



Adverse childhood experiences, dispositional mindfulness, and adult health



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ABSTRACT

Objective. To determine whether greater dispositional mindfulness is associated with better adult health across a range of exposures to adverse childhood experiences (ACEs).

Methods. In 2012, a web-based survey of 2160 Pennsylvania Head Start staff was conducted. We assessed ACE score (count of eight categories of childhood adversity), dispositional mindfulness (Cognitive and Affective Mindfulness Scale–Revised), and the prevalence of three outcomes: multiple health conditions (≥ 3 of 7 conditions), poor health behavior (≥ 2 of 5 behaviors), and poor health-related quality of life (HRQOL) (≥ 2 of 5 indicators).

Results. Respondents were 97% females, and 23% reported ≥ 3 ACEs. The prevalences of multiple health conditions, poor health behavior, and poor HRQOL were 29%, 21%, and 13%, respectively. At each level of ACE exposure, health outcomes were better in those with greater mindfulness. For example, among persons reporting ≥ 3 ACEs, those in the highest quartile of mindfulness had a prevalence of multiple health conditions two-thirds that of those in the lowest quartile (adjusted prevalence ratio (95% confidence interval) = 0.66 (0.51, 0.86)); for those reporting no ACEs, the ratio was 0.62 (0.41, 0.94).

Conclusion. Across a range of exposures to ACEs, greater dispositional mindfulness was associated with fewer health conditions, better health behavior, and better HRQOL.

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Introduction

Over half of US adults have experienced one or more types of adverse childhood experiences (ACEs), such as abuse and household dysfunction (Centers for Disease Control and Prevention, 2010). These exposures are associated with an increased risk of several chronic health conditions (Felitti and Anda, 2010; Felitti et al., 1998) and mortality (Brown et al., 2009). Childhood traumas are thought to worsen adult health through changes in the structure and function of the body's stress-response systems (Danese and McEwen, 2012; Danese et al., 2009) and through poor health behaviors, such as smoking, which may be adopted to help cope with stress (Anda et al., 1999). These unhealthy biologic and behavioral responses to childhood adversity can be reactivated in adults during the course of their work providing human services to children experiencing trauma (Kluft et al., 2000).

This reactivation may worsen the health and workplace functioning of these adult caregivers (Perry et al., 1995).

Dispositional mindfulness is the general tendency to have awareness that results from purposefully paying attention to sensations, thoughts, and feelings in the present moment while suspending judgments (Bishop et al., 2004; Kabat-Zinn, 2003). Mindfulness practices, such as meditation, can increase dispositional mindfulness (Carmody and Baer, 2008; Kuyken et al., 2010) and alleviate psychological and somatic symptoms, such as depression and pain, which can accompany exposure to traumatic experiences (de Vibe et al., 2012; Goyal et al., 2014). These practices can result in favorable changes in brain structure and function and in physiologic parameters of the stress response—changes opposite to those that can result from exposure to repeated or severe stress (Davidson and McEwen, 2012; Shonkoff and Garner, 2012).

While ACEs can lead to poor health, and mindfulness practices can improve health, we know of no studies that have examined the relationships between ACEs, dispositional mindfulness, and health, nor any that have examined ACEs and health among human service providers. Using data from a survey of staff in Head Start, a large federally-funded early

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childhood education program serving children in poverty, we hypothesized that staff with greater dispositional mindfulness would have fewer health conditions, better health behavior, and higher health-related quality of life (HRQOL), and that this would be true across a range of exposures to their own ACEs. Confirmation of this hypothesis could provide evidence to support the testing of mindfulness-based interventions to improve the health and functioning of human service providers.

Methods

The Pennsylvania Head Start Staff Wellness Survey, conducted in 2012, was an anonymous, voluntary, web-based survey of staff in the state's Head Start and Early Head Start programs. The survey protocol, approved by Temple University's Institutional Review Board, has been previously described (Whitaker et al., 2013). Sixty-six of Pennsylvania's 91 Head Start and Early Head Start programs participated, and 2199 of 3375 (65%) staff members in the participating programs responded to the survey. To assess any pattern of non-response, we used federal program-level data on staff characteristics for teachers and home-visitors (US Department of Health and Human Services, Administration for Children and Families, 2011). Among teachers and home-visitors in the 66 participating programs, 57% had a bachelor's or associate's degree in early childhood education and 85% were White. This compared to 55% and 88%, respectively, among teachers and home-visitors that participated in the survey.

Health indicators

Sixteen binary (yes/no) health indicators were developed across three domains: health conditions (7 indicators), health behavior (5 indicators), and health-related quality of life (HRQOL) (4 indicators). The wording of questions about health conditions and HRQOL was the same as in the National Health Interview Survey (Centers for Disease Control and Prevention, National Center for Health Statistics, 2014) and the Behavioral Risk Factor Surveillance System (BRFSS) (Centers for Disease Control and Prevention, National Center for Health Statistics, Public Health Surveillance and Informatics Program Office, 2013).

Health conditions

Participants were asked about seven stress-associated health conditions that are common in mid-life: depression (Hammen, 2005), severe headache or migraine (Nash and Theborge, 2006), lower back pain (Linton, 2000), obesity (Wardle et al., 2011), hypertension (Rozanski et al., 1999), diabetes or prediabetes (Black, 2003), and asthma (Wisnivesky et al., 2010). In separate questions, participants were asked whether they had "ever been told by a doctor or other health professional" that they had depression, hypertension or high blood pressure, diabetes or sugar diabetes (other than during pregnancy), prediabetes or borderline diabetes, and asthma. They were also asked whether, during the last 3 months, they had "severe headache or migraine that lasted a whole day or more" and "lower back pain that lasted a whole day or more." Obesity (body mass index ≥ 30 kg/m²) was determined from self-reported height and weight (pre-pregnant weight if pregnant).

Health behaviors

Participants were asked "Do you smoke cigarettes (yes/no)?" and "How many times in the past year have you had 4 or more drinks in a day?" (Centers for Disease Control and Prevention, National Center for Health Statistics, 2014; Wechsler et al., 1995). Those who reported ≥ 12 occasions (≥ 1 /month) were considered to binge drink (Substance Abuse and Mental Health Services Administration, 2013). Binge eaters were those who reported an eating binge ("eating an amount of food that most people, like your friends, would consider to be very large, in a short period of time") once a week or more often during the past year and feeling "out of control" during those binges (American Psychiatric Association, 2013; Field et al., 2004). Participants were classified as inactive if they reported that they did not "at least once a week engage in any regular activity like brisk walking, jogging, bicycling, etc., long enough to work up a sweat" (Paffenbarger et al., 1993). Low nighttime sleep (<6 h) (Cappuccio et al., 2011) was based on responses to the following question, "During the past month, how many hours of actual sleep did you get at night?" (Buysse et al., 1989).

HRQOL

Participants were classified as having poor or fair health status based on responses to the question, "Would you say your health in general is poor, fair, good, very good, or excellent?" (DeSalvo et al., 2006). Following the Centers for Disease Control and Prevention, we calculated separately the prevalence of frequent (≥ 14 days/month) physically unhealthy days and mentally unhealthy days (Moriarty et al., 2003). The prevalence of ≥ 10 work absences/year due to illness was based on responses to the question, "During the past 12 months, about how many days did you miss work because of your own illness or injury?" (Centers for Disease Control and Prevention, National Center for Health Statistics, 2014).

Primary outcomes

We summed the number of poor health indicators in each domain and created three binary outcome variables: multiple health conditions (≥ 3 of 7 conditions), poor health behavior (≥ 2 of 5 behaviors), and poor HRQOL (≥ 2 of 4 indicators). These variables were made to avoid multiple comparisons in the analyses and because indicators within each domain often co-occur. The cut point for the binary outcome variable in each domain was selected to produce a prevalence that was closest to the mean of the prevalences of the indicators in that domain.

Exposure measures

ACEs

Participants were asked whether they experienced each of eight categories of childhood adversity related to abuse and household dysfunction (Table A.1). Following the work of other researchers (Felitti et al., 1998), an ACE score (0 to 8) was made by summing the number of categories of adversity, and for analysis, participants were divided into groups based on ACE score (0, 1, 2, and ≥ 3).

Mindfulness

We assessed dispositional mindfulness with the 12-item Cognitive and Affective Mindfulness Scale—Revised (CAMS-R) (Feldman et al., 2007), a single-factor scale correlated with other scales of dispositional mindfulness (Baer et al., 2006). Each item describes an attitude or approach toward the experience of one's emotions or thoughts in four areas—focusing attention, being oriented to the present moment, being aware of an experience, and having an attitude of acceptance or nonjudgment toward an experience. The scale scores, with a possible range from 12 to 48 (low to high mindfulness), had a normal distribution and an internal consistency (Cronbach alpha) of 0.85. To facilitate interpretation, the scores were divided into quartiles (high, medium-high, medium-low, and low) for analyses.

Covariates

The survey asked participants about their gender, age, race, ethnicity, education, relationship status, job position, and whether they or their own children had ever attended Head Start. Participants were also asked about five categories (yes/no) of economic hardship that they may have experienced during the prior year: food insufficiency (Ribar and Hamrick, 2003), receipt of benefits from the Supplemental Nutrition Assistance Program, not enough money for housing, not enough money for utilities, and not enough money for healthcare.

Data analysis

Our analyses involved 2160 participants, excluding 39 who were missing data on mindfulness or ACE score. We used chi-square tests to examine the relationships between each covariate and the prevalences of high ACE score (≥ 3), high mindfulness (upper quartile), and each health outcome. A chi-square test for trend (Cochran–Armitage test) was used to examine the associations between the health outcomes and levels of ACEs and mindfulness.

For multivariable analyses, 90 cases (4%) of the sample were missing one or more covariates, so we first imputed these missing values with sequential regression imputation (Raghunathan et al., 2001) using Stata software (StataCorp, 2013). We created 20 imputed datasets with an imputation model that included all covariates, ACE score, mindfulness score, and the three health outcomes (Graham et al., 2007). In regression models, we accounted for the clustering of participants within Head Start programs using Taylor series linearization methods (Heeringa et al., 2010). Using separate logistic regression models for those at each ACE score (0, 1, 2, ≥ 3) and adjusting for covariates, we computed prevalence ratios to estimate associations between mindfulness and each of the three outcomes, with the lowest quartile of mindfulness as the reference group

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