trauma care

MDPI

Review

Current Uses and Contributions of the Protective and Compensatory Experiences (PACEs) Measure: A Scoping Review

Natale Schmitz, Katie Aafjes-van Doorn and Vera Békés *

Ferkauf Graduate School of Psychology, Yeshiva University, New York, NY 10461, USA; nschmitz@mail.yu.edu (N.S.); katie.aafjes@yu.edu (K.A.-v.D.)
* Correspondence: vera.bekes@yu.edu

Abstract: Background: The effects of adverse childhood experiences on adult psychopathology have received ample attention in empirical studies. Despite the extensive focus on the effects of childhood adversity, research on the protective factors that might mitigate these effects remains limited. The most common measure of childhood adversity is the Adverse Childhood Experiences (ACEs) questionnaire. In 2016, a novel addition, called the 'Protective and Compensatory Experiences' (PACEs) questionnaire was created to be administered in tandem with the ACEs measure. Objective: Developing an understanding of PACEs can provide insight into the positive impacts of protective factors and potential ways to build resiliency among those with adversity. The aim of the present review is to provide an overview of the uses and findings of the PACEs measure and its potential contributions in the field. Methods: A literature search was used to identify peer-reviewed publications, dissertations, and conference presentations on empirical data, reporting on the administration of the PACEs measure to a clinical or community population and their findings. Results: A total of 17 studies were identified that used the PACEs. Ten empirical studies were used to explore the impact of PACEs within the realm of child development, including research on pregnant mothers, parenting, and child resilience. Six empirical studies were used to investigate the prevalence of PACEs in various at-risk populations, such as sexual minorities, racial minorities, veterans, individuals with chronic pain, and healthcare providers after the COVID-19 pandemic. One empirical study used PACEs to track attrition in longitudinal research studies. Conclusions: Overall, there appears to be little research on the PACEs, but the empirical studies that we identified suggest that PACEs may increase resiliency among various populations. Future research into positive and negative childhood experiences would benefit from the information assessed with the PACEs measure.

Keywords: trauma; protective and compensatory experiences; resilience; review

check for updates

Citation: Schmitz, N.; Aafjes-van Doorn, K.; Békés, V. Current Uses and Contributions of the Protective and Compensatory Experiences (PACEs) Measure: A Scoping Review. *Trauma Care* **2024**, *4*, 229–248. https://doi.org/10.3390/traumacare4030021

Academic Editor: Carryl P. Navalta

Received: 31 May 2024
Revised: 6 September 2024
Accepted: 19 September 2024
Published: 23 September 2024

Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

Researchers have thoroughly investigated the detrimental impacts of Adverse Childhood Experiences (ACEs), but less is known about the impact of resilience factors. Early research on resilience focused on identifying qualities of children who achieved success despite adversity and has shifted to encompass qualities of their environment as well [1]. Childhood experiences, both positive and negative, have been increasingly researched in the past six years with the creation of multiple measurement scales, including the Benevolent Childhood Experiences (BCEs) scale, the Protective and Compensatory Experiences Scale, and the Positive Childhood Experiences Index [2,3]. A recent systematic review examining positive childhood experiences (PCEs), as measured by various scales and outcomes, found that PCEs predict favorable outcomes independent of childhood adversity [4].

In 2016, the Protective and Compensatory Experiences (PACEs) measure was developed to identify specific positive experiences that promote resilience and healthy development in youth prior to age 18 [5]. While the PACEs measure has been used for quite some time, there has not yet been an overview of its uses and findings. To date, studies using

this measure have been applied to child and adolescent development, including parenting, pregnancy, and risky behaviors in youth; at-risk populations; and research attrition. In the context of this review, resilience is defined as "the capacity to adapt successfully to disturbances that threaten function, viability, or development" [6]. Specifically, we aim to identify how the PACEs measure is being used, in what contexts, and its unique contributions within the field.

1.1. Protective and Compensatory Experiences (PACEs)

For youth, early experiences can set the stage for future development, both helping and hindering their growth into adaptive individuals. Protective and Compensatory Experiences identify events prior to age 18 that promote positive outcomes in the face of adversity. For years, researchers have begun characterizing these resilience-promoting qualities of children's environments, identifying the types of supportive relationships and resources that mitigate the effects of ACEs [7]. Hays-Grudo and Morris specifically identified 10 items that make up the PACEs scale, including unconditional love, having a best friend, volunteering in the community, being part of a group, having a mentor, living in a home that is safe and clean with enough food, getting an education, having a hobby, being physically active, and having rules and routines [8]. These items can be categorized into two domains, supportive relationships and enriching resources, both consisting of five items within the scale; and they were designed to be administered with the 10-item ACEs questionnaire. In fact, the 10-item PACEs appear to be a reliable and valid assessment of protective experiences and reduce harsh parenting in adults with ACEs [8].

1.2. ACEs and PACEs

Due to the creation of the PACEs as a comparable measure to the ACEs, there have been research efforts geared toward understanding the relationship between these two constructs [8,9]. Growing bodies of evidence suggest that PACEs can mitigate the effects of ACEs by providing opportunities for love, safety, and trust; developing cognitive, social, and emotional competencies, and acquiring behaviors and habits that protect and promote continued development [8]. Specifically, research indicates that adults who report more PACEs tend to report fewer ACEs. PACE was found to relate to less depression, anxiety, substance use, difficulties in emotion regulation, and life stress [10]. They appear to protect adults from depressive symptoms, such that greater PACEs weaken the link between ACEs and depression [8,10]. Thus, just as ACEs appear to have cumulative negative effects, PACEs also appear to have cumulative protective effects on adult functioning, lessening negative impacts.

For individuals with high ACEs, learning about ACEs without PACEs could be devastating to an individual, creating a negative narrative of their early experiences. The addition of the PACEs measure can instill hope in these individuals and can help others make sense of their lives, creating a more complete strengths-based narrative [8]. Thus, while the PACEs measure was designed to be considered in the context of early life adversity, it may also be useful in highlighting strengths and protective elements of everyday life that may already exist or can be engineered to occur routinely and frequently [7].

1.3. PACEs Model

Researchers created the PACEs heart model in response to the ACEs pyramid model to highlight the positive effects of certain experiences [8], p.129. These models integrate developmental science, clinical psychology, and mental and physical health research to detail possible life course trajectories that stem from childhood experience [7]. Specifically, the ACEs pyramid model exemplifies the negative impacts of ACEs, including disrupted neurological development, social and cognitive impairment, adoption of health-risk behaviors,

and disease [7]. Conversely, the PACEs heart model posits that supportive relationships and resources lead to optimal neurological development; social, emotional, and cognitive functioning; healthy behaviors; achievement of developmental milestones; and health and longevity [7]. The model can be considered in a top-to-bottom fashion. For example, if children have nurturing relationships and necessary resources to grow and thrive, protective experiences will increase their secure attachment and optimal neurological, social, and cognitive function. In turn, successful development can lead to the adoption of healthy behaviors and the maintenance of positive relationships [11]. These hierarchical models underpin both PACEs and ACEs, highlighting their influences across the lifespan.

1.4. Development of the PACEs Measure

Specifically, Hays-Grudo and Morris scoured developmental, social, and cognitive psychology research to identify a list of experiences that were shown to promote resilience in the face of adversity [8]. Basic theories and research included Erikson's psychosocial theory of development, especially identity and moral development; attachment theory; parenting style research; and resilience research [8]. In 2014, Masten published an extensive review of the resilience literature which provided a short list of widely reported factors associated with resilience. Her list includes "effective caregiving and quality parenting; close relationships with other capable adults; close friends and romantic partners; intelligence and problem-solving skills; self-control, emotion regulation, planfulness; motivation to succeed; self-efficacy; faith, hope, belief life has meaning; effective schools; and effective neighborhoods, collective efficacy" [6], p. 148. Hays-Grudo and Morris greatly utilized this review to choose the PACE items; however, the PACEs focus primarily on modifiable resilience factors and processes, relationships that can be developed and strengthened, as well as resources that can be provided or enhanced [8]. The compiled list from research became the Protective and Compensatory Experiences (PACEs) scale.

The initial testing of the measure occurred at Oklahoma State University. A study was administered in an undergraduate research methods course in which students were administered ACEs, PACEs, and other surveys to friends, family members, and other students [12]. Analyses revealed that higher PACEs were associated with lower ACEs and higher education and income. It also showed that PACEs protected against negative parenting attitudes among individuals with high ACEs. Thus, this study provided initial evidence that PACEs do in fact protect against the negative effects of ACEs, especially harsh parenting attitudes [12].

To psychometrically test this measure, researchers administered the PACEs survey to more than 900 adults across the United States using an online survey platform. Results from this study replicated the findings that PACEs were associated with higher income and education, as well as greater self-reported adult attachment security and mental well-being [5]. These results demonstrated reliability and validity for the PACEs measure in that people from different backgrounds answered the PACEs questionnaire in an internally consistent way and because PACEs were associated with expected factors such as ACEs, depressive symptoms, and parenting attitudes and behaviors [3]. Following the PACEs scale creation, numerous other researchers have utilized the measure to identify resilience factors in diverse populations [13–15]. Thus, it is important to develop an understanding of ways in which the PACEs measure can and has been utilized, including its strengths and limitations. For these reasons, a scoping review was conducted in order to systematically map the research conducted in this area, as well as to identify gaps in existing knowledge.

1.5. The Current Review

The aim of the present review is to provide a scoping review of the use and findings of the PACEs measure and its potential contributions in the field. Previous research has identified over 363 unique trauma measures, many of which utilize variations of common approaches to measure a trauma construct, as well as 19 resilience measures that are primarily in the early stages of development [16,17]. As mentioned, Han et al. also conducted a general review of the relationship between positive childhood experiences and outcomes; however, this study did not specifically focus on the PACEs measure and its utilization [4]. The PACEs measure is unique in its creation as a supplement to the ACEs measure and in its items that often work in concert with one another to promote a child's competence and resilience [8,18,19]. Thus, this scoping review examines the literature, including peer-reviewed publications, doctoral dissertations, and conference presentations, that utilize the PACEs measure to inform its use in future research and clinical work within the field of trauma and resilience.

2. Methods

2.1. Eligibility Criteria

For this review, a literature search was used to identify peer-reviewed studies and grey literature (e.g., dissertations and conference presentations) that reported on original empirical data since the creation of the PACEs measure in 2016 until the last search on 20 March 2024. For the literature search, PRISMA guidelines were followed, and this scoping review was registered in OSF (https://osf.io/txdya). To be included, studies had to be peer-reviewed publications, dissertations, or conference presentations on empirical data, reporting on the administration of the PACEs measure to a clinical or community population. Studies with any type of research design and research questions were included.

2.2. Search Strategy and Results

We conducted a literature search using the following combination of keywords in titles and abstracts: protective OR 'compensatory experiences' AND measure OR questionnaire OR survey OR scale, in the following databases: PubMed and Psych Info, and backward searching articles referred to included studies. The initial search yielded a total of 175 studies. Prior to screening, 11 duplicate records were removed automatically using Covidence systematic review software. Based on the abstract, 61 of the studies appeared to meet the inclusion criteria and were read in full. Of the 61 articles read in full, 44 were excluded for the following reasons: (a) the PACEs measure was not administered, (b) original empirical data were not reported or the article was theoretical in nature. The final review consists of 17 empirical studies, including grey literature. Titles, abstracts, and full papers were screened, and data extraction of eligible studies was performed independently by one investigator (NS). For each article, information was extracted manually regarding study type, type of sample, country, research question, measures used, mean and standard deviation of PACEs, and relevant findings (see Table 1). See Figure 1 for a representation of the results at each stage of the systematic search.

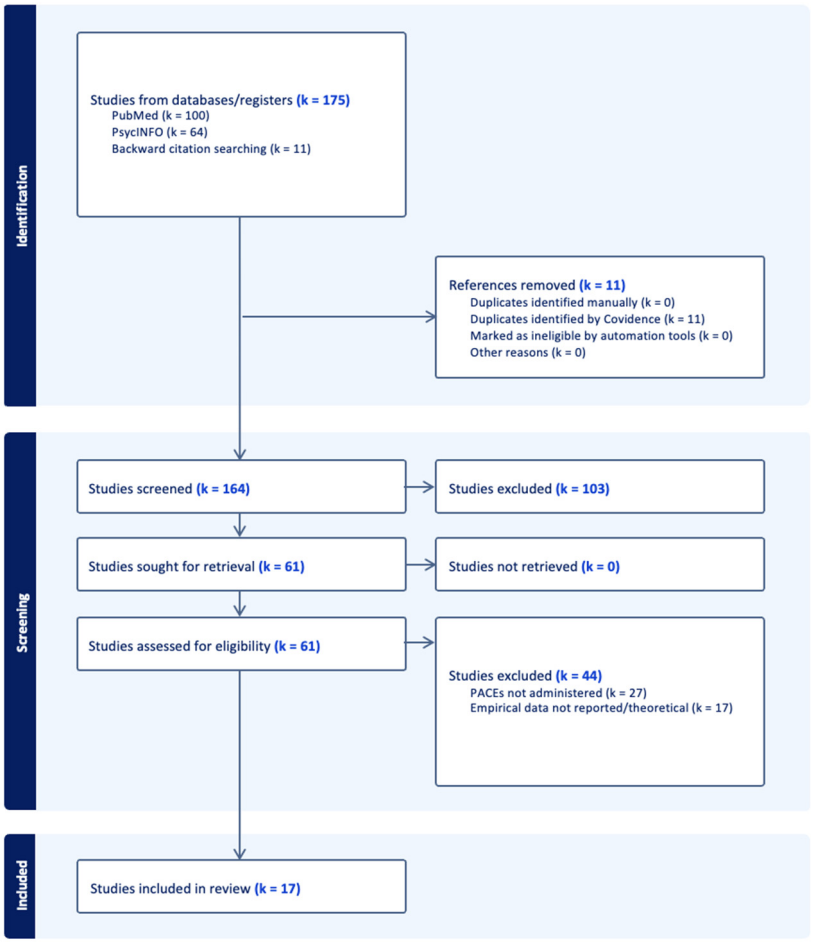


Figure 1. Flowchart of search procedure.

3. Results

3.1. Study Characteristics

A total of 17 empirical studies were identified to be included in the review (see Table 1). Table 1 provides a detailed overview of the study characteristics and results of the studies included in the review. These studies were conducted primarily in the United States (k = 16, 94.1%) with one study conducted in the United States and Puerto Rico (k = 1, 5.9%) and one study conducted in Nigeria (k = 1, 5.9%). The publication dates ranged from 2018 [14,20] to 2024 [10]. The most common research question examined the link between ACEs, PACEs, and another variable of interest (k = 8, 47.1%).

Table 1. Study characteristics and findings.

Study	Study Type	Type of Sample	Sample Size	Country	Focus Related to PACE	Research Question	Measures Included	PACEs Mean (*SD*)	Findings Related to PACEs Measure
Anderson [21]	Doctoral dissertation, Oklahoma State University, Department of Human Development and Family Science	Pregnant women	159	USA	Psychological outcomes	How are PACEs associated with adult attachment styles?	ACEs; PACEs; Adult Attachment Styles Questionnaire (ASQ); Parental Reflective Functioning Questionnaire (PRFQ-18); Pregnancy Risk Assessment Monitoring System (PRAMS)	7.07 (2.93)	Ambivalent attachment style was negatively associated with PACEs. Secure attachment style was positively associated with PACEs. Parental reflective function, certainty of mental states were positively associated with PACEs.
Armans et al. [22]	Peer-reviewed journal article, Adversity and Resilience Science (2020)	Pregnant women	138	USA	Psychological outcomes	What is the link between maternal ACEs and PACEs and pregnancy-specific stress? Does PACEs mediate and moderate the relationship between ACEs and stress?	ACEs; PACEs; Prenatal Distress Questionnaire (PDQ); Brief Resilience Scale (BRS)	7.03 (2.92)	Resilience mediated the associations between PACEs and pregnancy-specific stress and moderated the association between ACEs and pregnancy-specific stress. High levels of resilience were protective against pregnancy-specific stress at low and moderate levels of ACEs.
Branch [13]	Master's thesis, Johns Hopkins University, Office of research administration	Parents from low-income families (from Oklahoma State's Legacy for Children program)	93	USA	Attrition and retention	What is the relationship between ACEs, PACEs and the retention rates of the Legacy for Children Project conducted by researchers at Oklahoma State University?	ACEs; PACEs	7.32 (2.34)	No relationship between high PACEs and ACEs scores and retention rates.
Colquitt [23]	Peer-reviewed conference presentation, Tennessee Tech University Student Research Day	Children (ages 6–17) * Parent-report	18,714 surveys	USA	Psychological outcomes	What is relationship between ACEs, PACEs and children's ability to flourish? Does PACEs moderate the relationship between ACEs and children's ability to flourish?	ACEs; PACEs; 2019 National Survey of Children's Health * PACEs acquired from large data set with comparable items	Not reported	PACEs serve as a moderator of the relationship between ACEs and flourishing. Results indicated an increased number of PACEs are correlated with improved flourishing at all levels of ACEs.

Table 1. *Cont.*

Study	Study Type	Type of Sample	Sample Size	Country	Focus Related to PACE	Research Question	Measures Included	PACEs Mean (*SD*)	Findings Related to PACEs Measure
Crockett et al. [24]	Peer-reviewed conference, APHA's 2020 Virtual Annual Meeting and Expo	Alcohol-consuming females	165	USA	Protective factors	What are the risk and protective factors associated with vaping in alcohol-consuming females?	ACEs; PACEs; Children of Alcoholics Screening Test (CAST-6); Center for Epidemiologic Studies Depression Scale (CESD-R)	8.18 (1.54)	ACEs, PACEs, and CAST-6 all had no relationship to vaping incidence. Increasing age was associated with a decreased vaping incidence, and increasing depression was associated with increased vaping incidence.
Huffer [20]	Doctoral dissertation, Oklahoma State University, Department of Human Sciences	Mothers	45	USA	Protective factors	Examined whether maternal adversities and protective factors in childhood are predictors of interactions with their young infants.	ACEs; PACEs	8.93 Standard deviation (SD) not reported	PACEs predicted maternally appropriate mind-minded commenting but were not predictive of synchrony or intrusiveness.
Korb and Bahago [14]	Peer-reviewed journal article, Nigerian Journal of Basic and Applied Psychology	Nigerian young adult students	89	Nigeria	Protective factors	Examined environmental protective factors that predict resiliency among Nigerian young adults.	PACEs; Connor-Davidson Resiliency Scale (CD-RISC)	Not reported	Protective experiences via the PACEs measure that predict resiliency among Nigerian young adults, included a safe home and community, physical activity, positive social relationships, participation in spiritual activities, and opportunities to pursue activities of interest.
Lamson, Richardson, and Cobb [25]	Peer-reviewed journal article, Military Medicine (2020)	Army active-duty personnel	97	USA	Protective factors	Explore the interplay between ACEs and PACEs among active-duty service members.	PACEs; Childhood experiences survey (CES); Adult experiences survey	Men 8.30 (1.67), Women 8.64 (1.81)	All the study's participants experienced at least two protective experiences, with having a safe home identified as the most frequent protective factor. Significant findings pertaining to ACEs and PACEs were found by service member's sex and rank, with higher ACE scores for men and enlisted service members.

Table 1. *Cont.*

Study	Study Type	Type of Sample	Sample Size	Country	Focus Related to PACE	Research Question	Measures Included	PACEs Mean (*SD*)	Findings Related to PACEs Measure
Mack [26]	Doctoral dissertation, Utah State University, Department of Psychology	Longitudinal adolescents to adults	12,297	USA	Protective factors	Utilized the National Longitudinal Study of Adolescent to Adult Health to investigate relations among adversity, PACEs, and adulthood health.	ACEs; PACEs; Center for Epidemiologic Studies Depression Scale (CESD) * PACEs acquired from large data set with comparable items	5.98 (1.24)	PACEs predicted self-rated health. PACEs did not serve as a moderator for any of the relations between adversity variables (ACEs and discrimination) and health outcomes. PACEs did not influence the relations between adversity variables (ACEs and discrimination) and any health outcomes.
Moody et al. [15]	Peer-reviewed journal article, Psychological Medicine	Sexual minority men (from UNITE study)	6303	USA and Puerto Rico	Psychological outcomes	Examined the associations of ACEs and PACEs with suicidal ideation and suicide attempts in adulthood via thwarted belongingness and perceived burdensomeness among sexual minority men.	ACEs; PACEs; Interpersonal Needs Questionnaire; Center for Epidemiologic Studies Depression Scale (CESD-R); Ask Suicide-Screening Questionnaire Toolkit	7.48 (2.03)	Each additional protective childhood experience was prospectively associated with 15% lower odds of past-week suicidal ideation and 11% lower odds of past-year suicide attempts.
Morris et al. [11]	Peer-reviewed journal article, Adversity and Resilience Science (2021)	U.S. Parents	109	USA	Protective factors	Examined associations between ACEs, PACEs, and attitudes towards nurturing and harsh parenting in an ethnically diverse sample of parents.	Adult–Adolescent Parent Inventory (AAPI-2); ACEs; PACEs	7.50 (2.25)	PACEs were negatively correlated with ACEs and positively correlated with nurturing parenting attitudes and parent income and education levels. Moderation analyses indicated the association between ACEs and harsh parenting attitudes was conditional upon the level of PACEs. When PACE scores were low, but not when PACE scores were average or high, ACEs were associated with harsh parenting attitudes, suggesting a buffering effect of PACEs.

Table 1. *Cont.*

Study	Study Type	Type of Sample	Sample Size	Country	Focus Related to PACE	Research Question	Measures Included	PACEs Mean (*SD*)	Findings Related to PACEs Measure
Pierce et al. [27]	Peer-reviewed conference presentation, Society for Neuroscience (2022), San Diego, CA	Healthcare providers after the COVID-19 pandemic	24	USA	Protective factors	Examines the composition and diversity of the salivary microbiome of healthcare providers in Harmon County, Oklahoma and explores whether there are correlations to the number of PACEs they experienced.	ACEs; PACEs	Not reported	From the 19 PACE items score, they found that 26% experienced equal or less than 7 protective experiences while growing up, and 47% of those experienced that their parents divorced or separated.
Ratliff et al. [10]	Peer-reviewed journal article, Emerging Adulthood (2024)	Undergraduate students	550	USA	Psychological Outcomes	Examined the moderating role of PACEs on the effects of ACEs on depression, anxiety, substance use, and emotion regulation difficulties in undergraduate students.	ACEs; PACEs; Student Drug Use Questionnaire; Difficulties in Emotion Regulation Scale (DERS); Patient Health Questionnaire-9 (PHQ-9); Generalized Anxiety Disorder Questionnaire (GAD-7)	8.5 (1.7)	PACEs were associated with fewer symptoms of depression and anxiety, substance use, and ER difficulties compared to ACEs. PACEs significantly moderated the relationship between ACEs and depression, such that greater PACEs weakened the relationship between ACES and depression. PACEs did not significantly moderate relationships between ACEs and anxiety, substance use, or ER difficulties.
Richardson et al. [28]	Peer-reviewed journal article, Psychological Trauma: Theory, Rresearch, Practice, and Policy	Active-duty service members	135	USA	Protective factors	Evaluated if the PACEs are a reliable measure to use with military samples and examined the validity of the PACEs measure when exploring protective experiences in relation to ACEs and adult traumatic stress.	ACEs; PACEs; Adult Experiences Survey (AES)	PACEs model fit: $\chi 2$ (35, $n = 120$) = 38.50	The reliability and validity of PACES indicate that Service members who are involved in PACEs as youth are less likely to have experiences of stress both as children and as adults. PACES psychometrics offer a reliable and valid measure to use when exploring the risk and resilience experiences of Service members across the lifespan.

Table 1. *Cont.*

Study	Study Type	Type of Sample	Sample Size	Country	Focus Related to PACE	Research Question	Measures Included	PACEs Mean (*SD*)	Findings Related to PACEs Measure
Ronis et al. [29]	Peer-reviewed journal article, Children	U.S. Children * Parent-report	1434	USA	Protective factors	What is the prevalence of different types of early ACES and PACEs reported by primary caregivers?	ACEs; PACEs; Safe Environment for Every Kid (SEEK)	Not reported for total sample	Three empirically derived classes of adverse experiences based on the SEEK screen were identified: (1) low adversity, (2) caregiver stress, and (3) caregiver stress and depression. Belonging to the low-adversity class was associated with lower ACE-Q and higher PACES compared to the other two classes.
Shreffler et al. [30]	Peer-reviewed journal article, Health Behavior Research	Pregnant women	309	USA	Psychological outcomes	Are PACEs protective factors for maternal smoking behaviors?	ACEs; PACEs; Prenatal smoking frequency	7.74 *SD* not reported	Women with more PACEs reported significantly less frequent prenatal smoking.
Street et al. [31]	Peer-reviewed journal article, Journal of Pain (2023)	Individuals with chronic pain	138	USA	Physical outcomes	Do PACES buffer the negative impacts of ACEs and do PACES moderate and mediate the relationship between ACEs and bodily pain?	ACEs; PACEs; Patient Health Questionnaire-15 (PHQ-15)	Not reported	The relationships between PACEs and bodily pain were not significant. The interaction between ACEs and PACEs was also not significant. It appears that neither ACEs nor PACEs predict bodily pain in this sample.

Note. * Identifies child studies in which data was collected using parent-report.

The included studies predominately utilized a cross-sectional design (k = 15, 88.2%). The other studies utilized a longitudinal design (k = 2; 11.7%). The majority of measures administered, including the ACEs and PACEs, were self-reported. These empirical studies used psychiatric, medical and nonclinical samples ranging from 24 [27] to 18,714 individuals [23]. Overall, these studies will be examined based on clusters of findings, particularly those pertaining to child development, at-risk populations, and research retention.

3.2. Research about Child Development and Parental Intergenerational Transmission

3.2.1. Pregnancy

Three out of the 17 studies focused on PACEs in the context of pregnancy k = 17.6% [21,22,30]. The PACEs were found to influence maternal pregnancy behaviors, such as smoking and stress, potentially impacting the intergenerational transmission of ACEs and PACEs [22]. One study examined the link between both maternal ACEs and PACEs and pregnancy-specific stress. It explored the mediating and moderating roles of resilience in these associations. Data were collected from a high-risk clinical cohort of racially diverse pregnant women who were administered the ACEs, PACEs, Prenatal Distress Questionnaire (PDQ), and Brief Resilience Scale (BRS) [22]. It was found that resilience mediated the associations between PACEs and pregnancy-specific stress and moderated the association between ACEs and pregnancy-specific stress. In particular, high levels of resilience were protective against pregnancy-specific stress at low and moderate levels of ACEs, but not at high levels of ACEs [22]. Exposure to a greater number of PACEs was associated with decreased levels of pregnancy-specific stress [22]. These results suggest that PACEs may act as a mechanism that fosters resilience.

An additional study considered the role of PACEs in an effort to examine the extent to which positive childhood experiences are protective factors for maternal smoking behaviors [30]. Between 2015 and 2018, 309 pregnant women were recruited from high-risk prenatal clinics, childbirth education classes, and social media. They were surveyed about their childhood experiences and smoking behaviors. This study found that women with more ACEs reported smoking more frequently during pregnancy. Conversely, women with more PACEs reported significantly less frequent prenatal smoking. With both ACEs and PACEs in the model, however, ACEs were no longer a significant predictor of maternal prenatal smoking [30].

While these studies examined pregnancy-specific behaviors and experiences, another study examined pregnant women and how PACEs impact their attachment beginning in early childhood and its impacts on their parenting practices, substance use, and intimate partner violence [21]. Longitudinal data were collected from a sample of 177 pregnant women between 2017 and 2020. Over the course of eight time points, participants were administered the ACEs, PACEs, Attachment Style Questionnaire, Parental Reflective Functioning Questionnaire, and Pregnancy Risk Assessment Monitoring System which included four questions on interpersonal violence, and asked about their alcohol and other drug use [21]. Five models were run for the analyses, including three models that examined the associations between ACEs, PACEs, adult attachment style, and reflective functioning; and two models that examined how childhood neglect and PACEs were associated with substance use and intimate partner violence. Results demonstrated that PACEs had a significant negative association with ambivalent attachment and a significant positive association with secure attachment, suggesting that positive experiences in childhood can offset some of the negative attachment outcomes that can occur as a result of childhood adversity and potentially promote a secure adult attachment style [21]. Additionally, parental reflective functioning, in particular the parent's certainty of understanding the mental states of her child, was found to be significantly correlated with PACEs [21]. PACEs showed a buffering effect on alcohol, tobacco, and other drug use, but did not predict intimate partner violence [21]. Thus, these studies of pregnant women seem to highlight the protective nature of PACEs against both maternal stress and maternal smoking behaviors, as well as a

parent's tendency to experience secure attachment, potentially positively influencing the developmental trajectory of their children.

3.2.2. Parenting

Two out of the 17 studies focused on PACEs in the context of parenting k = 11.8% [11,20]. The PACEs measure has found evidence that parenting attitudes, particularly that of the mother, can be negatively impacted by their early life experiences. In one study, parents were instructed to complete a widely used parenting attitudes questionnaire, the Adult–Adolescent Parent Inventory (AAPI-2) and the ACEs and PACEs surveys [11]. It was found that PACEs were negatively correlated with ACEs and positively correlated with nurturing parenting attitudes and parent income and education levels. Moderation analyses indicated that the association between ACEs and harsh parenting attitudes was conditional upon the level of PACEs. When the PACEs score was low but not average or high, the ACEs were associated with harsh parenting attitudes, suggesting a buffering effect of PACEs on negative parenting attitudes [11]. Additionally, PACEs were found to influence interactions between mothers and their young infants by analyzing the relation between maternal adversities and protective factors and these interactions [20]. Forty-five mothers were administered the ACEs and PACEs and had 10 min of free play interactions coded for mind-minded commenting, both appropriate and non-attuned comments. Findings indicate that adversity in childhood was a significant predictor of both synchronous and intrusive maternal behaviors but was not predictive of mind-minded commenting. When the ACEs measure was broken into two subscales, household dysfunction and maltreatment, similar findings emerged. PACEs were predictive of maternal appropriate mind-minded commenting but were not predictive of synchrony or intrusiveness [20]. Therefore, these findings provide preliminary evidence for the impact of mothers' childhood experiences on interaction patterns with their young infants, as well as overall parenting attitudes.

3.2.3. Child, Adolescent, and Young Adult Resiliency

Five out of the seventeen studies focused on PACEs in the context of child and adolescent resiliency k = 29.4% [10,14,23,24,29]. Not only have PACEs been found to impact pregnancy and parenting attitudes and behaviors but there is also preliminary, yet sometimes mixed evidence, suggesting that PACEs can positively impact child development. One study aimed to assess risk and protective factors associated with vaping among a sample of alcohol-consuming females aged 15 to 24 [24]. ACEs, PACEs, and Children of Alcoholics Screening Test (CAST-6) were administered. These measures did not find any relationship between vaping incidence and risk and protective factors [24]. While there is not much research on the PACEs effects on children in the United States, one study examined the environmental protective factors that predict resiliency among Nigerian young adults [14]. Resiliency was measured by the Connor–Davidson Resiliency Scale. Protective factors were drawn from a culturally modified version of the PACEs questionnaire, which was supplemented with additional protective experiences in Nigeria that were identified via pilot study interviews. Results identify protective experiences that predict resiliency among Nigerian young adults, such as a safe home and community, physical activity, positive social relationships, participation in spiritual activities, and opportunities to pursue activities of interest [14].

Another study utilized pediatricians as the primary source of data collection to screen for early childhood adversities and protective factors [29]. Participants in this study were caregivers of 1434 unique pediatric patients seen at a high-volume, urban primary care pediatric practice. They completed the Safe Environment for Every Kid (SEEK) 16-item questionnaire to assess for the presence of adversities within the immediate family [29]. Based on the SEEK screen, three empirically derived classes of adverse experiences were identified: (1) low adversity, (2) caregiver stress, and (3) caregiver stress and depression. Overall, belonging to the low-adversity class was associated with lower ACEs and higher PACEs compared to the other two classes [29]. This suggests that experiences of stress

and depression by a caregiver of young children may be strong indicators of elevated risk factors and low levels of protective factors.

Also, utilizing the 2019 National Survey of Children's Health data, Colquitt explored the relationship between ACEs, PACEs, and children's ability to flourish [23]. They investigated the theory that PACEs could buffer the negative impacts of adversity by moderating the relationship between ACEs and children's ability to flourish. Findings supported PACEs as a moderator of the relationship between ACEs and flourishing. An increased number of PACEs were correlated with improved flourishing at all levels of ACEs [23]. An additional study further supported these findings in examining the moderating role of childhood PACEs on the effects of ACEs on depression, anxiety, substance use, and emotion regulation difficulties in a sample of 550 undergraduate students [10]. It was found that PACEs were associated with fewer symptoms of depression, anxiety, substance use, and emotion regulation difficulties, as well as PACEs significantly moderated the relationship between ACEs and depression [10]. These findings are paramount to creating PACEs-related programming and further researching how communities can help children build resilience and potentially lessen the impacts of ACEs [10,23].

3.3. Research about at-Risk Populations

3.3.1. Sexual Minorities

One out of the seventeen studies focused on PACEs in the context of sexual minorities $k = 5.9\%$ [15]. A range of studies have used the PACEs measure on populations at higher risk for multiple ACEs to better understand interventions and preventative measures. One such study examined suicide risk among sexual minority men, such as men who identify as part of the LGBTQIA+ community. It was conducted on the associations of ACEs and PACEs with suicidal ideation and suicide attempts in adulthood via thwarted belongingness and perceived burdensomeness within this population [15]. The results of the multivariate model suggest that each additional adverse childhood experience was prospectively associated with 14% higher odds of past-week suicidal ideation and 19% higher odds of past-year suicide attempts. Each additional protective childhood experience was prospectively associated with 15% lower odds of past-week suicidal ideation and 11% lower odds of past-year suicide attempts [15]. Thus, ACEs and PACEs appear to have negative and positive associations, respectively, with suicide rates in the high-risk population of sexual minority men.

3.3.2. Ethnic and Racial Minorities

One out of the seventeen studies focused on PACEs in the context of racial and ethnic minorities $k = 5.9\%$ [26]. Research on ethnic and racial minorities has begun incorporating the PACEs measure to identify areas of resilience. One article in particular examined the relationship among adversity (ACEs and discrimination), resiliency (PACEs), and health outcomes (depressive symptoms, mental health diagnoses, physical health diagnoses, and self-rated health) [26]. Researchers used the National Longitudinal Study of Adolescent to Adult Health sample to conduct two studies. First, they investigated the relationship between ACEs, PACEs, and four different adult health outcomes as stated above. They found that higher PACEs were related to a lower number of depressive symptoms and fewer mental health diagnoses [26]. Also, PACEs were significantly related to self-rated health in adulthood, indicating more positive views on current health and fewer physical health diagnoses [26]. In the second study, the sample was narrowed down specifically into a group of racial and ethnic minority participants in order to investigate relations among racial discrimination, PACEs, and adult health outcomes with the goal of understanding whether PACEs interact with the effect of discrimination on adult health outcomes [26]. The sample endorsed moderate levels of discrimination and relatively high levels of PACEs. It was found that PACEs are significantly related to depressive symptoms, self-rated health, and physical health diagnoses, such that individuals with higher levels of PACEs reported lower depressive symptoms, greater self-rated health, and fewer physical health

diagnoses [26]. Also, PACE score did not significantly interact with the relations between discrimination and the four health outcomes, meaning PACEs did not serve as a moderator for these relations [26]. Therefore, it is suggested that continued research involving the PACEs measure can further help identify factors that prevent and mitigate the impacts of adversity on different racial and ethnic groups.

3.3.3. Army Veterans

Two out of the seventeen studies focused on PACEs in the context of army veterans $k = 11.8\%$ [25,28]. One research study examined the prevalence of ACEs and PACEs in army veterans. Ninety-seven active-duty personnel completed the study including questions pertaining to demographics, adverse childhood experiences, adult adverse experiences, and the PACEs survey [25]. Quantitative data were collected and analyzed using self-report questionnaires. It was found that all the study's participants experienced at least two protective experiences, with having a safe home identified as the most frequent protective factor. Significant findings pertaining to ACEs and PACEs were found by service member's sex and rank, with higher ACE scores for men and enlisted service members [25]. Additionally, another study examined the psychometric properties of the PACEs measure within the active military population [28]. Active-duty service members were recruited to complete an online survey pertaining to ACEs, PACEs, and adult traumatic stress (ATS). Findings suggested that the reliability and validity of PACEs indicate that service members who are involved in PACEs as youth are less likely to have experiences of stress both as children and as adults [28]. Therefore, it is suggested that ACEs and PACEs be considered when trying to optimize clinical care for service members in the context of their health and military careers.

3.3.4. Individuals with Chronic Pain

One out of the seventeen studies focused on PACEs in the context of chronic pain $k = 5.9\%$ [31]. The study looked at the association between ACEs, PACEs, and bodily pain. It indicated that the relationship between ACEs (the predictor) and bodily pain (the criterion) was not significant, nor was the relationship between PACEs (the moderator) and pain [31]. Further, the interaction between ACEs and PACEs was also not significant. As such, it appears that neither ACEs nor PACEs predict bodily pain in this sample of individuals [31]. However, differences were not assessed among participants according to ethnicity. Thus, further research on this population is needed.

3.3.5. Healthcare Providers after COVID-19

One out of the seventeen studies focused on PACEs in the context of healthcare providers $k = 5.9\%$ [27]. The last at-risk population that utilized the ACEs and PACEs to identify prevalent risk and protective factors was healthcare providers after the COVID-19 pandemic. This appears to be a promising area of research due to their recent stress-inducing work environments, plagued by disease and higher levels of loss. To date, only one study has been conducted on this population that examines the composition and diversity of the salivary microbiome of healthcare providers in Harmon County, Oklahoma [27]. It explored whether there are correlations to the number of PACEs they have experienced. It was found that 29% of their population presented an ACEs score equal to or more than four traits which were associated with drastically increased risky behaviors, chronic health issues, mental health problems, and societal problems [32,33]. In addition, 64% neither experienced an enriched environment such as physical exercise, nor social interactions outside their household. From the 19 PACE items score, they found that 26% experienced equal or less than seven protective experiences while growing up, and 47% of those experienced that their parents divorced or separated [27]. In a future study, the salivary microbiomes will be sequenced, and it is expected that the study participants with lower ACEs scores, but higher PACEs scores will have a different microbial composition in

comparison to those with higher ACEs and lower PACEs scores [27]. While this study was proposed, it has not yet been published in the literature.

3.4. Literature Informing Research Attrition

One out of the seventeen studies focused on PACEs in the context of investigating a subject's tendency to commit to longitudinal studies $k = 5.9\%$ [13]. This study investigated the relationship between ACEs and PACEs and the attendance rates of the Legacy for Children Project evaluation piece conducted by researchers at Oklahoma State University. Participants were asked to come in a total of seven times over the course of three years. Attendance was evaluated by the total number of assessments attended over the 3-year period. It was found that there was no relationship between high PACEs and ACEs scores and retention rates. However, it is the hope that with the information offered, researchers might be able to adjust their assessment methods, contact efforts, and resources offered to help boost their retention rates [13]. This suggests the potential utilization of the PACEs measure to aid in research recruitment.

4. Discussion

In summary, this review found that higher levels of PACEs are associated with decreased pregnancy-specific stress, less frequent prenatal smoking, greater likelihood of adult secure attachment, more nurturing parenting attitudes, and lower suicide rates in an LGBTQIA+ sample. ACEs and PACEs were generally found to be significantly negatively correlated with each other, suggesting that higher levels of adversity tend to be associated with lower levels of resilience [11,20]. The majority of samples in a number of studies tended to endorse high levels of PACE scores from approximately five to eight, with having a safe and clean home as the most frequently identified protective factor [14,25,26]. Our review has also provided preliminary evidence that PACEs are associated with improved flourishing in youth at varying levels of adversity; and that PACEs are associated with fewer symptoms of depression, anxiety, substance use and emotion regulation difficulties, though they have only been found to moderate the relationship between ACEs and depression thus far. Despite promising findings on the association between PACEs and positive attitudes and outcomes [10,27,29,30], research results remain mixed [26,31], and initial results indicated no relationship between PACEs and attrition rates [13].

These research findings are few of many that highlight the importance of studying resilience and protective factors that buffer the negative effects of adversity. A recent systematic review of positive childhood experiences (PCEs), including a few studies with the PACEs measure, found that these experiences predict more favorable mental health outcomes, particularly in the domain of depression and depressive symptoms, followed by lower anxiety and PTSD symptoms [4]. Most studies found promotive effects of PCEs whereby higher PCEs were associated with more favorable outcomes even after accounting for childhood adversity [4]. However, consistent with our findings, few studies found significant interaction effects between childhood adversity and PCEs on outcomes suggesting that PCEs may more frequently directly promote positive outcomes rather than moderate the effects of adversity on outcomes [4]. While these findings are promising, PACEs research is primarily used in the context of adversity, leaving it unclear whether PACEs can broadly promote resilience.

4.1. Promoting PACEs

Previous research suggests there are many ways to promote PACEs in adults and children faced with early life adversity, all of which endorse increasing both resources and relationships. For adults, specific programs and interventions appear to rewire the neural connections compromised by childhood adversity, facilitating healthier responses to stress, and the building of resources and relationships [8]. Examples of such interventions include mindfulness, neurofeedback, yoga, theater and drama, music and dance, martial arts, expressive writing, and trauma-informed CBT [8]. These activities aim to improve an

individual's social, emotional, and cognitive functioning to bolster the protective factors exemplified in the PACEs measure. For children, it is crucial to provide interventions to both the caregivers and children. For example, establishing regular routines can help children feel safe and know what to expect in the world [8]. Other potential PACE-building interventions are encouraging school involvement, creating routines, steering clear of corporal punishment, and emotion coaching [8].

It is also essential that these PACE-related interventions reach the community level to achieve the most widespread effects. Communities vary in their capacity and willingness to provide quality schools, sports and recreation, and opportunities to cultivate skills and hobbies. Access to these resources is often most restricted to children who are at the greatest risk. Negative attitudes toward public investment in children have negative consequences for individual children as well as the society at large [9]. Mental health professionals, individually and collectively, can advocate for change by working with local, state, and national policy makers to influence improvements based on this emerging data on adversity and resilience science [9].

4.2. Research Implications

In general, research suggests the PACEs measure is a cohesive tool for assessing resiliency involving empirically supported protective factors. It is quick and easy to administer, thus, it can be easily incorporated into a wide range of research studies, both in person and online. The PACEs measure can be used to compare adversity and resiliency in a systematic way [8]. However, similar to ACEs, there are protective factors that may not be on the list of 10. The items were chosen on the basis of developmental research, focusing on child experiences relevant to most individuals. In fact, many studies that collect data within the realm of child development include items relevant to the PACEs measure. Two studies included in this review created the PACEs scales from large data sets with comparable survey items [23,26], suggesting that future research can be conducted with both new and pre-existing data sets. Despite this, it is helpful to use these data as a means of discussion to identify an individual's protective factors [8]. PACEs and ACEs together can provide a more extensive, holistic view of an individual's development and challenges.

Further, the PACEs measure promotes a strengths-based approach to research. The ACEs literature is widespread, with a large systemic review and meta-analysis demonstrating that ACEs are common globally [34]. It is estimated that more than one billion children have experienced ACEs, which is more than 50% of the world's future adults. Children in Asia, Africa, and North America have the highest prevalence [35]. Due to the high number of ACEs in the population, it is crucial to explore the factors that can mitigate the negative influences of these experiences and increase the scope of research. Additionally, understanding these factors through research can provide valuable information for treatment planning and interventions for at-risk populations [8]. Not only can we highlight both strengths and adversities, but we can incorporate these factors into a range of empirically based interventions. Increasing understanding of protective factors can be paramount to shaping resiliency-building treatments [8]. However, these interventions should be tested in research settings to provide empirical evidence and ensure their effectiveness.

Finally, the novelty of the PACEs measure provides flexibility in usage, thus it can be a more inclusive measure overall. Not only will it highlight strengths and inform treatment planning, but it can also be applied to a more diverse population, such as a wider variety of age groups and at-risk communities. Specifically, it can be administered to children, adolescents, and older adults, as well as low SES communities, those with severe and persistent mental illnesses, and individuals with physical disabilities. As seen in the Korb and Bahago study, the researchers created a culturally modified version of the PACEs questionnaire [14]. Due to the newness of the measure, there is significant potential for improvement and the creation of culturally oriented screening tools. As the PACEs measure is still in its early stages, there appears to be flexibility in its use and opportunities for increased inclusivity.

4.3. Limitations of PACE Research

The PACEs measure has many strengths due to its construction and existing research. It is grounded in an extensive theoretical framework and is comprised of empirically supported items that have each been thoroughly researched. It is short and to the point which allows it to be easily administered quickly and efficiently. Thus, a large amount of quantitative data can be collected in a short period of time. Furthermore, the PACEs measure is useful in promoting intervention and prevention strategies. Its direct and specific items highlight clear strengths and areas of growth that can be targeted in future treatment. Clinicians, social workers, and educators can utilize the measure in a simple, quick fashion in a variety of settings to increase their understanding and plan treatments for their patients or students.

However, research on the PACEs scale is still limited due to its relatively recent development. In many of the studies, data regarding childhood experiences were reported retrospectively, suggesting that results may consequently be affected by recall bias or lack of comfortability with reporting past experiences. Much of the data in these studies are collected from a single geographic region in the United States and have small sample sizes, and thus is not representative of the entire population of interest. Further, the measure itself also has limitations. First, the PACEs scale is a self-report measure, meaning it can be biased or prone to errors. Individuals might be mistaken or misremember the material covered by the survey. It may be biased based on the individual's feelings at the time they fill it out. Depending on the setting, individuals may be unwilling to answer the questions honestly or lack insight. They may also provide more socially acceptable answers rather than being truthful. For some, the wordings of the questions may be confusing or have different meanings to different individuals. Additionally, individuals may exaggerate their experiences to make their situation seem worse, or they may underreport the severity or frequency of symptoms to minimize their problems. There is a lack of flexibility in responses as well, such that individuals can only provide yes or no responses. There is no space for comments or open-ended questions. Due to the novelty of the PACEs scale, it could benefit from tests of reliability and validity, as well as additional study replications.

4.4. Clinical Implications

The PACEs measure has great potential for clinical practice, including identifying areas of resilience, providing a starting point for treatment, and informing prevention strategies. Maximizing existing and potential protective factors is critical for promoting resilience among children exposed to significant adversity. Psychologists, school counselors, social workers, and other interventionists can use the PACEs questionnaire to identify with families the protective relationships and resources already in place or potentially accessible [36]. It can also be used at the beginning of treatment to better understand areas of adversity and resilience, and provide specific, tangible information to inform clinical practice. Researchers and clinicians alike can use the PACEs measure as a means of data collection in order to guide interventions and treatment planning. When providers use the PACEs questionnaire, they can bring family strengths into the conversation and help parents and caregivers create goals that build on existing strengths and target new skills, such as bedtime routines and finding opportunities to help others [36]. PACEs can provide a framework for creating enriching environments to promote continued development and recovery for adults with a history of ACEs. These factors create pathways to maintain the gains of cognitive restructuring, flexible thinking, and emotion regulation brought about by CBT and other trauma-informed interventions [8]. PACEs may be the antidote to ACEs for adults as well as children.

Additionally, prevention strategies focused on PACEs gives treatment providers and policymakers insights to strengthen families by supporting existing protective factors. They can encourage new behaviors, activities, and programs that can make the family and other systems of care stronger [36]. This framework allows treatment providers to extend their approach beyond merely decreasing maladaptive behaviors. It helps in reorienting

dysregulated stress response systems, creating new neural pathways linking autonomic stress responses to higher cortical functions, and allowing more intentional and health-supporting behavior patterns to be acquired [36]. In other words, utilizing a prevention framework, marked by not only decreasing problematic behaviors but increasing protective factors and positive behaviors, can widen the scope of clinical practice.

4.5. Community Implications

The PACEs measure can be paramount to providing strength-based research and clinical practice; however, it can also provide information for community-based interventions as well. Reducing exposure to early adversity and increasing protective factors in the community can be increasingly effective if geared towards at-risk parents, such as single mothers. Interventions might include home visiting programs that provide social and parenting support, decreasing perceived stress and social isolation, increasing maternal self-regulation, and parenting efficacy, and decreasing the likelihood of the infant's exposure to harsh or neglecting parenting [36]. These changes can exist at the community level in parenting programs, such as ABC, Circle of Security, Legacy for Children, and other infant mental health programs that help parents of babies and young children heal and learn to parent in ways that break the intergenerational cycle of ACEs [8].

The COVID-19 pandemic is an especially prevalent stressor for communities and has created times of chronic and extreme stress. PACEs can be used as a tool for adults to support their children in managing this stress. On the other hand, parents' stress and mental health are largely influenced by their children's well-being and mental health. Thus, strategies that promote optimal parenting can have major impacts on parents' own functioning [8]. In summary, while the ACEs movement has made significant strides, it is now time to focus on building PACEs. Policy changes, legislation, and community initiatives across the US and around the world reflect a growing commitment to supporting healthy development for children exposed to adversity [8].

4.6. Future Directions

The PACEs scale would benefit from further empirical research. First, previous PACEs studies must be replicated to further validate its efficacy. Current research has been conducted on children, parents, and at-risk populations. However, more research is needed on different populations and presentations, including children, adolescents, adults, older adults, and various clinical populations. Research is also needed to determine the underlying brain changes associated with increasing protective factors and PACEs' role in neuroplasticity in order to prompt learning behaviors. Moreover, it is critical that PACEs be considered in diverse cultural, ethnic, racial, and socioeconomic status groups. It may be useful to create culturally oriented PACEs questionnaires to account for differences in protective factors within populations. For example, Korb and Bahago created a culturally modified version of the PACEs to utilize with the Nigerian population; however, further adaptations of the measure are needed [14]. Also, considering the timing of adversity or protective experiences within an individual's lifetime might provide further information on using PACEs preventatively. Applying the measure for program development can aid in creating intervention and prevention-based environments for children, in domains such as school, home, extracurriculars, and educational programs. Screening children and at-risk adults for PACEs may be a critical component of a comprehensive approach to program development, as it may be utilized to identify individuals needing additional support, support treatment goals, and strengthen ongoing treatment interventions. In summary, more research on the PACEs scale is needed, as it might be applied to communities, schools, and households.

Author Contributions: Conceptualization, V.B. and N.S.; methodology, V.B. and N.S.; investigation, N.S.; research supervision, V.B.; writing—original draft preparation, N.S.; writing—review and editing, N.S., V.B. and K.A.-v.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Given that this is a review study of already published studies, no ethical approval was necessary.

Informed Consent Statement: Not applicable.

Data Availability Statement: There were no new data collected in the frames of the present study. Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Masten, A.S. Ordinary magic: Resilience processes in development. *Am. Psychol.* **2001**, *56*, 227. [CrossRef] [PubMed]
2. Bethell, C.; Jones, J.; Gombojav, N.; Linkenbach, J.; Sege, R. Positive childhood experiences and adult mental and relational health in a statewide sample: Associations across adverse childhood experiences levels. *JAMA Pediatr.* **2019**, *173*, e193007. [CrossRef] [PubMed]
3. Narayan, A.J.; Rivera, L.M.; Bernstein, R.E.; Harris, W.W.; Lieberman, A.F. Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood ex-periences (BCEs) scale. *Child Abus. Negl.* **2018**, *78*, 19–30. [CrossRef] [PubMed]
4. Han, D.; Dieujuste, N.; Doom, J.R.; Narayan, A.J. A systematic review of positive childhood experiences and adult outcomes: Promotive and protective processes for resilience in the context of childhood adversity. *Child Abus. Negl.* **2023**, *144*, 106346. [CrossRef] [PubMed]
5. Morris, A.S.; Hays-Grudo, J.; Williamson, A.C.; Treat, A.E.; Huffer, A.; Slocum, R. Aces and paces: The development of the protective and compensatory experiences survey (paces) [Poster presentation]. In Proceedings of the 15th World Congress of the World Association for Infant Mental Health, Prague, Czech Republic, 29 May–2 June 2016.
6. Masten, A.S. Global Perspectives on resilience in children and youth. *Child Dev.* **2014**, *85*, 6–20. [CrossRef]
7. Morris, A.S.; Hays-Grudo, J. Protective and compensatory childhood experiences and their impact on adult mental health. *World Psychiatry* **2023**, *22*, 150–151. [CrossRef]
8. Hays-Grudo, J.; Morris, A.S. *Adverse and Protective Childhood Experiences: A Developmental Perspective*; American Psychological Association (APA): Washington, DC, USA, 2020.
9. Morris, A.S.; Hays-Grudo, J.; Kerr, K.L.; Beasley, L.O. The heart of the matter: Developing the whole child through community resources and caregiver relationships. *Dev. Psychopathol.* **2021**, *33*, 533–544. [CrossRef]
10. Ratliff, E.L.; Jespersen, J.E.; Addante, S.; Watrous, J.N.H.; Morris, M.; Beasley, L.O.; Ciciolla, L.; Hays-Grudo, J.; Morris, A.S. Promotive and Buffering Effects of Protective and Compensatory Experiences on Mental Health and Adjustment in Young Adults. *Emerg. Adulthood* **2024**, *12*, 447–455. [CrossRef]
11. Morris, A.S.; Hays-Grudo, J.; Zapata, M.I.; Treat, A.; Kerr, K.L. Adverse and protective childhood experiences and parenting attitudes: The role of cumulative protection in understanding resilience. *Advers. Resil. Sci.* **2021**, *2*, 181–192. [CrossRef]
12. Hays-Grudo, J.; Morris, A.S. Creating Protective and Compensatory Experiences (PACEs) to buffer the damaging effects of early life adversity [Conference presentation]. In Proceedings of the 16th World Congress of the World Association for Infant Mental Health, Rome, Italy, 26–30 May 2018.
13. Branch, M.J. An Attempt to Predict Subject Retention Rates in A Longitudinal Study Using ACE Scores. Ph.D. Thesis, Johns Hopkins University, Baltimore, MD, USA, 2019.
14. Korb, K.A.; Bahago, C.L. Protective experiences that foster resiliency among Nigerian young adults. *Niger. J. Basic Appl. Psychol.* **2018**, *7*, 65–71.
15. Moody, R.L.; Carter, J.A.; Talan, A.; Sizemore, K.M.; Russell, S.T.; Rendina, H.J. Associations of adverse and protective childhood experiences with thwarted belongingness, perceived burdensomeness, and suicide risk among sexual minority men. *Psychol. Med.* **2022**, *53*, 5615–5624. [CrossRef] [PubMed]
16. Tolchin, G.; Doorn, K.A.; Horne, S.; Baitch, R.; Silberschatz, G. Measures of trauma exposure and trauma response: A scoping review. *J. Clin. Psychol.* **2023**, *79*, 2668–2684. [CrossRef]
17. Windle, G.; Bennett, K.M.; Noyes, J. A methodological review of resilience measurement scales. *Health Qual. Life Outcomes* **2011**, *9*, 8. [CrossRef]
18. Felitti, V.J.; Anda, R.F.; Nordenberg, D.; Williamson, D.F.; Spitz, A.M.; Edwards, V.; Marks, J.S. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am. J. Prev. Med.* **1998**, *14*, 245–258. [CrossRef] [PubMed]
19. Wright, M.O.; Masten, A.S.; Narayan, A.J. Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. In *Handbook of Resilience in Children*; Kluwer: Boston, MA, USA, 2012.
20. Huffer, A.L. Early Protective and Adverse Experiences Impact Maternal Interactions with Their Young Infants. Ph.D. Thesis, Oklahoma State University, Stillwater, OK, USA, 2018.
21. Anderson, M.A. *Childhood Experiences, Adult Attachment Styles and Maternal Outcomes*; Oklahoma State University: Stillwater, OK, USA, 2021.

22. Armans, M.; Addante, S.; Ciciolla, L.; Anderson, M.; Shreffler, K.M. Resilience during pregnancy: How early life experiences are associated with pregnancy-specific stress. *Advers. Resil. Sci.* **2020**, *1*, 295–305. [CrossRef]
23. Colquitt, A. The Relationship of Adverse Childhood Experiences, Protective and Compensatory Experiences and Children's Flourishing [Poster presentation]. In Proceedings of the Student Research and Creative Inquiry Day, Cookeville, TN, USA, 20 May 2022.
24. Crockett, E.K.; Croff, J.M.; Hartwell, M.L.; Hubach, R.; Chiaf, A. Risk and protective factors associated with vaping behavior among female adolescents and young adults. In Proceedings of the APHA's 2020 VIRTUAL Annual Meeting and Expo, Virtual, 24–28 October 2020; APHA: Washington, DC, USA, 2020.
25. Lamson, A.; Richardson, N.; Cobb, E. The health and readiness of service members: ACEs to PACEs. *Mil. Med.* **2020**, *185*, 348–354. [CrossRef]
26. Mack, S.A. Adverse Childhood Experiences, Discrimination, & Adulthood Health Outcomes: Impacts of Protective and Compensatory Experiences in Childhood (Publication No. 8875). Ph.D. Thesis, Utah State University, Logan, UT, USA, 2023.
27. Pierce, C.; Quijada, C.; Peach, D.; Koehler, G.; Vazquez, D. Scientific Abstract. Program No. 519.02. In *2022 Neuroscience Meeting Planner*; Online; Society for Neuroscience: San Diego, CA, USA, 2022.
28. Richardson, N.M.; Lamson, A.L.; Schoemann, A.M.; Cobb, E.; Renze, T. Exploring the protective experiences of those who "protect and serve": A psychometric evaluation of Protective and Compensatory Experiences Survey within a military sample. *Psychol. Trauma Theory, Res. Pract. Policy* **2023**, *15*, S297–S304. [CrossRef]
29. Ronis, S.; Guyon-Harris, K.L.; Burkhart, K.; Gabriel, M.; Cipolla, K.; Riggs, J.L.; Huth-Bocks, A. Profiles of Early Childhood Adversity in an Urban Pediatric Clinic: Implications for Pediatric Primary Care. *Children* **2023**, *10*, 1023. [CrossRef]
30. Shreffler, K.M.; Joachims, C.N.; Ciciolla, L.; Croff, J.M.; Anderson, M. Maternal Adverse and Protective Childhood Experiences and Prenatal Smoking. *Health Behav. Res.* **2022**, *5*, 1. [CrossRef]
31. Street, E.; Kell, P.A.; Ventresca, H.; Vore, C.; Boster-Duke, K.; Huber, F.A.; Shadlow, J.O.; Rhudy, J.L. Do Adverse and Protective Childhood Experiences Impact Bodily Pain In Adulthood?: Results from the Oklahoma Study of Native American Pain Risk. *J. Pain* **2023**, *24*, 94. [CrossRef]
32. Anda, R.F.; Felitti, V.J.; Bremner, J.D.; Walker, J.D.; Whitfield, C.H.; Perry, B.D.; Dube, S.R.; Giles, W.H. The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *Eur. Arch. Psychiatry Clin. Neurosci.* **2006**, *256*, 174–186. [CrossRef] [PubMed]
33. Whitfield, C.L.; Anda, R.F.; Dube, S.R.; Felitti, V.J. Violent childhood experiences and the risk of intimate partner violence in adults: Assessment in a large health maintenance organization. *J. Interpers. Violence* **2003**, *18*, 166–185. [CrossRef]
34. Hughes, K.; Bellis, M.A.; Hardcastle, K.A.; Sethi, D.; Butchart, A.; Mikton, C.; Jones, L.; Dunne, M.P. The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *Lancet Public Health* **2017**, *2*, e356–e366. [CrossRef] [PubMed]
35. Hillis, S.; Mercy, J.; Amobi, A.; Kress, H. Global prevalence of past-year violence against children: A systematic review and minimum estimates. *Pediatrics* **2016**, *137*, e20154079. [CrossRef]
36. Hays-Grudo, J.; Morris, A.S.; Beasley, L.; Ciciolla, L.; Shreffler, K.; Croff, J. Integrating and synthesizing adversity and resilience knowledge and action: The ICARE model. *Am. Psychol.* **2021**, *76*, 203–215. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.