Centre for Lifespan Development Research

Brock University

Research Snapshot

Centre for Lifespan Development Research

Adversity in Childhood

How does it impact physical health in adulthood?

Adverse Childhood Experiences — What is this research about?

Adverse childhood experiences (ACEs) are defined by various potentially traumatic, upsetting and distressing experiences that occur in childhood. Such experiences include traumas like neglect or abuse, but also include events like changes in the home environment, the death of a loved pet, illness, or injury. Previous research has connected ACEs to physical health problems in adulthood. Specifically, it has been found that ACEs may be associated with an increased likelihood of developing health risk factors in such as smoking, alcohol and drug use, physical inactivity, and obesity in adulthood. Moreover, ACEs have been connected with future chronic illnesses including cardiovascular disease (CVD), lung and liver diseases and cancer, which are, in part, connected to the aforementioned health risk factors. For example, previous research has demonstrated that adults who had experienced ACEs such as abuse or neglect were 3.7 times more likely to develop CVD. Additionally, the accumulation of four or more ACEs has been associated with hypertension (i.e., high blood pressure) among adults. Although these effects may seem small it is important to note that they remain significant even after a long period between experiencing the ACE and the expression of the effect.

Overall, there is a great deal of research connecting ACEs to chronic illnesses and health conditions among adults. However, the majority of the work connecting ACEs to physical health issues has been retrospective — meaning that adults have been asked to reflect back on their experiences as a child, using a list of potential ACEs to cue their memory. Therefore, the data collected in previous studies may not be entirely reliable, as the adults may have over- or under-estimated their exposure to ACEs. Additionally, with adult-focused research there has been no clear idea about when the negative health consequences of ACEs may begin. To fill this gap, Brock University faculty members Drs. Terry Wade and Deb O'Leary have worked with colleagues to understand the impact of ACEs on physical health *during* childhood, attempting to pinpoint when and how the adverse effects begin.

How did they do it?

In order to conduct their research Drs. Wade and O'Leary focused on a wide variety of ACEs beyond extreme events such as abuse and neglect, as research has shown there may be a cumulative effect between the number of ACEs and health risk factors. Moreover, given that research has indicated that ACEs may be related to future health issues, especially CVD, through obesity — Drs. Wade and O'Leary focused their work on body mass index (BMI), blood pressure (BP), heart rate (HR), and waist circumference (WC), health factors that are all related to obesity. This work was conducted among a community sample of 1,234 children between the ages of 11 and 14 (grades 6-8). The parents of the participating children were asked to fill out a questionnaire that included measurement of various ACEs, along with family income, parental education, and family history of hypertension. See Figure 1 (next page) for a breakdown of the percentage of ACEs that were reported in the sample.

Results

Within their work Drs. Wade and O'Leary discovered that there appears to be a threshold effect, where exposure to

Research Snapshot

four or more ACEs may be related to increases in children's HR, BMI and WC (see Figure 2). Moreover, BMI and WC continued to rise with greater numbers of ACEs. This work was consistent with previous research on the retrospective health effects of ACEs among adults, but was one of the first to look at this effect among children. Interestingly, there was no significant effect of ACEs on children's BP, which suggests that increased BMI and WC may precede changes in BP and the age range may not have been large enough to capture this effect. Overall, Drs. Wade and O'Leary's research has suggested that an accumulation of four or more ACEs may accelerate obesity, as measured by BMI and WC, and may elevate the sympathetic nervous system, as indicated by higher HR, among children between the ages of 11 and 14.

Figure 1: Percentage of sample reporting ACEs

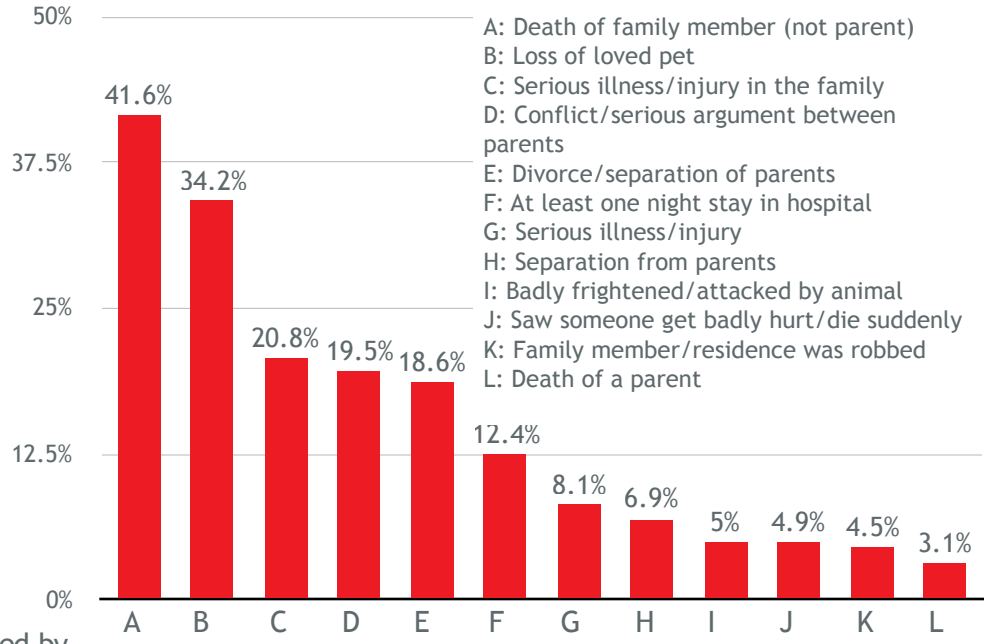
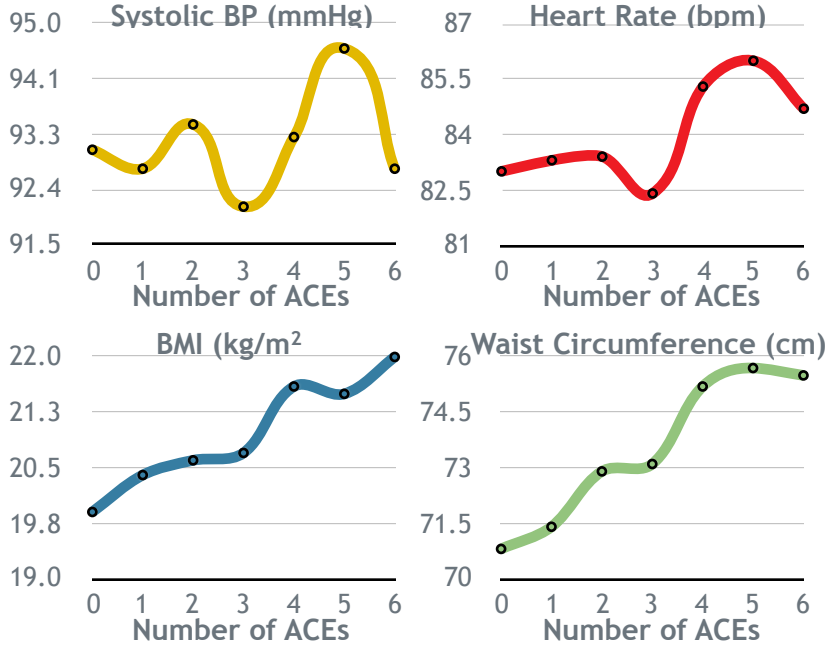


Figure 2: Average BP, BMI, HR & WC compared to number of ACEs



So what — Where can this research be used?

Practitioners — The work of Drs. Wade and O'Leary has indicated that it is possible to see the beginnings of chronic conditions related to ACEs much earlier than previously thought. In particular, this research has demonstrated that ACEs may have physiological health consequences that begin before adulthood. Health practitioners can use this research to help inform early identification and intervention measures for children exposed to ACEs before they develop related chronic health conditions in adulthood. Additionally, previous research has indicated that the negative effects of ACEs may be reduced if a child's environment is returned to a stable state — this needs further exploration.

Future Research — The work of Drs. Wade and O'Leary has expanded the knowledge base around the impact of ACEs on physical health. Specifically, it has indicated that future research should begin focusing on the effects of ACEs during childhood. Moreover, given that significant findings were not identified around BP, it may be important to base future work around understanding the relationship between ACEs and BP during adolescence, as that effect may take longer to emerge.

Want to read more on this research?

Find it online here: https://bmcpediatr.biomedcentral.com/articles/10.1186/1471-2431-13-208

Citation: Pretty, C., D O'Leary, D., Cairney, J., & Wade, T. J. (2013). Adverse childhood experiences and the cardiovascular health of children: a cross-sectional study. *BMC pediatrics*, *13*(1), 1.

Want More Information?

For more information on this research, please contact:

Dr. Terry Wade, twade@brocku.ca, (905) 688—5550 ext. 4146

For more information on the Centre for Lifespan Development Research, please contact:

Jayne Morrish, jmorrish@brocku.ca (905) 688—5550 ext. 4566

Website: https://www.brocku.ca/lifespan-development-research

Or scan this!