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AVA Research Review

ADVANCING HEALTH EDUCATION & RESEARCH

Review Title: Use of a biologic marker to examine the role of chronic stress: A promising approach to understanding the long term health consequences of IPV

Reviewer: Susan J. Kelley, RN, PhD. Professor, Byrdine F. Lewis School of Nursing and Health Professions, Georgia State University, Atlanta, GA.

Article: Humphreys, J., Epel, E.S., Cooper, B.A., Lin, J., Blackburn, E. H. & Lee, K.A. (in press). Telomere shortening in formerly abused and never abused women. Biological Research for Nursing. On line March 8, 2011. DOI: 10.1177/1099800411398479

Article Summary:

Brief overview

A substantial body of knowledge links chronic health conditions to a history of intimate partner violence (IPV), with symptoms often occurring long after the acute injuries have healed. The chronic stress experienced by women exposed to IPV has been postulated as a cause of these long term health issues. In this article, Humphreys and colleagues further existing research by examining the impact of stress experienced by victims of IPV at the cellular level. In the past decade, researchers have documented an association between increased stress levels and the shortening of telomeres. Telomeres are repetitive sequences of DNA at the end of chromosomes that promote genetic stability and act as protective sheaths by keeping chromosomes from unraveling. Shortened or deteriorated telomeres are thus linked to a variety of health problems, including heart disease. While previous research has linked physiological stress to shortened telomere length, this study is one of the first to link psychological stress to telomere length. Other studies

have discovered shortened telomeres in caregivers of persons with dementia, parents of children with chronic disease, and victims of childhood maltreatment.

Aims/ goal of the article and methods

The authors sought to determine the impact of IPV victimization at the cellular level by examining telomere length in abused and non-abused women. They hypothesized that a history of IPV would be associated with decreased telomere length. The investigators utilized a cross-sectional design to compare telomere length in women with a history of IPV exposure to a group of women without any history of IPV. A convenience sample was obtained through print and web-based advertisements, as well as other public notices. Participants needed to be 18 years of age or older, in good health, nonsmoking, and premenopausal. The sample was comprised of 66 women who reported a history of IPV and 46 women who reported no history of IPV.
Telomere length was measured through a blood sample obtained by venipuncture and analyzed using established laboratory procedures. Additionally, a number of standardized measurements were used in this study, including the Revised Conflict Tactics Scale (CTS2), the Beck Depression Inventory (BDI-II), the Perceived Stress Scale, and the Wheaton Social Stress Inventory. BMI was calculated from weight and height measurements.

Relevant findings

Women with a history of IPV were lower income, less educated, older, more likely to have children, and more likely to be Black, Latino, or multiracial when compared to women with no prior history of IPV. All of the women in the IPV group reported psychological aggression, 80% reported severe physical assaults, 58% reported severe physical injuries, and 50% reported severe sexual coercion. Formerly abused women were more likely to be depressed and reported more stress than those without a history of IPV.

The mean telomere length for formerly abused women was significantly shorter compared to women with no history of IPV. As expected from previous findings in the literature, age and BMI were associated with telomere length and were thus controlled for in subsequent analyses. Multiple regression analysis indicated that being a mother accounted for 6.7% of the variance. Having children and length of time abused jointly predicted 17% of the variance in telomere length.

Authors' conclusions

Women with a past history of IPV had significantly shorter telomere length than those without a history of IPV. Having children and the length of time in the abusive relationship were the best predictors of telomere length. Given an extant body of literature substantiating the stress associated with the role of being a mother, as well as past research documenting abused women's concerns about the effects of IPV on their own children, the authors suggest that the stress of being a mother may take a "unique toll" on this population. Considering the association found between the length of time in the abusive relationships and telomere length, the authors also conclude that the duration of the abuse may be more important than the actual type of IPV. The authors point out that these results should not be generalized given the fairly small and nonrandom sample, as well as cross-sectional design. Recommendations for further investigation are provided.

Reviewer's Comment:

This study offers a critical contribution to our understanding of how IPV victimization continues to

affect a woman's health well after the abuse has ended. While the authors acknowledge that the multifactorial contributors to telomere shortening have a common pathway of increased biologic stress, inclusive of IPV experiences, the strengths of the study include the use of biological markers to measure the impact of IPV, as well as the use of multiple self-report measures of stress. Additionally, this article provides important suggestions for clinical interventions for women exposed to IPV. The authors are to be commended for using this innovative approach to examining the long term health implications of exposure to IPV.