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THE RELATION BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND HEALTH BEHAVIORS IN ADULT WOMEN

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THE RELATION BETWEEN ADVERSE CHILDHOOD
EXPERIENCES AND HEALTH BEHAVIORS IN ADULT

WOMEN

BY

KARINA TAVARES

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

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OF

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ABSTRACT

Individuals who experience adversity during childhood are at a higher risk of negative health outcomes in adulthood. This study aims to identify whether adverse childhood experiences (ACEs) influence health lifestyles throughout adulthood. This was accomplished by collecting data from 233 women aged 18-25 and 65-85 who reported either no ACEs or three or more ACEs. Demographic indicators, the 10-item ACEs questionnaire (Felitti et al., 1998), and the Health Promoting Lifestyle Profile (HPLP-II; Walker, Sechrist, & Pender, 1987) were examined. ACEs were categorized into three variables: abuse, neglect, and household dysfunction. The HPLP-II was categorized by its six subscales: health responsibility, nutrition, spiritual growth, physical activity, stress management, and interpersonal relations. When comparing the ACEs and no ACEs groups, *t*-tests revealed significantly different scores for overall HPLP-II. The six subcategories show that individuals without ACEs have higher scores on health behaviors. A structural equation model was calculated using the three ACE categories and six health domains. Substantial differences were observed in the variance captured for each of the six health behavior measures. Findings indicate that abuse significantly predicts physical activity, stress management, and spiritual growth ($\beta=-.21, -.23, -.20$); neglect significantly predicts interpersonal relationships and spiritual growth ($\beta=-.17, -.18$); and household dysfunction significantly predicts health responsibility, nutrition, stress management, and interpersonal relations ($\beta=-.20, -.22, -.10, -.17$). The present investigation extends research in displaying that ACEs play a significant role in future health behaviors, with household dysfunction being the greatest predictor.

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CHAPTER 1

INTRODUCTION

Adversity in early childhood plays a central role in health outcomes later in life. Social determinants of health, such as the environment where infants are born and how they are brought up, play an essential role in the lifestyle habits they develop and possess throughout adulthood. Adverse childhood experiences, or ACEs, are defined by the Centers for Disease Control and Prevention (2022) as potentially traumatic events that occur in childhood. These traumatic experiences are commonly categorized into three domains: abuse, neglect, and household dysfunction. The Adverse Childhood Experience Questionnaire (Felitti et al., 1998), referenced as an instrument in this study, is composed of ten questions about events that occurred in the first 18 years of a person's life. Studies show that ACEs are associated with many detrimental effects on development, beginning in childhood and continuing throughout adulthood (Claypool & Moore de Peralta, 2021; Halfon et al., 2017; Scott, 2020).

Lifestyle is defined as the characteristics of people, commonly based on region or culture (Farhud, 2015). It is also defined as a set of behaviors that influence health and an overall way of life, based on several factors (Contoyannis & Jones, 2004).

Lifestyle habits regarding health are developed in childhood and correlated to an individual's health and well-being throughout life (Daines et al., 2021). For example, low-risk lifestyle factors such as physical activity, and high diet quality are all ways of proactively keeping up with a healthy lifestyle (Li et al., 2019). Farhud (2015) mentions that 60% of factors related to health (e.g., diet & physical activity) and quality of life come from the lifestyle one engages in.

While it is known that ACEs affect a healthy lifestyle (Pearce et al., 2019), less is known about which subcategories of health are most strongly affected. It is important to study events during childhood because these experiences have the ability to influence an individual's health and well-being in their future (Hughes et al., 2016). This is concerning, considering that about 45 percent of children in the United States have experienced at least one ACE, while ten percent have experienced three or more ACEs (Sacks & Murphey, 2018). The more ACEs an individual has, the more likely they are to have negative physical and mental health outcomes (Sacks & Murphey, 2018). The question remains, which events can lead some toward a healthier lifestyle than others? This study aims to examine whether adverse childhood experiences influence different categories of health lifestyles in later life, and if so, which experiences have a greater impact. This current study will examine individuals with three or more ACEs and individuals with zero ACEs to assess their health lifestyle behaviors in adulthood.

CHAPTER 2

REVIEW OF LITERATURE

Justification and Significance of Study

Healthy-Lifestyles

Healthy lifestyles are associated with positive health outcomes, such as improved cardiovascular fitness, increased bone mass, and improved psychological well-being (Troost & Loprinzi, 2008). Initially defined by the World Health Association (WHO; 1948), lifestyle refers to behavioral patterns molded from a mix of one's personality traits, social relationships, environmental conditions, and socioeconomic status. Unhealthy lifestyles during childhood are associated with incapacity and health problems in adulthood. If interventions for health lifestyle behaviors are managed early on, risky health outcomes can be mitigated (Champion et al., 2019). However, some life factors, such as being born into a certain socioeconomic status or an abusive household, are not always under an individual's control.

Another factor that plays a role in obtaining a healthy lifestyle is the amount of stress an individual faces (Moriarty et al., 2021). According to Nordgren and colleagues (2022), stress is a significant public health problem that directly affects

changes in health behaviors. The influence of socioeconomic status on perceived everyday stress is a heavily studied subject. Chronic stress— or stress that persists abnormally— from barriers that are not easily overcome (Baum & Garofalo, 2006) is associated with poor health outcomes. An article by Algren and colleagues (2018) mentions that living in deprived neighborhoods may lead to increased stress due to a lack of transportation, high crime rates, or lack of social support. A burdensome relationship exists between early life stress, socioeconomic status, and life adversity later in life (Manyema et al., 2018). The added stressors families from deprived neighborhoods face accumulate, making it challenging to allocate emotional resources to engage in positive health behaviors and lifestyles.

Families with lower socioeconomic status are more likely to experience poor health outcomes, as they lack opportunities to minimize or ease some of the sources of stress and are more likely to participate in poorer health activities (Pampel et al., 2010). This study found that socioeconomic status affects the motivation and incentive for behaviors related to healthy lifestyles and health care consumption, such as medical care. Moreover, socioeconomic status is correlated with exposure to stressful environments, and living in a stressful environment contributes to chronic stress and ultimately affects health outcomes (Senn et al., 2014). In a study by Wardle and Steptoe (2022), socioeconomic status heavily affected health factors and contributed to a lack of carrying out healthy lifestyle behaviors. Low socioeconomic status also contributed to expectations of a shorter life span.

Genetic, biobehavioral, and environmental factors interact, and how a person copes with and responds influences their health later in life. Aside from the physical

repercussions of health lifestyles, biological repercussions also affect a person's quality of life. Anda and colleagues (2005) showed that stress on the brain has the ability to cause structural changes. These researchers found that early life stressors cause long-term changes in numerous brain circuits, permanently altering one's brain structure and ability. The effects of these brain changes can result in behaviors such as substance abuse, suicide attempts, and depressive disorders (Anda et al., 2005).

Furthermore, early lifestyle mechanisms such as proper diet and physical activity can contribute to a more balanced healthy lifestyle as an adult. There are many ways to measure a healthy lifestyle, such as reporting on health-promoting behaviors. Health promotion implies changes in behavior and the adoption of promoting better health to improve quality of life (Rathnayake et al., 2020). While numerous factors affect a person's life, less is known about what makes a person vulnerable to creating negative health habits. Health lifestyle behaviors can be measured through the Health Promoting Lifestyle Profile II, which measures the extent adults engage in certain lifestyles (Walker et al., 1995). The Health-Promoting Lifestyle Profile II is a scale that measures health-promoting lifestyle behaviors on how often adults report engaging in the items listed in the questionnaire. The 52-item questionnaire can be split into six categories: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management.

Potential Power of ACEs

Adverse childhood experiences (ACEs) can be defined as stressful events during childhood that impacts physical and mental health in childhood and further into adulthood (Scott, 2020). The Adverse Childhood Experiences (ACEs) questionnaire

was introduced in a larger study by CDC-Kaiser (Felitti et al., 1998) and showed ACEs impact health outcomes. Older adults who experienced numerous adverse events during childhood have been found to have poorer health outcomes (Boullier & Blair, 2018). ACEs have the ability to impact brain development and executive function and cause difficulties in forming stable relationships (Scott, 2020).

The questionnaire used in this study (Felitti et al., 1998) specifically addresses ACEs using the following experiences: physical abuse, emotional abuse, sexual abuse, physical neglect, emotional neglect, caregiver(s) with mental illness, maternal violence, divorce or separation of parents, household substance abuse, and incarcerated caregiver(s). These traumatic experiences are commonly categorized under abuse, neglect, and household dysfunction (Boullier & Blair, 2018).

Low socioeconomic status is highly correlated to ACE exposure. However, the ACEs questionnaire does not include several other adversities that can profoundly impact a child's life, such as neighborhood violence (Crouch et al., 2019). Other adversities children face are rooted in poverty statuses, such as stress associated with low income, low educational attainment, hunger, and parental incarceration (Hughes & Tucker, 2018). Disparities in ACEs are seen among gender minorities, women, and racial/ethnic minority groups (Nurius et al., 2016), with individuals from these groups having higher ACE exposure than their white, heterosexual counterparts. Claypool and Moore de Peralta (2021) noted that white children have a lower total number of ACEs and are exposed to different types of ACEs than Latinx children.

Similarly, a study by Halfon and colleagues (2017) identified how the income hierarchy plays a role in the prevalence of ACEs. It was found that children with

higher family incomes show better health outcomes and lower levels of adversity. It was also noted that income stratification is an important and overlooked factor because it shows how ACEs are distributed in the U.S. population.

Not only do women experience ACEs more, but these experiences lead to health risks more commonly in women than men. These risks include early sexual initiation, unintended pregnancy, maternal depression, and anxiety during the perinatal period (Schmitt et al., 2021). Women who experienced at least one ACE were two and a half times more likely to report psychological distress when compared to men with similar ACE scores (Manyema et al., 2018). Furthermore, mothers who were exposed to childhood maltreatment were, in turn, less responsive to their infants (Crouch et al., 2020).

Recognizing childhood trauma is essential within this growing body of research. Trauma that occurs during childhood is cumulative and can have detrimental, life-long effects (Goldstein et al., 2021). Despite the vast amount of research on ACEs, interventionists still struggle. One concern is that ACEs are generally measured retrospectively, making it difficult to intervene during an incident. Many early childhood stressors are left unannounced by the child or family. Trauma such as sexual or emotional abuse is not always seen by the common eye and may be hidden inside the home for only the child to experience (Anda et al., 2005). The effects of ACEs also differentiate in a multitude of ways. Anda and colleagues' (2005) study mentions how adults responded when responding to follow-up surveys or questionnaires. When adults were later asked about their experiences, it was found that they underestimated the number of occurrences. Furthermore, the ACEs questionnaire

treats each question equally, which does not allow adversities to have dissimilar effects on individuals (Negriff, 2020). It also does not include several other adversities that can profoundly impact a child's life.

ACEs Linked to Health Lifestyles

A manuscript by Telama and colleagues (1997) mentions that childhood is considered the best age for socialization into physical activity, and the attitudes and skills that are developed in childhood are beneficial to develop habitual physical activity in adulthood. However, a person can be hindered from obtaining a positive health lifestyle for many reasons, and negative outcomes result in this lack of well-being. Alzahrani and colleagues (2019) mention that it is very challenging for adults to change unhealthy behaviors once they are developed.

As mentioned above, stress is related to health behaviors. Stress is also associated with adverse childhood experiences. While healthy and unhealthy lifestyle results are seen in adulthood, the evidence of adversity in childhood is seen as a predictor of these results (Schmitt et al., 2021). It was discussed in the Schmitt and colleagues (2021) article that early childhood adversity resulted in coping mechanisms such as misuse of alcohol and illegal substances later in life. While children cannot control many factors in their lives, the habits formed through these experiences stay with them throughout adulthood.

Boullier and Blair (2018) examined the significant impact of ACEs on life trajectories. It was found that the toll ACEs take on a person varies depending on internal and external factors. Adverse childhood experiences negatively affect the way biological systems in the body function. Areas affected in the brain, such as the

hippocampus, prefrontal cortex, and amygdala, affect behavioral problems, concentration, memory, learning, and poor executive functioning. It was also found that physical and mental health are affected, leading to a higher chance of developing chronic health diseases and poorer mental health. As a result of these changes, individuals with these experiences are more likely to later use psychotropic drugs (Boullier & Blair, 2018).

Children and families living in low socioeconomic communities are at higher risk for experiencing multiple traumas (Kiser et al., 2008). According to the Family Stress Model, family stress influences the development of children across physical, social-emotional, and cognitive domains (Masarik & Conger, 2017). The Family Stress Model (FSM) is found especially in families of low socioeconomic status, where child outcomes result from parents' actions (Gard et al., 2020). In other words, how socioeconomic disadvantage affects children is based on how it affects their parents. Socioeconomic factors, as well as habits within the family, are both contributing factors to how lifestyle habits are developed and kept throughout life. Negative effects such as socioeconomic disadvantages, maternal distress, and parenting behaviors, for example, lead to how the child is raised. The study by Gard and colleagues (2020) also makes note of how the FSM can be used to hypothesize the effects of harsh and warm parenting on youth internalizing and externalizing outcomes.

The common stress that parenting enables in certain situations can significantly predict how they treat their children based on the negative emotions felt in the moment. These feelings are well-documented risk factors for child maltreatment,

neglect, and exposure to traumatic events (Crouch et al., 2020). Parents may not handle stress well without the proper resources to help aid stressors, which is problematic for the family. This is evident in the effect it has on children (Wu & Xu, 2020). While the family stress model focuses on economic stress, it opens the conversation to how the disruption of nurturing parenting can be detrimental to the developmental outcomes of their children. Socioeconomic disadvantage is a heavy predictor of health difficulties throughout life (Gard et al., 2020), and it should not be overlooked when discussing child development and how parents' actions set children up for specific life outcomes. This investigation of the long-term effects of early life trauma shows that time does not heal adverse experiences (Felitti, 2002), and there is much more to find about the impact trauma has on a child.

Statement of the Problem

The present study addressed gaps in the literature by examining the association between adverse childhood experiences and healthy lifestyles of women during adulthood. This study aimed to examine the different dimensions of health lifestyles and predictive factors of adverse childhood experiences (ACEs). As stated above, women experience ACEs more frequently and are subject to different ACEs. Moreover, this study will be looking at women, which is important in filling the gaps in the literature on females. It is hypothesized that those who experienced more adversity during childhood will partake in a less healthy lifestyle later in life. As mentioned above, adverse childhood experiences are commonly grouped into three categories. Also mentioned above, the healthy lifestyle scale in this study is grouped into six categories. Therefore, we will also examine if certain ACEs substantially

affect lifestyle behaviors. The present investigation extends research by comparing how adverse childhood experiences affect different categories of health lifestyles in disproportionate ways.

CHAPTER 3

METHODOLOGY

Procedures and Sample

Participant Characteristics

The present study uses data that was collected by Dr. Tsotsoros as part of her dissertation. The data are cross-sectional and secondary analysis. The sample used in this thesis is 233 women from a larger study analyzing biomarkers. Cisgender women were collected because hormones influenced the biomarker variables of interest. Two age cohorts were recruited for extreme sampling methods: women between 18 and 25 and between 65 and 85. Data collection took place in 2021. Socioeconomic status was not collected, and individuals who did not answer all the survey items were not included in the current study.

Sampling Procedure

Participants were made aware of the study through email blasts, the online SONA system at Oklahoma State University, —which the university uses to collect data from undergraduates enrolled in psychology courses— word of mouth, and flyers. All participants completed an online questionnaire to self-report answers to multiple

surveys. The surveys used in this study are demographic questions, the Adverse Childhood Experience Survey, and HPLP-II. The study was administered online using Redcap. Informed consent was filled out prior to the self-report questionnaire, and individuals did not have to answer questions that made them uncomfortable. All study procedures were IRB-approved by Oklahoma State University Institutional Review Board and adhered to APA ethical guidelines.

Individuals were recruited from a community-based sample in Oklahoma. Samples were recruited from campus, local gyms for women who participated in silver seniors—an exercise class for older women—at the YMCA, senior centers in Tulsa, food banks, and an adult wellness fair in Tulsa.

Measures

Independent Variables

Adverse Childhood Experiences. The Adverse Childhood Experiences Questionnaire (ACEs; Felitti et al., 1998) was the scale used in this study. This self-report questionnaire assesses whether the individual has experienced any adverse events in their first 18 years of life (Felitti et al., 1998). The questionnaire was created in 1995 by the Center for Disease Control and Prevention (CDC) and Kaiser Permanente (Dube, 2020). The survey includes a series of 10 questions giving the participant the response option to answer either “yes” (coded as 1) or “no” (coded as 0) to each question. Questions from this scale address the three categories of adversity: abuse, neglect, and household dysfunction. An example of a question that addresses neglect is, “Did you often feel that you didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you?” The total score is a summed score calculated

by adding the number of times “yes” was answered to provide an overall ACEs score. The ACE scale has adequate internal consistency, with a Cronbach’s alpha of .88 (Murphy et al., 2013). The scale ranges from 0 to 10, where 0 is considered unexposed to ACEs, and 10 is considered exposed to all categories (Dong et al., 2004).

Dependent Variables

Health Promotion Model. The Health-Promoting Lifestyle Profile (HPLP) was originally created by Nola Pender in 1982. It was designed to measure the extent to which adults engage in health-promoting lifestyles. A revised version of the HPLP (HPLP-II; Walker, Sechrist, & Pender, 1987) was a modified version of that scale and is the instrument used in this study. The improved scale focuses on individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. There are 52 health-promoting behavior questions broken down into six subcategories: health responsibility, nutrition, physical activity, stress management, interpersonal relations, and spiritual growth (Rathnayake et al., 2020). The statements of personal habits allow for a self-report response from a 4-point Likert-type response scale: never (1), sometimes (2), often (3), or routinely (4). The participants are directed to answer based on the frequency of their behavior. The total survey score is calculated by a mean response to the 52 questions (Campbell, 2018). The total score of the HPLP-II scale ranges from 52 to 208. There are four levels individuals can be placed in depending upon their score, poor is categorized between 52- 90, moderate is considered 91-129, good is considered 130-168, and excellent is considered 169-208 (Fashafsheh et al., 2021). The scale shows excellent internal consistency (Cronbach’s alpha - 0.98) and test-retest reliability (Rathnayake et al.,

2020). However, some researchers also evaluate a score for the six subscales, using a mean score for the statements within that subscale. For the six subscales, the Cronbach alphas ranged from 0.79 to 0.87 (Alzahni et al., 2019). This model is used as a guide to assess the health behaviors of adults (Tanjani et al., 2016), with higher scores indicating that healthier behaviors are performed more frequently (Misener et al., 2000).

Subscales. The statements for the subscales in the HPLP-II are scattered throughout the 52-question survey, with four of the subscales having nine statements and two containing eight statements. The subscales with nine statements are health responsibility, nutrition, spiritual growth, and interpersonal relations. An example statement from the subscale, health responsibility, is “Question health professionals in order to understand their instructions.” This scale is looking to assess participants’ physical health education and responsibilities. The participant then responds to that statement using the 4-point Likert-type Scale. An example of the subscale nutrition would be, “Read labels to identify nutrients, fats, and sodium content in packaged food.” This scale looks to see how educated individuals are in terms of healthy foods and how they nourish themselves. The spiritual growth subscale includes the statement, “Feel content and at peace with myself.” This scale looks at health based on spirituality and how this affects participants' health decisions in the present as well as the long term. The interpersonal relations subscale includes the statement, “Find it easy to show concern, love, and warmth to others.” This scale assesses how individuals use peer and family relationships and how this affects their overall health habits. The other two subscales only have eight statements, and those subscales are

physical activity and stress management. An example from the physical activity subscale is, “Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).” This scale looks to see how physically active participants are during their typical days. Lastly, an example from the stress management subscale is “Use specific methods to control my stress.” This scale looks to see how the management of stress in the participants’ lives affects their health.

Demographics. Descriptive statistics such as age, race, ethnicity, primary language, and education level were obtained. Demographic data may help to assess confounding variables that can have an impact on healthy lifestyles in adulthood.

Data Analysis

Data are reported across two study groups: individuals with 0 aces and individuals with 3 or more aces. The sampling design of having extreme groups in ACEs (high, 3+ or low, 0) was chosen to maximize potential observed effects. All data were summarized using mean (SD) and checked for outliers (z -score $\geq \pm 3.3$) and normality (skewness < 3 , kurtosis < 10). No data were corrected by log-transformation and there were no outliers to be removed. ACEs data were not checked for outliers as they would not have been removed from the sample. There are no missing data, so no scores needed to be imputed.

Data Analysis Strategy

Multiple t -tests and a structural equation model were run to assess the data. First, descriptive statistics were run for the full sample of participants. Then, the dataset was split into two groups, those with ACEs and no ACEs. With the HPLP-II as the dependent variable, independent samples t -tests were run to assess whether the two

groups differ in scores for the HPLP-II scale. The other variables used in the model were also included, although not a primary aim. Then, a structural equation model was run to examine the relationship between ACEs and health behaviors. ACEs were composed of three latent variables: household dysfunction, abuse, and neglect. The dependent variable, the HPLP-II scale, was broken down into the six subscales of health responsibility, nutrition, spiritual growth, interpersonal relations, physical activity, and stress management. Furthermore, a correlation matrix was run for all variables for the ACEs group, no ACEs group, and the full sample.

Resources

This study required access to Dr. Tsotsoros' dataset, collected from her dissertation. The data was run on the Statistical Practice for Social Sciences (SPSS) v. 28 and Analysis of Moment Structures AMOS v. 28. The textbook, *Using Statistical Methods in Social Science Research*, was used as a resource for data analysis. Lastly, journal articles and other online databases were obtained through the University of Rhode Island's online database. All data entry took place on Redcap.

CHAPTER 4

FINDINGS

Participants

The data collected for this study included 233 women aged 18 - 25 and 65- 85. This study aimed to evaluate the relationship between ACEs and future health behaviors in women. No participants were excluded from the study. The data collected for this study used the online platform, Redcap. As an initial step in the data analysis, frequency distributions and descriptive statistics were run for each variable and scale. Variables and scales were checked to ensure normality by looking for outliers, skew, and kurtosis that would violate the assumptions of parametric-level statistics. Variables did not require adjustments to meet normality. The data was run using SPSS version 28 to analyze descriptive statistics on all variables. The tests conducted were a *t*-test and a correlation matrix. A structural equation model was run using AMOS version 28.

Preliminary Analysis

First, a series of independent *t*-tests were run to assess whether the HPLP-II subcategory scores differed between the two groups. Exploratory data were also

examined. This included a series of *t*-tests to examine whether scores on the six HPLP-II subcategories differed among age groups. A Pearson Correlation Matrix was run to see how the variables used in the study were correlated to one another. Lastly, a structural equation model was calculated to determine the amount of variance accounted for in the six endogenous measures (health behaviors), from the predictor variables—the three ACE categories.

Descriptives

Descriptive statistics were run for the entire sample (Table 1), for groups split by ACE score (Table 2), and for groups categorized by age (Table 3). Separate demographic information is explained below and shown in the tables provided. A Pearson Correlation Matrix for the variables included in the study is shown in Table 4.

Full Sample

Demographics for the entire sample are found in Table 1. Descriptives reveal that of the 233 women, the average age is 30. Two hundred twenty-five women consider English their primary language, and 190 consider their race/ethnicity as White (non-indigenous). The mean ACE score was 3.04 on a ten-point scale, and the summed score of the HPLP-II questionnaire has a maximum score of 120. The mean scores and standard deviation for subcategories can be found in Table 1.

Categorized by ACEs

Descriptive statistics, shown in Table 2, were run after grouping individuals into two groups, 0 ACE or 3-10 ACE. The data collected includes 146 women with ACEs and 87 women without ACEs. *T*-tests were run to compare scores between ACEs groups. The 3+ ACEs group had a mean score of 4.85 ACEs. One hundred

thirty-two women reported English as their primary language, and 77% self-identified as White (non-indigenous). The women in the 3–10 ACE group had a significantly larger mean score for the total HPLP-II than the women who reported no ACEs, $t(230) = 6.56, p < .001$. Furthermore, an additional series of independent t -tests were run to compare the HPLP-II subcategories among ACE groups. All subcategories showed significant differences among groups. The mean scores and standard deviations for the subcategories can be found in Table 2. Total ACEs score and ACE category scores were compared but expected to show significance, as the no ACEs group had a 0 score for all variables.

Categorized by Age

Characteristics of participants grouped by age are shown in Table 3. The data includes 187 individuals for the 18 - 25 group, with a mean age of 20 and an ACE score of 3.26. Of the 187 individuals, 180 identified English as their primary language, and 148 were White (non-indigenous). The 65 - 85 age group included 46 individuals with a mean age of 71.

The women in the younger group had a mean score for the HPLP-II of 117.60. The overall HPLP-II score for this group was lower than that for women in the older group, which was 133.91. Total summed score t -test results comparing age groups indicate a significant difference between groups, $t(231) = -4.28, p < .001$. The mean scores and standard deviations for the variables split by age can be found in Table 3.

Pearson Correlation

As seen in Table 4, a Pearson Correlation Matrix was run for all variables used in this study.

Primary Analysis

Structural Equation Model

A structural equation model was conducted to examine the extent to which the ACE categories outlined in the introduction predict the health behavior subcategories among women between 18-25 and 65-85. The variation and observation of ACE scores lead to the inference of causality to the HPLP-II categories in the observed model. A maximum likelihood estimation was used for this model, as it is the most widely accepted estimation (de Winter & Dodou, 2011). The model was overidentified, with a degrees of freedom of 9. The model was also freely estimated.

As the first step in the analysis process, a model was computed using AMOS V.28 that specified 3 exogenous variables and 6 endogenous variables, ACEs subcategories and HPLP-II subcategories, respectively. Exogenous variables were correlated, and all items loaded on their respective factors. This model is shown in Figure 1. A correlations matrix showed that abuse and neglect had an estimate of 0.686, abuse and household dysfunction had an estimate of 0.532, and neglect and household dysfunction had an estimate of 0.496.

The overall model fit was good, $\chi^2(9, N = 233) = 8.60, p < .475, TLI = 1.002, CFI = 1.00$. Due to the large sample size, the $pcmin/df$ was 0.956. The psychometric analysis further revealed a RMSEA value of 0.000 with a confidence interval of 0.00-0.072. Standardized beta coefficient values in Table 5 show which variable subcategories were the strongest predictors of the health promotion model subcategories. The R^2 values referenced in the table show the amount of variance abuse, neglect, and dysfunction had on the six endogenous subscales.

An overview of the structural equation model shows that household dysfunction plays the most significant role in predicting health outcomes in later life. Significant beta weights are shown in Figure 1 for four out of the six health subscales for household dysfunction, which are health responsibility, nutrition, stress management, and interpersonal relations ($\beta = -.20, -.22, -.10, -.17$). Furthermore, findings indicate that abuse significantly predicts physical activity, stress management, and spiritual growth ($\beta = -.21, -.23, -.20$). Lastly, neglect significantly predicts two of the subscales, interpersonal relationships, and spiritual growth ($\beta = -.17, -.18$). Overall, these findings show that of the ACE categories, household dysfunction affects the most health lifestyle subcategories. Abuse and neglect account for 12.3% of the variance of spiritual growth, the most highly predicted endogenous variable.

CHAPTER 5

DISCUSSION

This study explores how traumatic childhood experiences affect lifestyle decisions in adulthood. Comparisons were made between two groups to analyze the data: individuals who experienced zero ACEs and individuals who experienced three or more ACEs. This study aimed to identify how the presence of ACEs and each of the ACE subcategories influence any or all of the six HPLP- II subcategories. It was hypothesized that women who experienced childhood abuse were more likely to partake in unhealthy lifestyle activities in later life. Based on the results from this study, that hypothesis is supported, showing that individuals with ACEs do have poorer health lifestyles.

Existing Literature

The findings suggest that abuse is the most significant predictor of stress management abilities. Manyema and colleagues (2018) mentioned a troublesome relationship between early life stress and life adversity over time. Current research suggests that there is also a complex relationship between stress and substance abuse, where those who feel suffocated by daily life struggles turn to substances to alleviate current stress (Sinha, 2009). The cycle of addiction should not be forgotten.

Lander and colleagues (2013) describe a concrete association between parents with substance abuse disorders and the risk of their children developing a substance use disorder. With these findings, it can be suggested that substance abuse may play a large role in how stress is managed, hence why abuse, a stress-provoking experience, is such a large predictor of stress management. Algren and colleagues (2018) describe how stress is increased for individuals living in neighborhoods that lack certain necessities for a living (such as transportation). This data shows that household dysfunction significantly affects future stress management. It also affects health responsibility, nutrition, and interpersonal relations. These findings support existing literature, where Alm and colleagues (2019) explain how family dynamics have an effect on an individual's physical and mental health throughout their lifetime, as well as an increased risk of premature death. In a study by Hughes and colleagues (2016), the effects of an unhealthy relationship between child and parent influenced how those children eventually interacted with their kin as a result of their own ACE history. A speculative reason for this outcome is that the experiences these children have/witness shape their later life experiences.

Results from a Clemens and colleagues (2019) study found that the long-term consequences of household dysfunction and the health of children are mediated by maltreatment in childhood. The same study found that the reasons for this are multifactorial, where socioeconomic status, isolation, and stigma are connected in a complex, interwoven relationship. Children were at an increased risk of abuse and neglect during childhood when intimate partner violence, substance abuse, or mental illness of a household member was reported (Clemens et al., 2019).

Childhood abuse was found not to have a significant impact on interpersonal relationships. However, a reason for this could be how other factors have the ability to influence interpersonal relationships. Protective factors and the resilience an individual builds through experiences can potentially mitigate the outcomes of traumatic experiences in childhood. This is contrary to Huh and colleagues' (2014) findings which state that abuse leads to difficulty obtaining personal relationships later in life. Gershoff (2008) examined how physical punishment of children by parents has changed over the years, reporting that Americans' approval of this type of punishment has declined gradually over the past few decades. This also has an effect on individuals reporting past trauma, where parts of physical punishment might not have been considered abuse by them then.

T-test analysis showed no significant differences among age groups in neglect. This is contrary to literature stating that parents define their responsibility and parenting styles differ based on generation. One example was the relaxation of parental authority over the years (Williams et al., 2012). The effects of neglectful parenting do pose a risk to children's development. Cultural aspects also play a role in what is considered neglect, as lines to what is considered neglectful become blurred. Individuals from this study may show no differences due to differences in how neglect is measured differently by these generations.

The setting where a child grows up is their first social environment. Actions of the household members are watched and studied by children and this influences their learning experience on subjective rights and wrongs. The parental modeling the child sees from their caregivers is taken into consideration while they are developing their

identity. The Garmienė and colleagues (2006) study mentioned how adolescents experiment with different types of behaviors, including risky ones. There is a positive relationship between parental behavior and a child's behavioral development, as well as another positive one between child-parent communication and a child's behavioral development. Parents have been deemed the 'frontal lobes' of their children, supporting the idea that children learn and pick up habits from their caregivers, and that modeling does affect a child's behaviors (Larsen et al., 2015).

Limitations

This study has many potential limitations. First, this study includes only women within two age ranges. A future study that includes men with childhood trauma, and a larger age range, could potentially show different results. This study also used a small sample size within the state of Oklahoma. Individuals living in the areas of the South and Midwest may be less likely to consider physical punishment as a form of abuse. Oklahoma is one of only eight states that allow teachers to physically punish their students (Gershoff & Font, 2018). This may affect how individuals in Oklahoma outline their trauma compared to how children raised in other states might respond to childhood abuse.

In a future study, a larger sample may show differences in how ACE categories affected the health promotion model subcategories in a future study. Men and women experience different types of ACEs, at different rates, and show different outcomes. Therefore, a larger, more diverse sample may show differences in ACEs and HPLP-II subcategories.

As previously mentioned, the ACE questionnaire struggles with the issue of self-reporting bias (Anda et al., 2006) due to the sensitivity of topics (Dube et al., 2004). Therefore, underreporting is also a limitation of this study due to the use of sensitive topics in the questionnaire. The questionnaire used also covers a limited scope of traumas. This ten-item questionnaire is summed to assess the depth and outcomes of trauma endured. Moreover, two people who both have the same numerical score from the ACEs questionnaire will not have the same life exposures and experiences. This questionnaire is not able to cumulate the amount of trauma a child endures throughout their life (Anda et al., 2020). Therefore, it is suggested that a more rigorous questionnaire is used in future studies. There are other ways ACEs could be more accurately assessed. Including factors such as neighborhood violence, school experiences, and loss would be beneficial additives. When asking a larger range of questions, it may also be beneficial for individuals to rate how severely they feel that trauma affected them. That rating may be a way of assessing the complexity of their trauma.

Furthermore, collecting ACE exposure retrospectively may not be as accurate as if it were to be collected during the time of the traumatic events. Lastly, a questionnaire that encompasses one's culture may also benefit when interpreting one's ACE score.

Implications and Future Directions

This study adds to the research on how abuse, neglect, and household dysfunction affects individuals differently. These results enrich the literature on which life events influence future health decisions. As mentioned, resilience plays a role in

an individual's life outcomes. Including a resilience scale with this questionnaire could be a beneficial tool. Researchers can use this novel information to extend how contextual factors such as resilience and social support can potentially mitigate childhood trauma outcomes. This could add to the literature by introducing how the SOC (sense of coherence) concept attempts to provide some reasoning behind why people thrive despite their stressful environment. Peres and colleagues (2007) found that SOC is strongly related to better-perceived health, especially mentally. Meaning, those who are able to develop coping mechanisms are more likely able to overcome psychological traumas.

Applied implications may be used for future therapy practices and use these factors to improve therapy techniques. A trauma-informed care approach in these settings can provide a safer environment, allowing more open conversations and flexibility for both the individual and the therapist. Moreover, these findings also have the potential to improve community-based interventions (e.g., home-based therapy, school-based therapy, support groups) to allow for improvement in educational programs and awareness of adverse events.

Current research shows that in schools where trauma-informed training is provided, individuals are better able to cultivate resilience. While violence at home may not be seen behind closed doors, educators in a school setting could be used as a second line of defense to helping children change their potential path. Educators are in a position to observe behaviors and actions that are a result of trauma (Bell et al., 2013). Advocacy is just one of the ways children in challenging situations can be helped. With this attempt, more literature on this topic would benefit the movement on

the importance of resilience. This would also benefit children's counselors and therapists to help build supportive relationships and strategize coping mechanisms.

Aside from trauma-informed schooling, home visits as trauma prevention also have the potential to decrease child maltreatment in homes. With these programs varying in flexibility and visitation, it is aimed toward new mothers and fathers to break the cycle of maltreatment within families. Since childhood trauma can be cumulative and detrimental (Goldstein et al., 2021), home visiting programs are one way to help evaluate parents' adverse childhood experiences and assess retrospective childhood trauma. While time may not heal adverse experiences, intervention and trauma-informed care are a step in the right direction toward helping those who fall victim to harsh experiences.

Lifestyle significantly impacts psychological and physical health (Wang & Geng, 2019). However, Boullier and Blair (2018) previously stated that many other factors can also impact how affected a person is by their past experiences. With lifestyle choices being a predictor of how healthy or unhealthy a person is, it is important to pay attention to which ACE subcategories prevent a healthy lifestyle.

Conclusion

Childhood adversity has the potential to affect health lifestyles in individuals for the entirety of their life. Finding potential factors within traumatic situations that have a more lingering effect on health can help to mitigate the effects. The purpose of this study was to examine the relationship between adverse childhood experiences and health lifestyles in women. Findings suggest that individuals with three or more ACEs are at higher risk of developing unhealthy lifestyle habits and have the ability to

impact lifestyle health the most in individuals who were victims of household dysfunction.

Tables

Table 1

Characteristics of Participants

	Entire Sample (<i>n</i> = 233)
Demographic Factors/Covariates	
Age	30.22 ± 20.85
BMI	26.62 ± 6.80
English as Primary Language	215 (92.3)
Race	
African American, Black	12 (5.2)
AI, Alaska Native	24 (10.3)
Asian	13 (5.6)
Asian Indian	2 (0.9)
Caucasian, White	186 (79.8)
Hispanic/Latino/Spanish	19 (8.2)
Middle Eastern	1 (0.4)
Multiracial	0
Highest Education Level	
High School Diploma/GED	79 (33.9)
Some College	94 (40.3)
Bachelor's Degree	29 (12.4)
Graduate or Professional Degree	16 (6.9)
PhD. or MD.	6 (2.6)
Adverse Childhood Experiences	3.04 ± 2.73
Abuse	1.05 ± 1.05
Neglect	0.61 ± 0.72
Household Dysfunction	1.37 ± 1.46
HPLP-II Summed Score	120.76 ± 24.08
Health Responsibility	1.92 ± 0.58
Physical Activity	2.11 ± 0.66
Nutrition	2.18 ± 0.55
Spiritual Growth	2.67 ± 0.67
Interpersonal Relationships	2.71 ± 0.66
Stress Management	2.33 ± 0.51

Note. BMI = body mass index kg/m²; Continuous variables represented with mean ± SD.

Categorical variables are represented with N (%).

Table 2*Characteristics of Participants Grouped by ACE Category*

	0 ACE (<i>n</i> = 87)	3+ ACE (<i>n</i> = 146)	<i>d</i>
Demographic Factors/Covariates			
Age	35.33 ± 24.33	27.18 ± 17.87*	
BMI	25.91 ± 6.64	27.04 ± 6.88*	
Race			
African American, Black	1 (1.1)	11 (7.5)	
AI, Alaska Native	7 (8.0)	17 (11.6)	
Asian	4 (4.6)	9 (6.2)	
Asian Indian	2 (2.3)	0	
Caucasian, White	73 (83.9)	113 (77.4)	
Hispanic/Latino/Spanish	3 (3.4)	16 (11.0)	
Middle Eastern	1 (1.1)	0	
Multiracial	1 (1.1)	2 (1.4)	
Highest Education Level			
High School Diploma/GED	23 (26.4)	56 (38.4)	
Some College	38 (43.7)	56 (38.4)	
Bachelor's Degree	1 (18.4)	13 (8.9)	
PhD. or MD.	1 (1.1)	5 (3.4)	
Adverse Childhood Experiences			
Abuse	0	4.85 ± 1.76**	
Neglect	0	1.68 ± .84**	
Dysfunction	0	.98 ± .68**	
	0	2.19 ± 1.27**	
HPLPP-II Summed Score			
Health Responsibility	133.22 ± 23.77	113.29 ± 21.04**	.90
Physical Activity	2.1 ± 0.61	1.81 ± .54**	.52
Nutrition	2.32 ± 0.68	1.98 ± .61**	.53
Spiritual Growth	2.35 ± 0.56	2.08 ± .51**	.51
Interpersonal Relationships	3.02 ± 0.62	2.47 ± .61**	.90
Stress Management	2.99 ± 0.61	2.54 ± .63**	.72
	2.56 ± 0.52	2.19 ± .45**	.89

Note. BMI = body mass index kg/m²; Cohen's *d* .20-.49=small, .50-.79 = medium, ≥ .80 = large;

***p* < .001, **p* < .05, †*p* ≤ .10. Continuous variables represented with mean ± SD.

Categorical variables represented with N (%).

Table 3*Characteristics of Participants Grouped by Age*

	Young (<i>n</i> = 187)	Old (<i>n</i> = 46)	<i>d</i>
Demographic Factors/Covariates			
Age	20.02 ± 2.08	71.72 ± 5.43**	
BMI	25.99 ± 6.43	29.23 ± 7.65*	
Race			
African American, Black	11 (5.9)	1 (2.2)	
AI, Alaska Native	21 (11.2)	3 (6.5)	
Asian	13 (7.0)	0	
Asian Indian	2 (1.1)	0	
Caucasian, White	144 (77.0)	42 (91.3)	
Hispanic/Latino/Spanish	19 (10.2)	0	
Middle Eastern	1 (.5)	0	
Multiracial	3 (1.6)	0	
Highest Education Level			
High School Diploma/GED	73 (39.0)	6 (13.0)	
Some College	84 (44.9)	10 (21.7)	
Bachelor's Degree	15 (8.0)	14 (30.4)	
PhD. or MD.	1 (.5)	5 (10.9)	
Adverse Childhood Experiences			
Abuse	3.26 ± 2.70	2.13 ± 2.68*	.42
Neglect	1.09 ± 1.03	.89 ± 1.14	.19
Dysfunction	.63 ± 0.72	.54 ± 0.72	.12
	1.54 ± 1.51	.70 ± 1.03**	.59
HPLPP-II Summed Score			
Health Responsibility	117.60 ± 23.20	133.91 ± 23.46**	-.71
Physical Activity	1.80 ± .54	2.40 ± 0.50**	-1.13
Nutrition	2.09 ± 0.65	2.15 ± 0.70	-.09
Spiritual Growth	2.09 ± 0.51	2.56 ± 0.55**	-.91
Interpersonal Relationships	2.62 ± 0.65	2.87 ± 0.71*	-.37
Stress Management	2.67 ± 0.66	2.89 ± 0.64*	-.31
	2.27 ± 0.50	2.54 ± 0.47**	-.54

Note. BMI = body mass index kg/m²; Cohen's *d* .20-.49=small, .50-.79=medium, ≥.80=large;

***p* < .001, **p* < .05, †*p* ≤ .10. Continuous variables represented with mean ± SD. Categorical variables are represented with N (%).

Table 4

Pearson Correlation Matrix for Constructs Included in the Study

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Age full group	–														
ACEs															
No ACEs															
2. BMI	1.83**	–													
ACEs	.13														
No ACEs	.31**														
3. Race/Ethnic Origin	-.16*	-.07	–												
ACEs	-.16	-.066													
No ACEs	-.13	-.12													
4. Education	.49**	.074	-.21*	–											
ACEs	.54**	.09**	-.21*												
No ACEs	.42**	.07	-.08												
5. Aces score full	-.17**	-.01	.21**	-.14*	–										
ACEs	-.03	-.19*	.23**	-.10											
No ACEs	--	--	--	--											
6. Abuse	-.083	.02	.21**	-.089	.85**	–									
ACEs	.15	-.09	.21*	.00	.57**										
No ACEs	--	--	--	--	--										
7. Neglect	-.06	-.03	.21**	-.07	.79**	.69**	–								
ACEs	.13	-.13	.21*	.01	.58**	.36**									
No ACEs	--	--	--	--	--	--									

(Continuation) Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
8. Household Dysfunction	-.23**	-.01	.13	-.16*	.87**	.53**	.50**	–							
ACEs	-.21*	-.13	.06	-.14	.70**	-.07	.03								
No ACEs	--	--	--	--	--	--	--								
9. HPLP II summed	.28**	-.15**	-.20**	.28**	-.42**	-.34**	-.37**	-.35**	–						
ACEs	.19*	-.13	-.23**	.17	-.20*	-.07	-.21*	-.12							
No ACEs	.27*	-.14	-.04	.38**	--	--	--	--							
10. Health Resp	.44**	.02	-.16*	.37**	-.27**	-.20**	-.23**	-.25**	.74**	–					
ACEs	.35**	.08	-.17	.29**	-.16	-.01	-.13	-.14	.67**						
No ACEs	.49**	-.02	-.08	.468*	--	--	--	--	.78**						
11. Physical Activity	.03	-.36**	-.05	.07	-.24**	-.24**	-.20**	-.18**	.65**	.28	–				
ACEs	-.01	-.32**	-.10	.02	-.08	-.10	-.07	-.01	.61**	.15					
No ACEs	-.02	-.39**	.16	.08	--	--	--	--	.62**	.36**					
12. Nutrition	.35**	-.08	-.19**	.34**	-.27**	-.19**	-.22**	-.27**	.73**	.55**	.51**	–			
ACEs	.39**	-.04	-.24**	.28	-.17*	.00	-.10	-.18*	.69**	.45**	.42**				
No ACEs	.25*	-.10	-.02	.38**	--	--	--	--	.75**	.63**	.54**				
13. Spiritual Growth	.16*	-.08	-.23**	.19**	-.40**	-.36**	-.40**	-.29**	.90**	.52**	.44**	.46**	–		
ACEs	.02	-.10	-.25**	.08	-.15**	-.12	-.24**	.00	.84**	.43**	.45**	.39**			
No ACEs	.19	.04	-.09	.29	--	--	--	--	.83**	.54**	.30**	.44**			
14. Interpersonal Rel	.15*	-.08**	-.16*	.16*	-.35**	-.24**	-.32**	-.32**	.81**	.50**	.32**	.40**	.79**	–	
ACEs	.05	-.07	-.15	.05	-.17*	.03	-.18*	-.16*	.80**	.44**	.31**	.37**	.74**		
No ACEs	.15	-.03	-.09	.26*	--	--	--	--	.76**	.50*	.18	.32**	.79**		
15. Stress Management	.22**	-.07*	-.12	.19**	-.36**	-.33**	-.31**	-.28**	.80**	.54**	.44**	.50**	.68**	.61**	–
ACEs	.15	.02	-.10	.11	-.15	-.12	-.14	-.05	.70**	.45**	.33**	.37**	.57**	.48**	
No ACEs	.20	-.12	-.05	.24*	--	--	--	--	.85**	.56**	.47**	.55**	.71**	.67**	

Note: * $p < .05$, ** $p < .01$.

Table 5

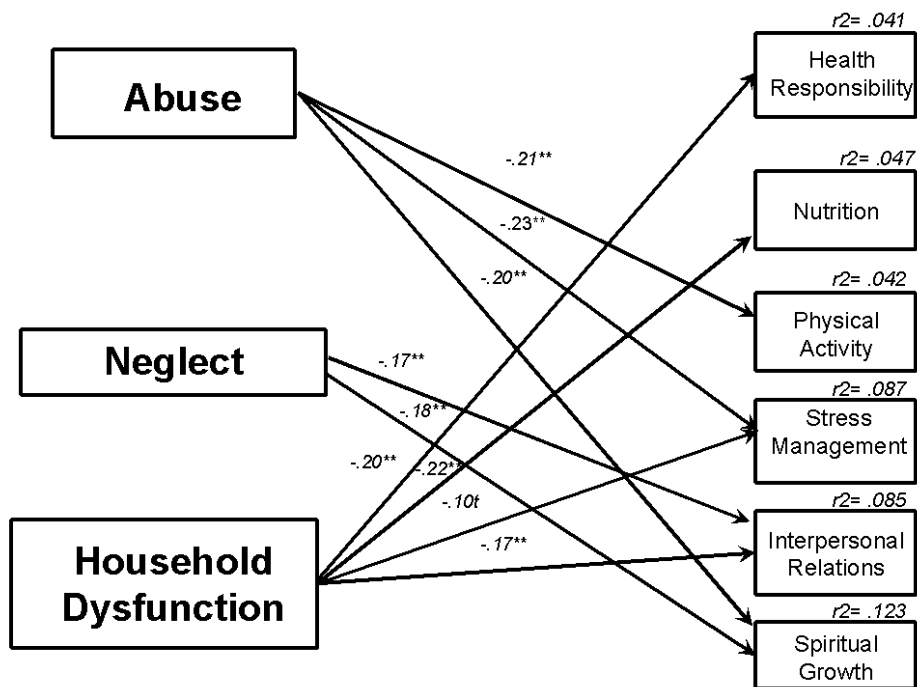
Standardized Direct Effects for Endogenous Constructs in the Model

Path	
Abuse→ Physical Activity	-.21**
Abuse→ Stress Management	-.23**
Abuse→ Spiritual Growth	-.20**
Neglect→ Interpersonal Relations	-.17**
Neglect→ Spiritual Growth	-.18**
Household Dysfunction→ Health Responsibility	-.20**
Household Dysfunction→ Nutrition	-.22**
Household Dysfunction→ Stress Management	-.10 [†]
Household Dysfunction→ Interpersonal Relations	-.17**

Figures

Figure 1

Structural Equation Model of ACEs Predicting Health Behaviors



APPENDICES

Questionnaires and Surveys

A1. Adverse Childhood Experience (ACE) Questionnaire

This Questionnaire will be asking you some questions about events that happened during your childhood; specifically the first 18 years of your life.

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often:
Swear at you, insult you, put you down, or humiliate you?
Or
Act in a way that made you afraid that you might be physically hurt?
Yes No
2. Did a parent or other adult in the household often:
Push, grab, slap, or throw something at you?
Or
Ever hit you so hard that you had marks or were injured?
Yes No
3. Did an adult or person at least 5 years older than you ever:
Touch or fondle you or have you touch their body in a sexual way?
Or
Attempt or actually have oral, anal, or vaginal intercourse with you?
Yes No
4. Did you often feel that:
No one in your family loved you or thought you were important or special?
Or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes No
5. Did you often feel that:
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
Or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes No
6. Were your parents ever separated or divorced?
Yes No
7. Were any of your parents or other adult caregivers:
Often pushed, grabbed, slapped, or had something thrown at them?
Or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
Or

Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes No

8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

Yes No

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

Yes No

10. Did a household member go to prison?

Yes No

A2. Lifestyle Profile II

DIRECTIONS: This questionnaire contains statements about your present way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling: N for never, S for sometimes, O for often, or R for routinely

- | | |
|--|---------|
| 1. Discuss my problems and concerns with people close to me. | N S O R |
| 2. Choose a diet low in fat, saturated fat, and cholesterol. | N S O R |
| 3. Report any unusual signs or symptoms to a physician or other health professional. | N S O R |
| 4. Follow a planned exercise program. | N S O R |
| 5. Get enough sleep. | N S O R |
| 6. Feel I am growing and changing in positive ways. | N S O R |
| 7. Praise other people easily for their achievements. | N S O R |
| 8. Limit use of sugars and food containing sugar (sweets). | N S O R |
| 9. Read or watch TV programs about improving health. | N S O R |
| 10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber). | N S O R |
| 11. Take some time for relaxation each day. | N S O R |
| 12. Believe that my life has purpose. | N S O R |
| 13. Maintain meaningful and fulfilling relationships with others. | N S O R |
| 14. Eat 6-11 servings of bread, cereal, rice and pasta each day. | N S O R |
| 15. Question health professionals in order to understand their instructions. | N S O R |
| 16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week). | N S O R |
| 17. Accept those things in my life which I can not change. | N S O R |
| 18. Look forward to the future. | N S O R |
| 19. Spend time with close friends. | N S O R |
| 20. Eat 2-4 servings of fruit each day. | N S O R |
| 21. Get a second opinion when I question my health care provider's advice. | N S O R |

- | | |
|--|---------|
| 22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling). | N S O R |
| 23. Concentrate on pleasant thoughts at bedtime. | N S O R |
| 24. Feel content and at peace with myself. | N S O R |
| 25. Find it easy to show concern, love and warmth to others. | N S O R |
| 26. Eat 3-5 servings of vegetables each day. | N S O R |
| 27. Discuss my health concerns with health professionals. | N S O R |
| 28. Do stretching exercises at least 3 times per week. | N S O R |
| 29. Use specific methods to control my stress. | N S O R |
| 30. Work toward long-term goals in my life. | N S O R |
| 31. Touch and am touched by people I care about. | N S O R |
| 32. Eat 2-3 servings of milk, yogurt or cheese each day. | N S O R |
| 33. Inspect my body at least monthly for physical changes/danger signs. | N S O R |
| 34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking). | N S O R |
| 35. Balance time between work and play. | N S O R |
| 36. Find each day interesting and challenging. | N S O R |
| 37. Find ways to meet my needs for intimacy. | N S O R |
| 38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day. | N S O R |
| 39. Ask for information from health professionals about how to take good care of myself. | N S O R |
| 40. Check my pulse rate when exercising. | N S O R |
| 41. Practice relaxation or meditation for 15-20 minutes daily. | N S O R |
| 42. Am aware of what is important to me in life. | N S O R |
| 43. Get support from a network of caring people. | N S O R |
| 44. Read labels to identify nutrients, fats, and sodium content in packaged food. | N S O R |
| 45. Attend educational programs on personal health care. | N S O R |
| 46. Reach my target heart rate when exercising. | N S O R |
| 47. Pace myself to prevent tiredness. | N S O R |
| 48. Feel connected with some force greater than myself. | N S O R |
| 49. Settle conflicts with others through discussion and compromise. | N S O R |
| 50. Eat breakfast. | N S O R |
| 51. Seek guidance or counseling when necessary. | N S O R |
| 52. Expose myself to new experiences and challenges. | N S O R |

A3. Demographic Questions

1. What is your age (in years)?
2. Is English your primary language?
3. What is your height (feet and inches)
4. What is your weight
5. What is your racial/ethnic origin?
6. What is the highest level of education you have achieved?

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