The impact and measure of adverse childhood experiences: Reflections of undergraduates and graduates in England

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Declaration

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Abstract

Aim: The research also aimed to explore the usefulness of measuring perceived levels of trauma to distinguish non-traumatic from traumatic ACEs;

Subject and Methods: This article shares findings from an online questionnaire of 156 graduates and undergraduates which sought to capture and describe the range of adverse childhood experiences (ACEs) participants were exposed to before the age of 18, including those not associated with the ACE study survey (Felitti, et al. 1998). The research built upon the original study with the inclusion of open-ended questions to capture any additional ACEs participants felt they experienced.

Results: This distinction was used to investigate whether the inclusion of additional ACEs and the exclusion of perceived non-traumatic ACEs significantly affected the participants overall ACE score. A Wilcoxon Sign Rank Test found a significant difference between ACE scores ($z = -5.84$, $p < .001$, $r = -.33$);

Conclusion: The analysis suggests the ACE survey did not capture the range of adversities experienced by this sample and suggests that an open-ended approach should be considered for future ACE measures.

Keywords: Adverse childhood experience, children, measurement tools, education, trauma, exploratory

Introduction

Many epidemiological surveys have been undertaken nationally and internationally to attempt to measure adverse childhood experiences (ACEs) (Public Health Directorate 2018). Over time, it has become clear that there is a link between multi-trauma, adversity and health risk behaviours alongside negative social, physical and mental health outcomes (Felitti et al. 1998; Brown et al. 2009; Dube et al. 2001; Greson et al. 2011; Johnson et al. 2013; Oral et al. 2016). Despite wide acknowledgement of ACEs as sources of risk, there continue to be concerns regarding methodological issues of evaluating associations between the environmental effect of ACEs and later life outcomes (Forsman and Långström 2012; Schwartz et al. 2019; Anda et al. 2020).

The Center for Disease Control and Prevention (CDC) Kaiser Permanente ACE study (Felitti et al. 1998) remains one of the largest investigations into childhood abuse, neglect and household challenges and is where the term Adverse Childhood Experiences or ACEs was first introduced. Felitti and Anda (2014) described how the ACE study was devised to determine in a general, middle-class adult population, the prevalence of ten categories of stressful, traumatic childhood experience to determine what, if any, long term effects of the experiences might be. The retrospective process involved a confidential survey (herein referred to as ACE survey) of 8,056 patients in an obesity clinic in California. The study reported three categories of psychological abuse, physical abuse, contact sexual abuse and household dysfunction including exposure to substance misuse, mental illness, domestic violence and criminal behaviour, alongside a physical examination (Felitti et al. 1998; Widom et al. 2015; Slack et al. 2016).

The findings from the original ACE study indicated that 63.5% of adults had at least one ACE and 12% had four or more across their total sample (Felitti et al. 1998). In comparison, a nationally representative study in England of 3,885 residents, using the ACE survey found a higher prevalence of ACEs with almost half (47%) experiencing one ACE (Bellis et al. 2014). The research and subsequent studies have found a strong, positive association between exposure to ACEs and multiple risk factors for many of the leading causes of death in adults, showing the impact of ACEs on health status is strong and cumulative (Felitti et al. 1998; Gilbert et al. 2010). The ACE study continues to undergo reliability and validity testing in the United States (Ford et al. 2014; Murphy et al. 2014; Bethell et al. 2017).

Though not formally agreed, the term ACE has become accepted to mean ‘intra-familial events or conditions causing chronic stress responses in the child’s immediate environment. These include notions of ‘maltreatment from societal norms’ (Kelly-Irving et al. 2013, p2). Chronic stress, also known as toxic stress, is defined as ‘prolonged activation of the stress response systems that would occur during ACEs in the absence of a protective relationship’ (National Scientific Council on the Developing Child 2014). During episodes of chronic or toxic stress, the brains circuit development and metabolic systems can become disrupted due to adaptive neurobiological changes (Committee on Psychosocial Aspects of Child and Family Health et al. 2012; Johnson et al. 2013; National Scientific Council on the Developing Child 2014; Bucci et al. 2016). Research has identified how

ACEs, via the aforementioned mechanism, can then be attributed with declining health such as heart disease, diabetes, hypertension, cancer, obesity, asthma and other chronic diseases (Felitti et al. 1998; Kalmakis and Chandler 2015; Campbell et al. 2016; Oh et al. 2018). More recently, the CDC (2019) expanded the definition to include the future impact of ACEs on health and behaviours into adulthood, defining ACEs as 'experiences that occur before the age of 18, including abuse and household dysfunction that cause extreme distress resulting in long-term medical, mental health and behavioural implications'.

Finkelhor et al. (2013) suggested an alternative explanation for many of the findings in the original ACE study. They suggested inherited genes lead to health problems or 'temperamental qualities' which create a spurious connection between abuse and neglect by parents or other family context variables and the mental and physical health conditions in their offspring (p74). In contrast, Alemany et al. (2013) found that individuals exposed to adversity in childhood are more likely to experience psychotic experiences but their findings indicated the association was not genetic. Van Os et al. (2010) proposed that genetic factors are likely to operate though environmental factors through increased sensitivity (gene-environment interaction) or prone (gene-environment) correlation. Other studies have also noted the genetic and environmental influences that can be evident within family clusters and the importance of understanding these in order to isolate the impact of a specific source of adversity on deleterious outcomes (Jaffee et al. 2004; Young-Wolff et al. 2011; Kendler et al. 2011; LaPorte et al. 2011; Alemany et al. 2013; Schwartz, 2019). However, Freyd et al. (2015); McMillan et al. (2008) and Kendler and Gardner (2010) share concerns arising from causal conclusions being drawn from correlational research designs that do not adequately control for confounding genetic and environmental factors. D'Onofrio et al. (2013) in their article, presented examples of research where both the environmental and genetic factors were neglected meaning erroneous causations could have been made. Connolly (2020) argues that research that includes twin or sibling designs has stagnated, suggesting more research is needed to document genetic and environmental factors influencing the effect of ACEs on deleterious outcomes. In agreement, Schwartz, Wright and Valgardson (2019) reinforce the importance of genetic and environmental inclusion when analysing links between ACEs on deleterious outcomes. What is understood is that traumatic experiences in childhood can leave emotional, psychological and relational scars that continue into adulthood (Zosky, 2013).

Agnew (1992; 2001) documented potential links between anti-social behaviours suggesting this was potentially due to early-life exposure to abusive and inconsistent parenting. The general strain theory by Agnew in 1992, proposed that long term exposure to stress (emotional, physical, verbal or sexual abuse for example) would increase the child's risk of engaging in inappropriate behaviours to cope, particularly if they had difficulties regulating their emotions. More recently, Felitti (2002), McLafferty et al. (2015) and Metzler et al. (2017) have indicated that exposure to ACEs increases the risk of not completing education, unemployment and a lower earning potential. Other researchers have suggested a relationship between dose or exposure and response relationships between wide ranging antisocial behaviour and ACEs including; problematic

behaviour pre-adolescent (Hambrick et al. 2017), violent behaviour (Fox et al. 2015), adolescent arrest (Fagan and Novak, 2017) and offending across the life-course (Craig et al. 2017).

In terms of defining adversity and trauma, there is considerable variation in the literature. The World Health Organisation (2019) advise that ACEs include 'some of the most intensive and frequently occurring sources of stress that children may suffer in early life. Such experiences include multiple types of abuse, neglect and violence between parents and caregivers; other kinds of serious household dysfunction such as alcohol and substance abuse; and peer, community and collective violence'. This is not dissimilar to a definition of trauma provided by the American Psychological Association (2016) which includes a psychological threat to their definition 'trauma involves events that pose a significant threat (physical, emotional, or psychological) to the safety of the victim or loved ones/friends and are overwhelming and shocking'. The American Psychiatric Association (APA 2013, p. 271) definition of trauma remains the most detailed 'the person was exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, in the following way(s): direct exposure; witnessing the trauma; learning that a relative or close friend was exposed to a trauma; indirect exposure to aversive details of the trauma'.

Although both of these definitions of trauma are useful, it is solely the Substance Abuse and Mental Health Services Administration (SAMHSA) (2014, p.7) definition which includes the component of the lasting adverse effects of trauma on the person 'individual trauma results from an event, series of events or set of circumstances that is experienced by an individual as physically or emotionally harmful or life-threatening and that has lasting adverse effects on the individuals functioning and mental, physical, social, emotional or spiritual well-being'. Krupnik (2019, p.2) raises the issue of defining trauma as 'events' resulting in 'a lasting negative effect' on the person as this also covers the definition of adversity as they too can cause lasting change. She suggests that the term 'trauma' should apply to those who develop pathology with those who do not, described as having experienced normative adversity.

The lack of universal agreement on the standard definition for childhood adversity could be, in part, due to the lack of systematic measurement of trauma which would have implications for accurate screening and assessment (Anda 2010; Finkelhor et al. 2013; Mersky et al. 2017). Other research supports this view identifying how some children exposed to ACEs experience biopsychosocial challenges, where others do not (Heard-Garris et al. 2018). This is believed to be due to the presence of protective factors that nurture resilience that mitigate the potential detrimental causes of ACEs (Sege and Linkenback, 2014; Bellis et al. 2014; 2017). It is widely understood that resilient children are more able to function despite exposure to considerable adversity (Block and Block 1980). SAMHSA (2014) stress that many of those who experience trauma overcome it, becoming more resilient but for others, it can be overwhelming. Early recognition of trauma is essential because if support is sought later in life, the mental health needs that arise due to the multi-trauma become harder to manage (Herzog and Schmahl 2018;

Kottenstette 2020). This is important because unlike in the UK, screening in the USA is expected to drive disease prevention in future generations (Burke et al., 2011; Machtinger et al. 2015; Marsac et al. 2016; Murphy et al. 2016; Oral et al. 2016). With Devries et al. (2018) calling for development of methods for gathering reliable and valid ways for measuring adversity among children in a recent systematic review of childhood violence. It could be argued that expanding the dichotomous ACE survey with Likert scale for example, would increase the amount of data captured as well as the overall measurement quality (Lundmark, Gilljam and Dahlberg 2016; DeCastellarnau 2018).

Anda et al. (2020) clarified that the original ACE questionnaire was designed to research not screen the relationship between childhood adversities and health and social outcomes. Therefore, the authors were concerned about potential misapplication of ACE questionnaires and the use of an 'ACE score' as a valid and reliable measure. In the US there has been a recent rise in the ACE score being used as a screening tool at individual level (Office of California Surgeon General, 2019) in the hope of saving money and improving health by targeting protective measures (Finkelhor, 2018). There have been recent calls to expand measures of ACEs with additional domains of adversity (Finkelhor et al, 2013; Cronholm et al 2015; Wade et al. 2016). Schwartz et al. (2019) questions these views as he feels that regardless of how expansive the measure is, additional sources of environmental influence will be omitted. To the authors' knowledge, no research has explored the usefulness of capturing all ACEs through open-ended questions and ranking perceived trauma experienced for each adversity.

Newbury et al. (2018) highlighted limitations to self-reports of child maltreatment due to underestimation of the significance of the event and memory biases. It is also possible participants may fail to correctly recall memories from their past, particularly as they become older (Hannienen and Soininen 2012) or choose not to share private information (Hardt and Rutter, 2004). Furthermore, extensive research has shown discrepancies between parent and child reports of the child's exposure to trauma which often underestimate the impact, particularly when it is related to adversity experienced outside of the home (Oransky et al. 2013; Stover et al. 2010; Zimmerman and Farrell 2013).

The World Health Organisation developed the ACE International Questionnaire (ACE-IQ) (2012) building upon prior research, including the original ACE survey. The ACE-IQ intended to measure ACEs in all countries, increasing international cultural applicability to reflect a broader range of exposures experienced outside of the USA (Anda et al. 2010; WHO 2018). There are 13 categories in total, as the ACE-IQ adds peer-to-peer violence, community and collective violence and includes events that occur external to the household including, family dysfunction, physical, sexual, emotional abuse and neglect by caregivers (WHO 2018). Despite the rapid uptake of the ACE-IQ in China, Netherlands, South Africa, Nigeria, Saudi Arabia, Brazil, Korea and Iraq, data on psychometric properties and validity are currently limited (Kidman et al. 2019).

It has been acknowledged that while ACE studies using the ACE survey and ACE-IQ provide information on the exposure to and frequency of childhood adversities, they may underestimate the actual experience of children (Public Health Directorate 2018). By limiting participants to a dichotomous choice for each item on the ACE survey, the measure inadvertently ignores variability in responses and between participants (Altman and Royston, 2006). Individuals with the same ACE score could in theory, have vastly different experiences. For example, a divorce might not be a traumatic experience for one child but extremely traumatic for another. This is among one of the main critiques of the ACE survey as it does not record the severity or intensity of adversity experienced by individuals (Anda, Porter and Brown, 2020) nor the breadth of possible experiences as it is based on a 10-item closed question framework (McEwen and Gregerson, 2019). Previous attempts have been made to provide clearer definitions to operationalise ACEs to provide a more comprehensive set of childhood adversities (Finkelhor et al. 2013, 2015; Cronholm et al. 2015; Wade et al. 2016). In light of these criticisms, there continues to be ongoing variation in ACE screening methods, with some replicating the original study as closely as possible (Marie-Mitchell and O'Connor, 2013; Bucci et al. 2015).

Purpose and objectives of the study

The purpose of the study was to explore the exposure to adversities experienced by undergraduates and graduates in childhood. The objectives of the study were:

- To capture and describe the range of adverse childhood experiences (ACEs) undergraduates and graduates recalled being exposed to before the age of 18 years including adversities not captured using the ACE survey (Felitti, et al. 1998)
- To explore the usefulness of measuring perceived levels of trauma to distinguish non-traumatic from traumatic ACEs.
- To investigate whether including additional ACEs and discounting those perceived to be non-traumatic significantly affect the participants overall ACE score.

Method

Ethics approval

This research study followed approval from the University ethics committee. The study was performed in line with the BERA (2018) guidelines ensuring voluntary and informed consent, right to withdraw and publish findings.

Participants

The approach to selecting participants was purposive sampling, as the authors deliberately targeted those who were on a University degree programme or had already completed a degree (Harding 2019). The rationale for this was that the original Felitti et al. (1998) study had data available on those with a college education and subsequent research has found high levels of ACEs among graduate and undergraduate cohorts (McGavock and Spratt 2014; Thomas 2016; Karatekin 2018).

Of the initial 305 respondents, 20 were excluded for not meeting the inclusion criteria of having a degree or studying towards one and nine were excluded for failing to answer follow-up questions surrounding informed consent and 120 did not complete the full survey. This meant the final sample was 156 and the attrition rate was 39.34%. All participants were residing in England, aged between 19 and 57 ($\bar{x} = 38$). Further socio-demographic information, such as ethnicity, gender, sexual orientation was not collected as this was not an aim of the research.

Measures

The ACE survey from the original ACE study (Felitti et al. 1998) was used as a basis for the questionnaire as it is commonly cited as defining categories of adversities (Bucci et al. 2016) and is frequently used in research (Dube et al. 2001; Esaki and Larkin 2013). In light of recent criticisms of the validity of this study (Public Health Directorate 2018; Newbury et al. 2018; McEwen and Gregerson, 2019), participants were asked to identify any additional ACEs they experienced before the age of 18 through the open-ended questions.

Participants were also asked to reflect upon the severity of each original and additional adversity experienced using a 11-point Likert scale ranging from 0 (not traumatic at all) to 10 (extremely traumatic). The rationale for the inclusion of the Likert scale was because binary measures are likely to underestimate participant variation (Altman 2006). Expanding the measure to collect additional ordinal data will also increase the level of data captured and overall measurement quality (Lundmark, Gilljam and Dahlberg 2016; DeCastellarnau 2018).

Procedure

The survey required participants reading the information sheet, agreeing to consent and completing qualifying statements to proceed. For each of the ten categories from the ACE survey, participants indicated if they had been exposed to the events in childhood and if not, they selected 'this did not happen to me'. Participants were then asked 'Do you feel you had any other traumatic childhood experiences that were not included in the ACE Study Survey?', 'If you feel comfortable, would you detail what these were?' The survey provided the option for participants to provide a narrative account of each additional adversity they recalled experiencing as children. The participants ranked their perceived level of trauma for each of the adversities they reported using a Likert scale ranging from 0 'not traumatic at all' to 10 ‘extremely traumatic’. The purpose was to examine the levels of trauma experienced for each adversity to ascertain if some adversities were more likely to be perceived as traumatic than others.

The approach to analysing the additional adversities was largely inductive, where the authors examined the data without preconceptions to establish arising codes before determining how they compared with the ten categories within the ACE survey (Moses and Knutsen 2007; Harding 2019). The codes identified similarities and differences between the adversities defined in the ACE survey and ACE-IQ.

Results and Discussion

Exposure to ACEs captured using the Felitti et al. (1998) survey

When examining the overall ACE scores in Figure 1, 84% of the participants reported at least one ACE, more than 46% had an ACE score between one and three and 38% had an ACE score of four or more.

[Figure 1 near here]

Table 1 presents a comparison of findings from this study and other research concerning undergraduate and graduate participants' self-reported ACE scores when using the ACE survey (Felitti et al. 1998). The findings illustrate that of the sample, 16.03% had no identified ACEs, the smallest value when compared to the other studies in Table 1 and markedly different from those presented by Felitti et al. (1998) at 51.4%. Over 5% of the Felitti et al. (1998) sample reported four or more ACEs which is notably smaller than the current sample of 37.82% and data reported by Thomas (2016) McGavock and Spratt (2014) and Karatekin (2018).

[Table 1 near here]

Figure 2 illustrates that the most common adversity disclosed by the participants was psychological abuse (56%) followed by caregiver mental health (54%) and emotional neglect (51%). Having a caregiver in prison (10%) was the least reported adversity.

[Figure 2 near here]

Participants' perceived levels of trauma

The purpose of the research was to examine the participants' perceptions of the levels of trauma experienced for each adversity, including the additional adversities they described. This was to identify if some adversities were perceived to be more traumatic than others. Figure 3 presents the variability of their self-reported trauma scores for each of the ten ACE categories and reveals some interesting findings. Firstly, five of the ten categories have the same median trauma value (6), whereas 'sexual abuse' had a higher value (7) and 'physical abuse', 'divorce' and 'caregiver mental health' were lower (5). Secondly, all ACE category trauma ratings ranged from 0 'not traumatic at all' to 10 'extremely traumatic' with approximately 10% of the participants rating ACEs as 'non-traumatic'.

[Figure 3 near here]

Finally, the dispersion of scores indicates variability in levels of trauma experienced, with notable interquartile ranges (IQR) of 'sexual abuse' (7.25), 'caregiver in prison' (5.50) and 'physical abuse

of caregiver' (5.25). Overall, the data suggest that irrespective of ACE, the level of trauma experienced can vary between individuals and would benefit from further research.

Exposure to additional ACEs not captured using the Felitti et al. (1998) survey

Approximately 45% of respondents believed they had at least one additional ACE (n = 70), 52% of participants had not experienced further ACEs (n = 81) and 3% were unsure (n = 5). Of those who reported additional exposure to ACEs beyond those on the ACE survey, the average number of experiences was 1.5. When participants ranked the perceived level of trauma resulting from these additional adversities, none of the participants graded these experiences as 'non-traumatic'. There were 95% of participants who ranked the additional trauma as 4 out of 10 and 60% who rated their trauma as eight or more. The median trauma rating for all additional ACEs was also higher (8) than the ten categories listed in the ACE study survey (6).

As presented in Table 2, a total of 112 additional ACEs reported by participants would not have been captured using the ACE study measure alone. The most frequently cited additional adversity was peer to peer violence (n = 13) and death of a parent (n = 13) followed by the death of a wider family member (n = 12). The table that follows includes all 112 reported additional ACEs. The adversities were coded as additional because the nature of the events described by participants did not match the descriptions provided by the ACE study.

[Table 2 near here]

If the ACE-IQ (WHO, 2018) survey were included alongside the ACE survey, an additional 40 experiences would have been captured. However, this would have left 72 additional ACEs not captured by either measure.

ACE scores when non-traumatic ACEs are excluded and additional ACEs are included

To examine whether non-traumatic and additional ACEs affect participants' overall ACE score, a Wilcoxon Signed Rank Test was carried out. The analysis compared the original ACE scores against scores which included additional exposure to ACEs and excluded ACEs participants regarded as non-traumatic. To determine the sufficient sample size, a statistical power analysis was carried out using G*Power (Faul et al., 2009) with an alpha of 0.05, power of 0.80 and an effect size of 0.30 (Cohen 1992). The analysis found that a projected sample size of 94 participants was required to detect a medium effect; therefore, the final sample of 156 was sufficient. The results found a significant difference between ACE scores, $z = -5.84$, $p < .001$, $r = -.33$ suggesting that by removing non-traumatic ACEs and incorporating additional adversities, participant scores changed significantly.

The distribution of ACE scores varies when using the original measure and the new measure (see Figure 4). There was a smaller percentage of participants who had an ACE score of 0 (13% versus 17%) when using the new measure compared to the original ACE survey (Felitti et al. 1998).

There was also a smaller percentage identified in scores ranging from 1-3 (39% versus 46%). However, there was a higher percentage of participants who reported an ACE score of four or more (48% compared to 38%). It could be suggested that the new measure provides a broader and more accurate account of the adversities experienced by participants while adhering to the level of adversity reported.

[Figure 4 near here]

Conclusion

The purpose of this research was to explore whether the inclusion of perceived trauma rankings and the option of including additional ACEs significantly affected participants' overall ACE score. The results of this study found that almost half of the sample reported additional ACEs that would not have contributed to an ACE score using the original survey and all participants reported varying levels of perceived trauma for each of their adversities.

Additionally, this research found that when additional ACEs were included in score calculations and ACEs regarded as non-traumatic were excluded, participants' ACE scores were significantly different from the original measure. Specifically, a greater proportion of participants had a ACE score of four or more when using the new measure compared to the original ACE survey. Although based on a small sample of undergraduates and graduates, these findings are useful as they reinforce concerns raised that current ACE studies underestimate the impact and intensity of ACEs on children (Public Health Directorate 2018; McEwen and Gregerson 2019). Specifically, the research raises important questions regarding whether a formalised survey with closed, pre-set questions is a valid approach to capturing the range of ACEs experienced in British communities.

This study provides further evidence for health services seeking to provide any screening for exposure to ACEs, it would need to capture both the range and intensity of the lived experiences. The participants in this sample were able to share their wide-ranging adversities and to rank them in terms of their perceived level of trauma. In addition, despite its exploratory nature, this study offers some insight into the usefulness of measuring level of trauma to distinguish between traumatic and non-traumatic ACEs. It could be suggested a new measure incorporating both these elements could provide a broader and more accurate account of the adversities experienced by participants.

Though not in the remit of the study, a perceived limitation of this research could be that the original and new ACE scores were not compared to health outcomes to investigate whether either measure was more positively associated with adverse behavioural trait and morbidity rates. Additionally, existing trauma measures were not used in the current research. However, to demonstrate the variability of self-perceived trauma across the ACE categories, the authors felt a Likert scale was sufficient for exploratory purposes. Finally, as retrospective memories of ACEs were used there may have been inaccurate recall leading to biased reports.

An agreed, universal definition of adverse childhood experiences, adversity and trauma would be a positive step forward given current ambiguity in the literature. A natural progression of this work would be to explore why self-perceived trauma relating to adverse childhood experiences were heterogeneous. Additionally, further research should continue to explore the value of open-ended measures to capture the range and intensity of adverse childhood experiences.

Conflicts of interest

The authors declare that they have no conflict of interest.

Ethics approval

The research was approved by the University's Ethics Committee

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Table 1

ACE score of current participant sample and other articles

ACE Score	Number	Percent	Felitti et al.,1998[b]	McGavock and Spratt, 2014[a]	Thomas, 2016[b]	Karatekin, 2018[a]
No ACEs	25	16.03%	51.4%	43.98%	20.25%	47%
1-3 ACEs	72	46.15%	43.3%	43.59%	37.97%	43%
≥4 ACEs	59	37.82%	5.3%	12.43%	41.77%	8%
Total	156	100%				

Note. Abbreviations: ACEs = for Adverse Childhood Experiences, Percent values relate to undergraduates [a], Percent values relate to graduates [b].

Table 2

Additional ACEs not Captured by the ACE Survey

Additional ACE	Frequency	Additional ACE	Frequency
Peer to peer violence	13	Domestic violence from caregiver	2
Death of a caregiver	13	Drug misuse external to the household	2
Death of a wider family member	12	Emotional neglect by a caregiver	2
Emotional abuse by a caregiver	11	Sibling with a disability	2
Moving home (5) or school (1)	6	Historic sexual abuse of a family member	2
Near-death experience	5	Alcohol misuse grandparents	1
Own ill mental health as a child	4	Divorce and separation	1
Financial burden in the household	4	Fear of homophobia from caregiver	1
Caregiver abandonment	3	Missing family member	1
Witnessing community Violence	3	Physical abuse in school	1
Multiple bereavements	3	Separated from sibling into care	1
Finding out they were adopted	3	Sibling drug misuse	1
Caregiver with a life-limiting illness	3	Sibling with life-limiting illness	1
Caregiver infidelity	3	Suicide outside of the household	1
Life limiting condition as a child	3	Witness to an explicit sexual act	1
Death of a friend	2	Witnessing physical abuse of a sibling	1

Figure 1

Click here to access/download;Figure;Fig1.png

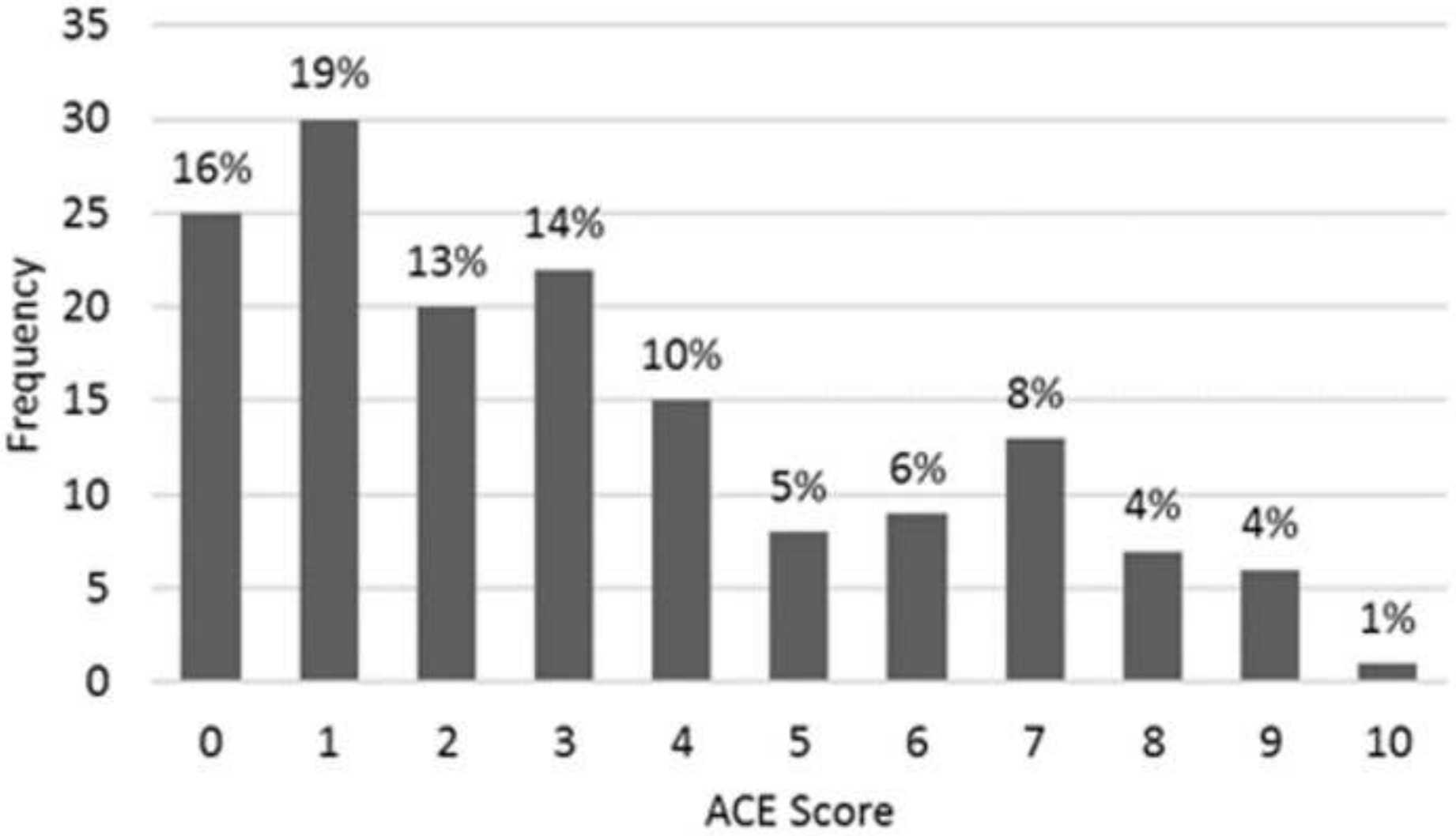

Figure 2

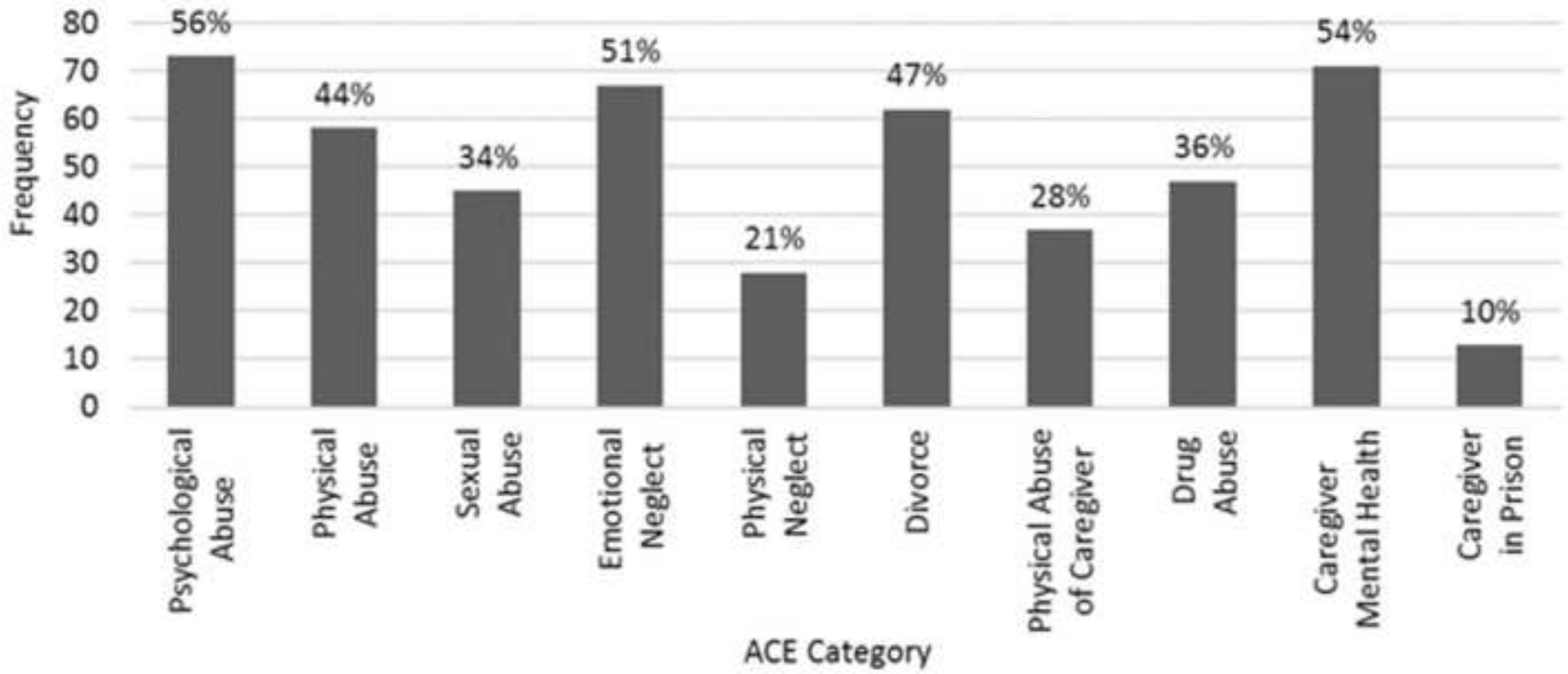

Figure 3

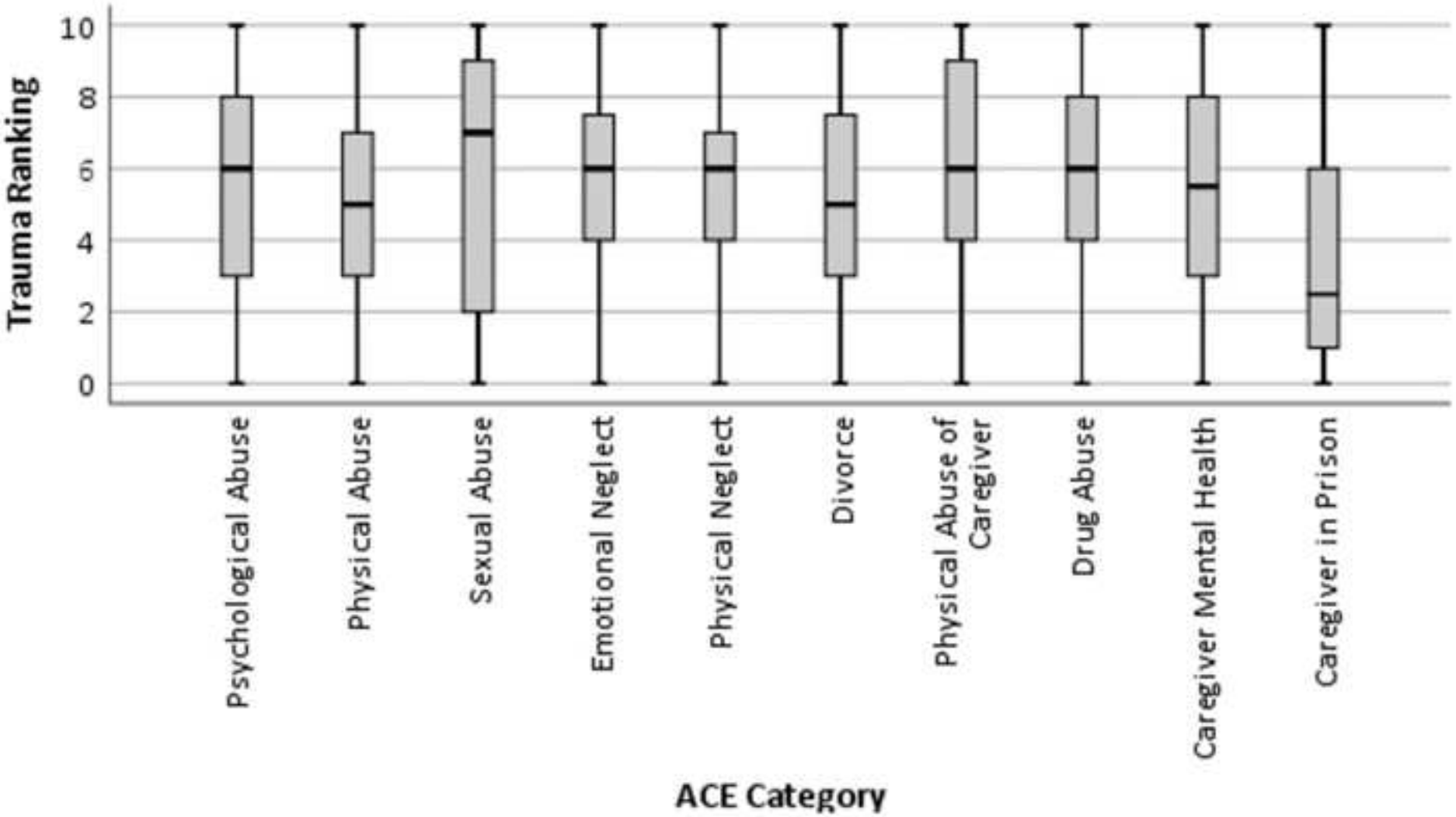

Figure 4