Review Title: Physical health outcomes in abused and neglected children: A 30-year follow-up

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Article Summary: Brief Overview:

In 2009 it was estimated that there were 3.3 million suspected cases and 700,000 confirmed of child maltreatment in the United States (U.S.). Child maltreatment has been identified as having a strong relationship to physical health outcomes resulting in many health disparities and high health care costs. Many agree that child maltreatment leads to poor health outcomes in adulthood due to the psychological, spiritual and physical developmental effects of abuse and neglect upon children; however, data to support the causal mechanisms of child adversity upon adult health are lacking. Existing findings have not been able to demonstrate a cause and effect relationship between child abuse and neglect and physical health. This is mainly due to the fact that past studies have primarily used retrospective self-reports or cross-sectional designs limiting the ability to infer causation. Furthermore, biological measurements of possible underlying physiological processes involved in the effect of child maltreatment upon adult health.
have not been used in
evaluation. Thus, the authors
propose that future research
studies, such as the one under
review, need to be longitudinal
and include physiological and
biological data.

**Aims/hypotheses of the article:**
The authors address these
issues by conducting the first
prospective study to examine
the association between
documented history of abuse
and neglect and adverse
physical health outcomes in
adulthood. Using medical
status exams and interviews
conducted by an RN,
prospectively matched and
documented cases of childhood
maltreatment are evaluated for
increased risk of adverse
physical health outcomes in
adulthood when compared to
matched controls and to a U.S.
sample on comparable health
indicators. Key confounding
variables of age, gender, race,
childhood and adult
socioeconomic status (SES),
unhealthy behaviors, smoking
and mental health problems
were controlled.

**Relevant findings:**
Employing a prospective
matched cohort design, abused
and neglected children ages
zero to 11 years were followed
into young adulthood and
middle-age. The main findings
of the study are based on the
comparison of this cohort of
children with documented
childhood maltreatment to a
cohort of controls (no
documentation of abuse and
neglect) matched on age,
gender, race and ethnicity, and
a family social class measure
incorporating neighborhood
and schools information.
Matching for children younger
than school age included
hospital of birth information.
Matches were found for 74%
of abused and neglected
children. Over 80% of the
maltreated cohort was in the
neglect subgroup (n = 260 to
296) with the remainder
roughly evenly split between
physical abuse (n = 51 to 59)
and sexual abuse (n = 46 to
49). Thus, the most reliable
findings are for the neglect
group.

Specific types of maltreatment,
gender and race were
associated with different health
outcomes; however, in fully
adjusted statistical models,
child maltreatment was
associated with above normal
hemoglobin A1C (indicating
increased risk for diabetes) in
females, but not males. Among
White race only, child
maltreatment, with neglect in
particular, was positively
associated with elevated C-
reactive protein which
indicates increased risk for
heart disease. For both
genders, child maltreatment
was associated with lower
prevalence of anemia, lower
levels of albumin which
indicates poorer nutrition, and
higher prevalence of reduced
peak airflow which indicates
increased risk for lung disease.
In fully adjusted statistical
models, there were no
associations unique to the
physical abuse group, but for
the sexual abuse group there
was a negative association
with anemia for females, but
not males; for both genders
there was positive association
with malnutrition (based on
BMI, blood lymphocyte count,
or albumin) and negative
association with oral health.
Comparison to the general
U.S. population was made
using data from the National
Health Interview Survey, but
how this comparison was made
is not clear. Specifically, there
did not appear to be any
restriction of the sample, or
statistical adjustment of the
comparison, to account for
confounding by socioeconomic
status and other potential
confounders.

**Authors' Conclusions:**
Documented child abuse and
neglect affect the prevalence of
selected health status
indicators in adulthood,
specifically increasing the risk
for diabetes, lung disease,
malnutrition and vision
problems. The data provide
support for targeted health care
prevention for children
experiencing abuse and
neglect.
Potential limitations of the article/findings:
A strength of the study is the longitudinal design, but a limitation is that the sample of children with documented abuse and neglect is small and limited primarily to lower socioeconomic levels. This makes the generalizability of the findings difficult. There is also potential confounding by unreported childhood abuse and neglect, since these cases would be exclusively found in the control group. The authors do point out the possible overlay of the results related to poverty; although, both childhood and adult SES were controlled. The authors also caution generalization of these results to maltreated children in middle and upper SES.

Reviewer’s Comments:
This study seeks to provide evidence that childhood maltreatment does impact adult health. Although the list of health disparities (diabetes, lung disease, malnutrition, and visual and oral health problems) is limited, this may be due to the design of the study. Using a prospective matched cohort design, the study under review provides the most convincing evidence to date that child maltreatment is associated with specific health disparities.

The effects of childhood maltreatment upon health have long been documented through retrospective self-report and cross-sectional designs never demonstrating a causal relationship. Our current understandings of the biological disruptions that can occur when infants and children are maltreated lend credence to this study’s findings. The findings of poor glycemic control and poor lung functioning must raise preventive efforts beyond weight control and smoking cessation, however. As the authors suggest, these findings directly support early health care prevention of abused and neglected children. Childhood neglect, in particular creates a long neglected at-risk group of childhood victims; yet is the most important predisposing factor for the health disruptions identified in this study.