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This study investigates how Adverse Childhood Experiences (ACEs) and parenting styles interact to influence adult mental health and resilience. 94 U.S. adults completed the ACE questionnaire, Parental Authority Questionnaire (PAQ), Mental Health Inventory (MHI-38), and Resilience Scale (RS-14). Correlational analysis revealed authoritative parenting, experienced by participants from both mothers and fathers, and permissive parenting, experienced from fathers, were associated with lower distress and higher resilience. Regression analysis revealed that the strongest unique predictors of adult distress were participants ACE scores and parental authoritarian scores while the strongest unique predictors of resilience were ACE scores and fathers authoritative parenting scores. These findings indicate that the impact of parenting style on adult mental distress and resilience is dependent on the parent exhibiting the parenting style, ACEs, and age group.

I. Literature Review

The ACE (Adverse Childhood Experience) scale is a cumulative risk tool used to measure the amount of negative childhood experiences before the age of 18. The term ACE is similar to and often used interchangeably with childhood trauma or childhood maltreatment as the scale encompasses themes of physical abuse, verbal abuse, sexual abuse, and household dysfunction (Petrucelli, 2019). Although the amount of ACEs a person possesses has been correlated with negative health outcomes, the scale does not guarantee any specific outcome. This study utilizes ACEs as the primary independent variable, using the ACE framework as a measurement tool to quantify the cumulative burden of childhood adversity.

When analyzing psychological harm, researchers have found that ACEs have been associated with serious, adverse medical and psychological outcomes. When compared to those exposed to ACEs are 4 to 12 times more likely to develop depression or attempt suicide than those with no prior exposure to adverse childhood experiences (Felitti, 1989).

In children, the experienced stress from ACEs may impair the developing brain, changing the way a child copes with stressors, makes and maintains relationships, and increases their susceptibility to future mental health issues (Kalmakis, 2015). Exposure to high levels of continuous stress can alter gray matter within the brain leading to slowed cognitive and executive functioning, difficulty processing new and recovering old memories, and mood dysregulation (Navalta, 2018). This prolonged stress places the body in a constant state of hyperactivity, overworking the amygdala. Individuals experiencing prolonged stress responses due to ACEs may experience more perceived stress throughout their lives (Mosley-Johnson, 2021).

Resilience

Individuals exhibit a wide range of responses when processing stressful events. While some may experience negative mental health outcomes, others demonstrate resilience and maintain stable psychological functioning. Resilience is defined as the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma (Wingle et al., 2011). Psychological resilience is thought of as a multidimensional characteristic that can vary depending on the environment, time, culture, and life circumstances (Connor, 2003).

Although childhood trauma and ACEs are irreversible, resilience can help mitigate negative health effects and bolster positive growth. Establishing resilience can help reduce the impact of immediate stress from ACEs and the probability of developing later onset depression as an adult (Chang, 2021). Past research has shown that resilience can mediate the relationship between childhood events, trauma exposure, and mental health results, underscoring its significance in promoting wellness (Poole, 2017). Due to more effective coping skills and supportive networks, resilient individuals are better equipped to handle stress, maintain emotional stability, and develop effective coping mechanisms. These skills can also be applied to future stressors and obstacles children with strong resiliency maintain those skills through their adulthood and show greater competence as future parents (Conger, 2002).

Regarding family dynamics and childhood upbringing, the type of parental authority (PA) experienced during childhood can influence an individual's resilience and mental well-being. Although there are four main

parenting styles, this study examines authoritative, authoritarian, and permissive parenting styles and its effects on adult mental health outcomes. Authoritative parenting styles, characterized by warmth, supportiveness, and clear boundaries are associated with greater resilience, positive mental health outcomes, and positive sibling relationships (Chen et al., 2022; Volkom, 2019). On the other hand, authoritarian parenting style characterized by low warmth and high control with an emphasis on obedience results in lower reports of child self-esteem (Jadon, 2017). The permissive parenting style differs from the others as it operates with low control and high levels of warmth and responsiveness. The permissive parenting style lets the child dictate their own actions and is known for the non-punitive and accepting nature that parents show toward their children's behavior and impulses. They make few demands for orderly behavior and do not encourage their children to obey external standards (Uji, 2014).

II. Methodology

In this cross-sectional, correlational survey study; an online survey was administered to adult participants via an online research platform.

Researchers utilized convenience sampling to select participants from an online research platform (Prolific) that are adult (18+) United States citizens, enrolled as Prolific participants, and fluent in English. A sample of 94 individuals was solicited through Prolific's prescreening process. Respondents ranged from 18 to 55+ years with the largest age group being between 25-34 years of age (34.0%). The sample was ethnically diverse but was predominantly White (71.3%). Prior to data collection, respondents provided informed consent for their data to be included in the study.

Participants were solicited from the population of United States citizens utilizing Prolific. Participants from within the preselected demographic elected to participate in the study and were directed to an online survey via Qualtrics. All participants were asked to read and agree with an informed consent document (Appendix A) before the scales were presented. Once the participant agreed to the informed consent document, they were asked to enter demographic information (age group, ethnicity, current work status, student-athlete status) and complete the four scales (ACE, PAQ, MHI-38, RS14). Various attention checks were included along with scale items to ensure participants were providing accurate and truthful responses. Once completed, the survey respondents were redirected back to Prolific to receive their incentive. Scales were scored by researchers according to the instructions of the respective authors.

Four scales, already established to be psychometrically valid and reliable, were administered: the Adverse Childhood Experiences Questionnaire (ACE), the Mental Health Inventory (MHI-38), the 14-item Resilience Scale (RS14), and the Parental Authority Questionnaire (PAQ).

The Adverse Childhood Experience (ACE) questionnaire (Felitti et al., 1998) was used to assess the presence and cumulative number of adverse experiences during childhood. The ACE includes 10 dichotomous (Yes/No) items that measure exposure to abuse (emotional, physical, and sexual) and household dysfunction (e.g., neglect, substance abuse, domestic violence, and parental dysfunction). The total ACE score is obtained by totaling the number of "Yes" responses, with higher scores reflecting greater exposure to childhood adversity.

The PAQ (Buri, 1991) was used to assess the parenting styles under which participants were raised. The assessment consists of 30 Likert-type items rated on a 5-point scale for each parent, which measures three distinct parenting styles: permissiveness, authoritarianism, and authoritarianism. This produces scores, one for each parent, ranging from 10 to 50. Higher scores indicate greater alignment with the corresponding parenting style. Additionally, higher scores in authoritarianism styles are associated with lower nurturing, higher scores in authoritarianism styles indicate greater nurturance, and permissiveness scores are considered unrelated to nurturance.

The MHI-38 (Veit & Ware, 1983) was designed to measure general psychological well-being and distress. It was developed as a part of the National Health Insurance Study and consists of 36 Likert type items rated on a 6 point scale, as well as 2 Likert type items rated on a 5 point scale. Scoring provides six subscale scores, two global scale scores, and an overall global mental health index. The six subscales are: general positive affect, life satisfaction, emotional ties, depression, anxiety, and loss of behavioral/emotional control. The two global scales indicate the level of psychological well being and psychological distress. Higher global mental health index scores indicate greater psychological well being. Higher scores in the two global scales and six subscales indicates greater amounts of the psychological constructs each scale is designed to measure.

The RS14 (Wagnild & Guinn, 2011) was used to assess participants' current level of resiliency. It consists of 14 Likert type items rated on a 7-point scale, resulting in a total Resiliency Score ranging from 7-98 points. Higher scores indicate a greater ability to cope with environmental stressors or changes.

Retrospective report reliability of the ACE is suggested to be relatively stable over time (Dube et al., 2004). The test-retest reliability in question responses and the resultant score was found to be moderate to substantial in a study conducted on adults attending a primary care clinic. Overall, results were indicative of good to excellent reliability in reports of ACEs during adulthood.

Buri's PAQ has been shown to be psychometrically sound and a valid measure of parental authority prototypes as a result of several studies (Buri, 1991). Test-retest reliability and internal consistency reliability were high for mother's and father's permissiveness, authoritarianism, and authoritativeness. Content-related, criterion-related, and discriminant-related validity were also tested and found to be respectable.

Reliability estimates for all scales of the MHI-38 are more than satisfactory with scores ranging from 0.92 to 0.96 for the MHI and scales based on the 2 higher order factors and from 0.83 to 0.91 for the scales based on the 5 lower order factors (Veit & Ware, 1983). Cross-validation and combined-sites supported the hierarchical factor model, consisting of higher order factors, lower order factors, and an underlying mental health factor.

A review of 12 completed studies (Wagnild, 2009) found the RS-14 to perform reliably in populations of different ages, socioeconomic backgrounds, and educational backgrounds. It was found to have high internal consistency reliability with Cronbach's alpha coefficients ranging between 0.72 to 0.94. Relationships between RS-14 scores and variables hypothesized in the sample studies were supported indicating construct validity.

Multiple regression analysis was performed to determine which childhood factors independently predict adult mental health and resilience when considered together. Hierarchical linear regression with model comparison was used to assess if age group, ACE, and PAQ can be used to predict RS-14 scores. Another hierarchical linear regression with model comparison was used to determine if age group, ACE, and PAQ can be used to predict MHI-38 scores. Subgroup comparison was also performed to determine the effects of demographic variables (age, ethnicity, current work status, student athlete status) on the relationships between childhood experiences and adult mental health and resilience.

III. Results

Correlation analyses show an expected correlation in higher ACE scores with higher psychological distress ($r \approx +0.51$, $p < .001$) and lower resilience ($r \approx -0.36$, $p = .001$). Authoritative parenting correlated with lower distress ($r \approx -0.49$, $p < .001$ for both mothers and fathers) and greater resilience (mother: $r = +0.44$, father: $r = +0.52$, both $p < .001$). Authoritarian parenting showed little correlation with adult resilience ($r \approx +0.01$ to $+0.14$, n.s. for both mothers and fathers) or distress (father $r = +0.13$, mother $r = -0.14$; both n.s.). Participant's mother's permissiveness scores showed no significant correlation with outcomes ($|r| \sim 0.20$, $p \sim .05$) but father's permissiveness scores were associated with higher resilience ($r = +0.37$, $p = .0005$) and lower distress ($r = -0.37$, $p = .0005$).

Multiple regression analysis indicated that age group, ACE score, and PHQ scores explained 44% of variance in MHI-38 scores. The strongest unique predictors were ACE scores and parental authoritarianism scores. Each additional point on the ACE predicted a higher distress score ($B = +0.154$, $p < .001$). Higher father authoritarian scores significantly predicted higher distress ($B = +0.045$, $p < .001$) while mother authoritarian scores were inversely related to adult distress ($B = -0.046$, $p < .001$). In the multivariate context, mother's permissiveness scores had a protective effect on adult mental health with higher permissiveness scores predicting lower adult distress ($B = -0.032$, $p = .034$). Father permissiveness scores were not a significant predictor ($p = 0.20$) of adult distress. Neither mother's nor father's authoritative scores demonstrated a significant effect ($p = 0.15$, $p = 0.28$) on adult distress in the regression model. Age was a significant predictor of MHI-38 scores, older age groups reported slightly lower distress ($B = -0.17$ per age category, $p = .009$).

Multiple regression analysis indicated that age group, ACE score, and PHQ scores explained 31% of variance in RS-14 scores. The strongest unique predictors were ACE scores and father's authoritative parenting scores. Greater ACE scores significantly predicted lower adult resiliency scores ($B = -1.38$, $p = .035$). Father authoritative scores were the only parenting scores that significantly predicted resiliency. Higher father's authoritative scores predicted significantly higher resiliency ($B = +0.45$, $p < .025$). Mother's authoritative scores did not demonstrate significant prediction ($p = 0.48$) of adult resiliency. Mother's and father's authoritarian ($p = 0.15$, $p = 0.15$) and permissive ($p = 0.44$, $p = 0.89$) scores did not significantly predict resilience in the multiple regression model. Age was again a significant predictor, with older age groups reporting higher resilience scores ($B = +3.15$, $p = 0.009$).

IV. Discussion

Correlational analysis indicates that participants that described their parents as authoritative, supportive and communicative had better mental health outcomes and perceived their own resilience as high. This finding was complicated by multiple regression analysis where authoritative scores from either parent did not display significant effects on adult distress which may indicate that in the multivariate context effects are masked by other predictors, such as low ACEs. Unclear direct impact of authoritarian parenting on participants as a single variable was demonstrated in the correlational analysis. In the regression analysis, this relationship was expanded upon where authoritarian parenting had significant effects on distress but not resilience. Participants that saw their fathers as strict and disciplinary showed significantly higher distress, whereas those that saw their mothers showed significantly lower distress. This relationship suggests that, in the sample, authoritarian fathers can promote

distress or mental health struggles into adulthood, while maternal strictness shows a protective effect. Due to the limitations of this survey, this relationship warrants further investigation. Correlational analysis showed significant relationships between father's permissiveness and higher resiliency and lower distress while mother's permissiveness showed no significant correlation with the outcomes tracked in this study. In the multivariate context, father's permissiveness did not significantly predict distress or resilience, suggesting that any potential protective effect may be obscured or attributed to other variables. Mother's permissiveness had a significant protective effect against adulthood distress but no significant effect on resilience. This could indicate that participants whose mothers allowed a high degree of autonomy fostered more mentally well adulthood experiences. This may be due to an overlap in self-report measures, where some permissiveness items may conceptually align with aspects of authoritative parenting. Age was a significant predictor in regression models as older age brackets demonstrated both lower distress and higher resilience. This could be indicative of mental distress diminishing with age and resilience increasing or a possible tendency for older generations to report more positively.

Overall, the impact on parenting style on adulthood distress and resilience appears to depend on which parent—mother or father—exhibited that style of child-rearing, ACEs, and age group. It appears that having a father who is harsh and strict results in greater distress in adulthood; however, the effects on resilience may be better explained by, or obscured by, other contributing factors. Fathers that nurture and set clear expectations appear to affect adulthood resilience, but have a more nuanced or unobserved effect on distress. Permissive fathers do not appear to have a significant negative or positive effect on their child's adult mental wellbeing. Mothers who were harsh and strict fostered lower distress but did not uniquely influence their child's resiliency. This could mean that in tumultuous family settings, authoritarian mothers offered structure and respite which fostered better adult mental wellbeing. Authoritative mothers did not appear to affect their child's adult outcomes, as tracked in this survey, in negative or positive ways that were not obscured or better explained by other variables. While permissive mothers did not appear to hinder or foster development of resiliency in their children, they were associated with lower levels of adult distress—possibly indicating a buffering effect against childhood stress. Regardless of ACEs or parenting style, age remained a significant predictor of both distress and resilience.

Given the small sample size in this exploratory study (94), future research with larger samples is needed to further examine the effects of individual variables and expand upon observed relationships. This research further explores the interrelationships between parenting styles and their different combinations—for example, individuals raised by an authoritarian father and an authoritative mother. Examining how different parenting style combinations interact with the number of Adversity Childhood Experiences (ACEs) may help identify both protective and detrimental patterns within high-adversity environments. These lines of inquiry may yield more generalizable insights to identify and support at-risk populations.

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