims of confirmed childhood maltreatment to demonstrate their increased risk for young adult tobacco smoking while accounting for a large array of potential confounds. Further, their data point to several mediational mechanisms that might help explain this inordinate risk.

Clark and colleagues (2010) report longitudinal data from a large clinical and community sample finding persistent health problems including generalized health complaints, increased body mass index, and compromised stress-response/immune systems across adolescence and young adulthood. Their results also uphold anxiety as a mediator of health problems and show associations between early alcohol use and signs of liver disease. In a longitudinal analysis of state administrative record data, Lanier and colleagues (2010) showed that reported childhood maltreatment was associated with heightened health care utilization for asthma, cardio-respiratory, and non-sexually transmitted infections in a large sample of low-income youth. Finally, Knutson et al. (2010) reports data connecting high rates of pediatric obesity to various forms of child neglect.

The second section of the special issue then focuses on the vulnerabilities in biologic systems that are attributable to the experience of childhood maltreatment including genetic polymorphisms, autonomic nervous system activity, brain maldevelopment, and neurocognitive functioning in maltreated children. The papers also examine these biologic systems in relation to clinically relevant conditions including suicidality, aggression, and Post-Traumatic Stress Disorder (PTSD).

Cicchetti and colleagues (2010) present unique data providing evidence for a protective gene  $\times$  environment interaction of serotonin transporter promoter polymorphisms in the prediction of suicidality for children with moderate exposure to childhood maltreatment. Gordis et al. (2010) examine the effects of respiratory sinus arrhythmia (RSA) and electrodermal activity in predicting aggressive behaviors in both maltreated boys and maltreated girls. Lower levels of resting RSA were associated with higher levels of aggressive behaviors in maltreated boys. However, for girls, the interaction between maltreatment and baseline RSA was further moderated by electrodermal reactivity to stress. These results suggest that maltreatment may differentially impact the physiological stress response systems depending on victims' sex.

In an fMRI study with a demographically matched, healthy control condition, Carrión and colleagues (2010) report that maltreatment-related posttraumatic stress symptoms were associated with reduced hippocampal activity. Finally, in a comprehensive neurocognitive study, De Bellis et al. (2010) report that PTSD was predicted by childhood maltreatment status (sexual abuse, in particular) and visual memory ability after controlling for sociodemographic variables in a sample of maltreated and nonmaltreated children.

## Conclusions

Taken together, this array of findings underscores the associated public health and healthcare costs of childhood maltreatment. Aside from the direct costs incurred via the protective, criminal justice, and psychiatric systems, the costs of childhood maltreatment likely extend to long-term biologic and physical health consequences many of which are of grave public health concern including obesity, sexually transmitted diseases, smoking, and immunologic disorders. Further, as the theory of Developmental Traumatology (DeBellis, 2001) posits, several of these papers suggest that the stressors associated with childhood maltreatment may have lasting effects on brain development and cognitive functioning which in turn can

effect the long-term functioning of maltreated individuals. Many of the methodological advances employed by the studies included in this issue compellingly suggest that inferential assertions for a connection between childhood maltreatment and compromised physical health should transcend mere correlation.

The pediatric psychology community can benefit from this collection in several meaningful ways. First, the collection underscores that knowing about a patient's maltreatment history can provide valuable information to practitioners and clinicians regarding the relative contributions of maltreatment to general functioning across several pediatric health conditions. Second, treatment strategies for victims may require early interventions and/or increased monitoring throughout development particularly when these children present in pediatric clinics for physical health concerns. Pediatric psychologists are crucial for facilitating such interventions. Finally, the pediatric community can support both child abuse prevention efforts including high-risk parenting interventions as well as efficacious child abuse treatments. Viewing child abuse treatment as a primary prevention effort would likely have a global impact on several large-scale public health issues facing our nation's youth today.

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