The Youth and Childhood Adversity Scale: a step towards developing a new measure of adversity and its severity

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ABSTRACT

Background: Early adversity (EA) can contribute to the onset, manifestation, and course of various mental disorders. Measuring EA is still conceptually and psychometrically challenging due to issues such as content coverage, item-wording, scaling methods, and validation procedures. Further, despite research demonstrating the importance of the severity of EA, most EA scales solely focused on the ‘presence-versus-absence’ indicator of adverse events.

Objectives: To address these potentially relevant gaps, we have developed a 13-item measure of EA, the Youth and Childhood Adversity Scale (YCAS). Beyond a dichotomous assessment of whether a set of adverse events have been experienced, this scale also assesses the respective severity of these events.

Methods: We evaluated the YCAS in a sample of 596 adolescent students (ages 16–19) and a second sample of 451 medical students (ages 18–30+). Exploratory factor analysis was used to determine the underlying structure as proposed by the data, which was then tested with confirmatory factor analysis. We psychometrically assessed both factor scores and sum scores.

Results: In both samples, a one-factorial solution was found for both responses to dichotomous items and severity items. Item loadings had a broad range, with minimum loadings of .1-.2 and maximum loadings of .7-.9. Irrespective of the response type, this factor exhibited good reliability (omega total, range: .80 – .89) and was associated with a range of mental-health outcomes, self-esteem, and childhood maltreatment. The fit of the model resembling sum scores was not satisfactory, but the sum score reliability (coefficient alpha, range: .78 – .89) was acceptable and most of the associations with the validation measures held.

Conclusions: The YCAS allows an efficient, reliable, and valid assessment of EA and its severity. It covers a reasonable breadth of events, whilst simultaneously being parsimonious. We discuss next steps of how to improve this measure to fully capture the complexity of EA.

La Escala de Adversidad en Infancia y Juventud: Un paso hacia el desarrollo de una nueva medida de la adversidad y su gravedad

Antecedentes: La adversidad temprana (EA) puede contribuir al inicio, manifestación y curso de varios trastornos mentales. La medición de la EA sigue siendo un desafío conceptual y psicométrico debido a dificultades como cobertura de los contenidos, redacción de ítems, métodos de escalamiento y validación de procedimientos. Además, a pesar de que las investigaciones demuestran la importancia de la severidad de la EA, la mayoría de las escalas de EA únicamente se enfocaban en el indicador de ‘presencia-versus-absencia’ de eventos adversos.

Objetivo: Para abordar estas brechas potenciales relevantes, desarrollamos una medida de 13 ítems de la EA, la Escala de Adversidad en Infancia y Juventud (YCAS) en sus siglas en ingles). Además de realizar una evaluación dicotómica sobre si un conjunto de eventos adversos ha sido experimentado, esta escala también evalúa la respectiva severidad de estos eventos.

Métodos: Evaluamos la YCAS en una muestra de 596 estudiantes adolescentes (edades 16-19) y en una segunda muestra de 451 estudiantes de medicina (edades 18-30+). Se utilizó un análisis de factor exploratorio para determinar la estructura subyacente según lo sugerido por los datos, la cual fue probada nuevamente con un análisis de factor confirmatorio. Evaluamos psicométricamente tanto las puntuaciones de los factores como las puntuaciones totales.

Resultados: En ambas muestras, se encontró una solución unifactorial para ambas respuestas a los ítems dicotómicos e ítems de severidad. Las cargas de ítems tenían un amplio rango, con cargas mínimas de .1-.2 y cargas máximas de .7-.9. Independientemente del tipo de respuesta, este factor exhibió una buena confiabilidad (omega total, rango: .80-.89) y se asoció con una variedad de resultados de salud mental, autoestima y maltrato infantil. El ajuste del modelo asemejando puntajes acumulados no fue satisfactorio, pero el puntaje acumulado de confiabilidad (cociente alfa, rango: .78-.89) fue aceptable y la mayoría de las asociaciones con las medidas de validación se mantuvieron.
1. Introduction

Early adversities (EA: adversity that takes place during childhood and adolescence) are conceptually defined as traumatic or severely stressful environmental experiences that require considerable adaptations in children and adolescents (McLaughlin, 2016). These experiences can capture a wide range of events across childhood through adolescence, such as parental separation, sexual abuse, parental substance abuse, and family mental illnesses (Felitti et al., 1998). Having experienced any of these adversities is reported by up to half of the population in Western countries (Felitti et al., 1998; Green et al., 2010). Given that, worldwide, up to one third of all mental health problems are attributable to EA (Kessler et al., 2010), the accurate and comprehensive assessment of EA is of paramount importance to mental health practitioners, researchers, and policy makers. However, the breadth and complexity of EA hampers accurate measurement of this construct. For example, it is difficult to define clearly which events should be considered reflective of adversity and to specify adequate measurement models that reflect these definitions. Challenges are also apparent in recent theoretical considerations (McLennan, MacMillan, & Afifi, 2020) and reviews (Saini, Hoffmann, Pantelis, Everall, & Bousman, 2019) that outline important ways to advance the construction of EA scales including improved content coverage, wording of items, scaling methods, and validation procedures. It is particularly important for EA scales to go beyond the application of cumulative risk scores that only sum up the 'presence-versus-absence' of adverse events and often do not have formal psychometric validation (Evans, Li, & Whipple, 2013).

2. Measurement of early adversity

Since the U.S. National Comorbidity Study (Kessler, Davis, & Kendler, 1997), the Adverse Childhood Experiences study (ACE, Felitti et al., 1998), and other influential studies (e.g. Mullen, Martin, Anderson, Romans, & Herbison, 1996; Stein et al., 1996), researchers have faced a variety of conceptual and psychometrical challenges when assessing EA (McLaughlin, 2016). Different reviews shed light on common difficulties with regard to scale development (see Burgermeister, 2007; Oh et al., 2018; Roy & Perry, 2004; Saini et al., 2019). A first set of difficulties concerns general points of scale development including poor theoretical justifications, inadequate item phrasing, poor applicability, and lack of psychometric validation (e.g. Taylor et al., 2006). By targeting some of these limitations, many measures have contributed to a better understanding of EA. For instance, the revised version of the ACE scale increased the measure’s predictive validity (Finkelhor, Shattuck, Turner, & Hamby, 2013, 2015). Likewise, the Childhood Trauma Questionnaire (Bernstein & Fink, 1998; Bernstein et al., 1994) and its short version (Bernstein et al., 2003) are sound scales that measure more circumscribed family adversities. Recently, Morrill, Schulz, Nevarez, Preacher, and Waldinger (2019) contributed a comprehensive multidomain measure of EA tapping into within- and between-family sources of EA. Yet, to date, most scales are rather narrow by focusing on family members, while adverse experiences affecting close peers (as opposed to family), such as the death of a close friend, may also contribute to the development of mental disorders (Kim & Cicchetti, 2010). For example, having a friend or partner with mental health problems or drug abuse...
problems or witnessing a significant other being a victim of violence may be experienced as adverse as well. Therefore, EA scales may be more valid when they incorporate adverse events either happening to significant others or being caused by significant others. A second area of difficulties concerns the content coverage of the complex EA construct. Some scales are psychometrically sound but restricted to one type of adversity (e.g. measures that only assess sexual assault, see Lange, Kooiman, Huberts, & Oostendorp, 1995). Other measures are, on the other hand, quite exhaustive, resulting in long scales and complex factor solutions (e.g. the Assessing Environments III has up to 164 items; Berger, Knutson, Mehm, & Perkins, 1988). As a consequence, brief scales that nonetheless cover a wide range of events were developed, refined, and applied (e.g. Mersky, Janczewski, & Topitzes, 2017, for a review, see Oh et al., 2018). These considerations demonstrate that a new scale needs to select items carefully to capture the broad construct of EA with an adequate wording while reducing demands for participants.

2.1. Factorial solutions of EA scales

While these developments have advanced our understanding of the assessment of EA, accurately capturing EA is still an ongoing process that necessitates further refinements. Besides paying more attention to the content coverage, item construction, scaling methods, and psychometric properties (e.g. reliability and validity), the underlying factor structures for many measures of EA are as yet unclear. Many studies assumed unidimensionality by calculating simple cumulative risk scores (for a review, see Evans et al., 2013). To allow for increased dimensionality, some researchers have suggested categorizing adversities into dimensions or classes (for a review see McLaughlin, 2016). For instance, a Dimensional Model of Adversity and Psychopathology was proposed including both deprivation (e.g. neglect or poverty) and threat-based EA (e.g. abuse, McLaughlin, Sheridan, & Lambert, 2014). Yet, it remains unknown whether these two dimensions are (a) psychometrically and conceptually more meaningful than a unidimensional adversity index and (b) sufficiently granulated or whether a variety of different classes would be theoretically meaningful (Lacey & Minnis, 2020). Whilst there are studies that have tested EA factor structures (Bernstein et al., 2003) or EA classes empirically (Lacey, Pereira, Li, & Danese, 2020), many of them display at least some of the above-mentioned limitations (e.g. being long and impractical or having poor wording). It is therefore important for a new measure of EA to apply a bottom-up theory-free approach to detect the underlying structure of the data of a carefully selected set of items.

2.2. Beyond dichotomous assessment

Whilst the accumulation of different EAs is generally associated with poorer mental health (Gilman et al., 2015), individual adversities may differ in their impact on mental health outcomes. For instance, sexual abuse may have more profound consequences on subsequent mental health than parental separation (Frans, Rimmö, Åberg, & Fredrikson, 2005; Shakespeare-Finch & Armstrong, 2010). Nonetheless, most studies of EA have used the concept of cumulative risk, equally counting the number of distinct adverse experiences leading to a parsimonious single risk score for each individual (for a review, see Evans et al., 2013). This approach, however, may result in a loss of important information because each adversity then contributes to the same extent to the underlying construct.¹ To this end, there are a number of validated clinician-administered measures of EA (for a review see Roy & Perry, 2004), such as the Childhood Trauma Interview (CTI; Bernstein et al., 1994). These measures capture the differential impact of single events, thereby providing more information than counting the number of adversities and treating them equally. However, such interviews are often lengthy and require a trained clinician or interviewer, making them expensive, time-consuming, and impractical (Bremner, Bolus, & Mayer, 2007). Applying different weighing methods or using derived factor scores when using EA scales may be one way to circumvent such problems (Evans et al., 2013). For instance, in the US National Longitudinal Study of Adolescent to Adult Health, factor-analytical maltreatment scores were a stronger predictor of mental health symptoms than a cumulative risk score (Brumley, Brumley, & Jaffee, 2019). Going beyond these data-driven sample-dependent approaches, it may be helpful to consider possible top-down theory-driven facets to fine-grain adversity indices.

In this vein, a simple and practical solution to capture EA accurately would be to assess and model the severity of EAs. The cognitive appraisal of an adverse event, that is, how people experience the severity of it, may account for a large proportion of the variance in subsequent mental health outcomes. For instance, self-perceived severity of early neglect is highly associated with externalizing problems in children (Manly, Oshri, Lynch, Herzog, & Wortel, 2013) and a higher self-perceived severity of sexual abuse predicted more mental health problems (Fergusson, McLeod, & Horwood, 2013). Moreover, even if an adversity has a high average impact across the
population, the impact of this adversity may vary across individuals, due to different subjective experiences. Therefore, it may be more informative to assess the individual’s perceived severity of each EA than just the mere presence (versus absence) of an adverse event. Indeed, Danese and Widom (2020) showed that the subjective experience of EA has a much stronger association with subsequent mental health problems than objectively identified EAs. Another important consideration is that EA severity can be assessed on Likert scales, thus providing more information (i.e. more variance) than a dichotomous assessment.

Including a severity indicator was also advocated in a recent review (Lacey & Minnis, 2020). However, most studies simply added severity facets to established scales, but did not formally validate those newly added severity facets. This is a problematic omission as the psychometric properties of binary presence-versus-absence items may not directly translate to the properties of continuous or ordinal severity items. Therefore, it is critical to test whether this practical approach is psychometrically justified.

3. The present study

The purpose of the present research was to develop a new measure of EA, the Youth and Childhood Adversity Scale (YCAS). We aimed to capture adversities in the broad period between childhood and youth and assessed EA until the time of assessment instead of arbitrarily setting an age cut-off. Beyond a dichotomous assessment of whether a set of adverse events have been experienced, this scale assesses the severity of each endorsed event. Analyses of the factorial solution were conducted with a bottom-up theory-free approach to determine the underlying structure as indicated by the data. To establish the validity of the YCAS, we examined its association with various theoretically meaningful constructs derived from the literature. For example, based on the well-known dose-response relationship between EA and mental health (e.g. Green et al., 2010), we included a range of different mental health scales as validation measures. Moreover, we evaluated the validity of our scale against a childhood maltreatment measure. The YCAS was assessed in two studies. In the first sample, SHARE (Self-Harm and Relationship Experiences, Cassels, 2018), we developed and validated the YCAS in a population of adolescents to examine its initial psychometric functioning. We additionally tested the YCAS in a second sample (Resist; Resilience Study, Fritz, Stochl, Kievit, Van Harmelen, & Wilkinson, 2021) to (a) further refine the scale in terms of wording and including additional adversities and (b) validate it in a further sample of young adults.

4. Method study 1: SHARE sample

4.1. Scale development, participants and concurrent validators

4.1.1. Item selection

In search of a conceptual definition that captures the complexity of the construct, EAs have been defined as severe events that impose a great deviation from the normative environment and necessitate great adaptations (McLaughlin, 2016). Starting from this definition, the YCAS was first developed in the context of the SHARE study. We strove to balance comprehensiveness with parsimony to ensure utility of our measure in a variety of contexts whilst minimizing participant burden. The YCAS is based on existing measures from the current literature including events that fall within this conceptual framework. These measures assessed EA prior to the age of 17 (Pennebaker & Susman, 1988) or within the age period under 18 years (Felitti et al., 1998) without defining a lower age limit. To have maximum information, we deviated from this approach by not setting an arbitrary upper age limit and assessing EA up to the time of assessment. This was based on the considerations that both samples were relatively young and still in a formative developmental phase (see demographic details below) alongside empirical evidence that EAs are highly impactful in the period following their occurrence (Dunn et al., 2018; Shanahan, Copeland, Costello, & Angold, 2011). The primary measure on which the YCAS was based is the Childhood Traumatic Events Scale (CTE) (Pennebaker & Susman, 1988), which comprises six questions about whether an adverse event occurred in the participant’s lifetime, and if so, when it occurred, and how severe it was along a scale from ‘1 Not at all Traumatic’ to ‘7 Extremely Traumatic’ (all participants who indicate ‘no’ on the yes/no items receive a zero on the respective severity score). The items from the CTE (all of which were included in the YCAS) assessed: death of a very close friend or family member, major upheaval between parents, traumatic sexual experience, victim of violence, extreme illness or injury, and any other major traumatic event (items 1, 2, 3, 4, 6, and 13 in Table 1). The CTE has been shown to be a reliable and valid predictor of various mental health measures (Pennebaker, 1993). In the YCAS, if participants endorsed an ‘other’ adverse event, they were given an open-ended option to specify this event in further detail. To increase the breadth of EAs addressed in the CTE, we included
### Table 1. Descriptive statistics for both samples.

| SHARE (N = 596) | Res/N = 457 |
|----------------|-------------|
| **Yes/No**     | **Yes/No**  | **M** | **SD** | **SK** | **Kt** |**M** | **SD** | **SK** | **Kt** |
| **SHARE**      | **Res/N**   | **M** | **SD** | **SK** | **Kt** | **M** | **SD** | **SK** | **Kt** |
| 1. A death of a very close friend or family member? | 0.13 | 0.99 | 4.50 | 1.57 | -0.33 | 2.24 | 0.95 | 2.27 | 1.79 |
| 2. A traumatic sexual experience (eg., molested, etc.) | 0.28 | 1.04 | 4.50 | 1.60 | 1.15 | 3.47 | 1.05 | 3.29 | 1.26 |
| 3. If you were the victim of violence (eg., physically, emotionally, etc.) | 0.29 | 1.03 | 4.50 | 1.70 | 0.47 | 3.47 | 1.04 | 3.47 | 1.41 |
| 4. Were you physically, emotionally, or sexually assaulted during the year from the time of violence? | 0.29 | 1.03 | 4.50 | 1.70 | 0.47 | 3.47 | 1.04 | 3.47 | 1.41 |
| 5. Did you experience any other trauma or difficulties that you think may have shaped your life? | 0.22 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 6. Did you feel significant stress or anxiety? | 0.21 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 7. Did you experience any other significant other's emotional or mental illness? | 0.20 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 8. Did you experience any other significant other's illness or injury? | 0.19 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 9. Did you experience any other significant other's substance use? | 0.18 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 10. Did you experience any other significant other's difficulties? | 0.17 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 11. Did you experience any other significant other's difficulties? | 0.16 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |
| 12. Did you experience any other significant other's difficulties? | 0.15 | 0.24 | 4.50 | 1.39 | 0.24 | 3.47 | 1.04 | 3.47 | 1.41 |

**Note.** M = Mean; SD = Standard Deviation; SK = Skewness; Kt = Kurtosis. Mean severity is based on participants indicating yes. Numbers in bold indicate significant differences between SHARE and Res/N samples, p < 0.01.

An additional six items. Three items were based on a set of questions assessing childhood adversity (Surtees et al., 2003): separation from parent for more than 1 year; parental unemployment for more than 1 year when they wanted to be working; and family member’s alcohol or drug use sufficient to cause family problems (items 9, 10, and 11 in Table 1). Further, one question pertaining to parental mental illness was taken from the Adverse Childhood Experience study (item 8 in Table 1, Felitti et al., 1998), and two questions were added from the List of Threatening Experiences (Brugha, Bebbington, Tennant, & Hurry, 1985): witnessing family members’ experiences of violence; and serious injury or illness (items 5 and 6 in Table 1). These items were selected based on high face validity and particular relevance to normative adolescent populations. Other items from these latter three measures were not added to the YCAS because they were either less relevant to adolescents or overlapped with the CTE. Specifically, these items captured events that may be threatening but do not fall into the definition of EA (e.g., ‘I broke off a steady relationship’, Brugha et al., 1985) or were already included with a different wording (e.g., “I live with anyone who was a problem drinker or alcoholic”, Felitti et al., 1998). All yes/no items were preceded by the following: ‘In case of multiple experiences, please choose the most traumatic one for the following questions. How traumatic was this?’ The 7-point Likert-scale included the labels ‘1 Not at all Traumatic’, ‘4 Somewhat traumatic’, and ‘7 Extremely Traumatic’, while the other response options had no label.

### 4.1.2. Participants

For the SHARE study (Cassels, 2018) a link to the online survey was disseminated via email to roughly 5000 sixth form students at 11 schools across Cambridgeshire, UK. A total of 596 participants aged 16–19 years (M = 17.24, SD = 0.67) provided informed consent and completed the self-report survey. Of these participants, 76 (13%) identified as people of colour and 520 (87%) as white. One hundred and thirty-eight (23%) identified as male, 445 (75%) as female, 11 (2%) as other, and 2 did not report on gender. A single large sixth form college provided 355 (60%) participants, with the other 10 schools providing between 1 and 51 participants each. For 476 participants, we had postcodes from which we derived the Index of Multiple Deprivation Decile, which has categories from 1 to 10, whereby CI represent the 10% most deprived areas in the UK and C10 the 10% least...
deprived areas (Smith et al., 2015). Overall, 141 (24%) fell in the least deprived category C10; 179 (30%) fell in the category C9 or C8; 128 (21%) fell in the category C7, C6, or C5; and only 13 (2%) were in the category C4 or C3, whilst no participant was in the category of the most deprived areas C2 and C1. This points to a sample that is less deprived than the average population for which a uniform distribution would be expected.

4.2. Concurrent validators

4.2.1. Mood
The Short Form Mood and Feelings Questionnaire (Angold, Costello, Messer, & Pickles, 1995) consists of 13 statements about participants’ experiences of depressive symptoms, derived from the 33-item Mood and Feelings Questionnaire (Costello &Angold, 1988). It is widely used and thoroughly validated with child and adolescent populations (Sharp, Goodyer, & Croudace, 2006). Internal consistency was good, α = .93.

4.2.2. Anxiety symptoms
The Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999) consists of 41 statements pertaining to the five DSM-IV anxiety disorders: somatic/panic, generalized anxiety disorder, separation anxiety disorder, social phobia, and school phobia. It was developed with a diverse adolescent sample (ages 9–19 years) from a mood and anxiety disorders clinic. It is well-validated and widely used (Myers & Winters, 2002). We found good internal consistency, α = .95.

4.2.3. Non-suicidal self-injury (NSSI)
Participants answered two yes/no questions adapted from an item on the Drug, Alcohol and Self-Injury questionnaire (DASI) (Wilkinson, Qiu, Neufeld, Jones, & Goodyer, 2018): ‘Have you ever tried to hurt yourself on purpose without trying to kill yourself?’ and ‘In the last month, have you tried to hurt yourself on purpose without trying to kill yourself?’ In the SHARE sample, this item showed adequate convergent validity ($r = 0.66$) with another well-validated multi-item measure of self-harm behaviour, the Self-Harm Inventory (Sansone & Sansone, 2010). Using a single-item measure of NSSI is common in NSSI research and has previously been shown to render consistent estimates of prevalence (Muehlenkamp, Claes, Havertape, & Plener, 2012).

4.2.4. Self-esteem
The Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) consists of 10 statements about participants’ perceptions of their self-worth, yielding a single measure of self-esteem. Note that the RSES was also used in Resist, $\alpha_{SHARE} = .92$, $\alpha_{Resist} = .82$.

4.2.5. Irritability
The Affective Reactivity Index (Stringaris et al., 2012) consists of seven statements pertaining to the participant’s general irritability over the previous 6 months. It was developed and validated within samples of psychologically heterogeneous children (218 in America and 88 in the UK; Stringaris et al., 2012). This scale displayed good internal consistency, α = .90.

5. Method study 2: Resist sample

5.1. Scale development, participants and concurrent validators

5.1.1. Scale refinements
After the SHARE study was completed, we believed the YCAS could be improved by assessing RA regarding criminality of parents, siblings, or significant others. Such an item is also used in the World Health Organization World Mental Health Surveys (Kessler et al., 2010) and criminality of parents can contribute to mental health issues such as internalizing disorders, conduct problems or attachment issues (Murray & Murray, 2010). We also wished YCAS to cover adverse experiences affecting close friends or romantic partners (in addition to the family, e.g. death of a close friend), as these experiences can also contribute to the development of mental disorders (Kim & Cicchetti, 2010). Based on these considerations, we applied two changes to the YCAS in the Resist study. First, we added an item measuring significant others’ criminality (Kessler et al., 2010, see Table 1, item 12). Second, we included the words ‘significant others’ in addition to ‘parents and siblings’ to items 1, 5, 7, 8, 11, and 12 (Table 1), since those interpersonal relationships are highly relevant for young adults (e.g. Brown & Larson, 2009).

5.1.2. Participants
We used wave 1 data from ‘Resist (Resilience Study): What Helps Students to Adapt to Exam Stress?’ (Fritz et al., 2021; Fritz et al., 2017), a three-wave study of first to sixth year Cambridge University medical students, investigating psychological resilience prior, during, and after exam stress. The link to the online survey was disseminated to 1,464 medical students, of which 451 participated at wave 1. Participants were 259 (57%) females, 185 (41%) males, and 6 (1%) did not specify their gender. The majority of participants (81%, n = 366) were between the ages 18–23, with less than 4% ($n = 17$) above age 26. The majority of the participants identified as white (58%, $n = 263$). Approximately 80% of participants indicated that their mother (yes = 359) and their father (yes = 369) had higher education after secondary school. This number is higher than in the general population (Richardson, Mittelmeier, & Rienties, 2020) and
points alongside official admission statistics of the university to a sample of families with high levels of education and socio-economic status (University of Cambridge, 2017). The University of Cambridge Psychology Research Ethics Committee approved both studies.

5.2. Concurrent validators

5.2.1. Childhood maltreatment

We combined the psychological maltreatment and neglect subscales of the Comprehensive Child Maltreatment Scale (CCMS; Higgins & McCabe, 2001), for which we altered the age range to assess up to the age of 18 instead of age 13. The psychological maltreatment subscale comprises three questions, which include how often the participant was yelled at, made to feel guilty, or ashamed. The neglect subscale comprises three questions that measure whether the participant felt that their parents ensured that they were adequately nourished, comfortable, and safe. Internal consistency was good, α = .80. Whilst the other validators represent variables that are expected to be influenced by EA (mental health, perceived stress levels, and self-esteem), this scale differs in that it represents a more domain-specific aspect and arguably fairly severe domain of EAs. By testing these associations, we aim to explore whether the YCAS relates to mental health, perceived stress levels, and self-esteem, in a similar way as the domain-specific maltreatment scale.

5.2.2. General mental health

The General Health Questionnaire was used to measure general mental health (GHQ-12; Goldberg, 1992; Jackson, 2007). The GHQ-12 consists of 12 items and is a screening for a general estimation of mental health and well-being (Jackson, 2007). The items measure a broad range of topics such as levels of attentiveness, amount of sleep, and mood. This scale displayed good internal consistency, α = .88.

5.2.3. Perceived stress

The level of perceived stress was assessed over the past month with the four-item short form of the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). Respondents indicated how unpredictable, uncontrollable, and stressful they estimated their current situation. Cronbach’s alpha was 0.75.

5.2.4. Therapy/medication

Alongside demographics, participants answered two questions concerning psychotherapeutic treatment and psychopharmacological medication usage, with a dichotomous response format (yes/no): ‘In the last six months, have you received a course of talking therapy/counselling/psychological therapy?’ and ‘In the last six months, have you taken medication prescribed by your doctor for mental health problems (e.g. antidepressants)?’

6. Analysis procedure (both samples)

The Resist data are available at the Cambridge data repository (https://doi.org/10.17863/CAM.75429); data for the SHARE study could not be made available because participants did not consent to this. All analyses were conducted in R (R Core Team, 2019) version 4.0.1 and the analysis code is openly available on the open science framework.2 We applied the same analysis procedure for both samples. In all analyses, items were treated as binary (yes/no) or ordinal (severity) because their skewness and kurtosis indicated deviation from normality (see Table 1). Severity items are often skewed (e.g. Kiecolt-Glaser et al., 2011) because many people do not encounter the specific adverse event at hand, which leads to a large proportion of individuals scoring the minimum score (i.e. ‘0’) on the respective item. To this end, we used tetrachoric (yes/no) and polychoric (severity) correlations for our factor-analytical models, which are more likely to provide unbiased results under these distributions (Holgado–Tello, Chácón–Moscoso, Barbero–García, & Vila–Abad, 2010). Analyses consisted of the simple yes/no response followed by separate analyses of the severity scores, which ranged from 0 (none) to 7. That is, we tested the structure and associations of (1) yes/no SHARE, (2) severity SHARE, (3) yes/no Resist, and (4) severity Resist separately.

In both samples, we conducted parallel analysis for both indicators (yes/no and severity) according to Horn (Horn, 1965) and visually inspected the scree plot to estimate the number of latent factors. Whist it is common practice to run exploratory factor analyses (EFA) in one sample and then use a different sample for a cross-validation with confirmatory factor analyses (CFA) (Brown, 2015), we ran EFAs in both our samples and subsequently tested the resulting factorial solutions with CFAs, again in both samples (using the lavaan package in R; Rosseel, 2012). We acknowledge the limitations inherent to this approach (i.e. CFA results may confirm EFA results tautologically when conducted in the same sample) but have chosen it for three reasons. First, using CFA in RESIST to confirm the EFA structure determined in the SHARE sample was not feasible because of the applied changes to the scale in the RESIST sample. Second, randomly splitting the SHARE and the RESIST samples into one EFA and one CFA sub-sample each (i.e. four samples in total) would have resulted in a lack of power, due to the low number of participants (and would have resulted in a higher likelihood of unstable parameter
estimates, large standard errors, etc.). Third, a subsequent CFA analysis was needed in both samples to test for item equivalence in the approximate sum score models (see below). As recommended for ordinal data and based on very low levels of missingness, we used the weighted least squares mean and variance adjusted (WLSMV) estimator. Criteria to evaluate model fit are as follows: Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) > 0.95 indicated good fit and values > 0.90 indicated acceptable fit, root mean square error of approximation (RMSEA) < .05 indicated good fit (Hu & Bentler, 1998), and Weighted Root Mean Square Residual (WRMR) < 1 indicated good fit (Schreiber, Nora, Stage, Barlow, & King, 2006). For internal consistency, we also estimated omega total (ωtotal), which adjusts for conceptual and methodological issues of Cronbach’s a such as not assuming equivalent factor loadings (tau-equivalence, Revelle & Zinbarg, 2009). Values > .80 were considered to indicate good internal consistency (McNeish, 2018).

We tested the validity of our measure by correlating the derived scores with the above mental health and maltreatment constructs. Here, factor scores were used (a) to reduce measurement error inherent in sum scores and (b) to take into account the fact that individual adversities are differently related to the underlying EA factor. We also provide the results for sum scores because they are easily calculated and therefore often preferred by researchers. Studies frequently erroneously use validation evidence from a factor model when utilizing sum scores. Importantly, however, factor analytic models do not simply translate to sum scores; the evidence from one does not apply to the other (McNeish & Wolf, 2020).

Therefore, we tested the model fit of models that more closely resemble sum score models through setting all factor loadings within the factorial solution to equity, for both data sets and both facets (yes/no and severity). To test whether the external validation findings from the YCAS hold for both factor and sum scores, we present validation results for both. To further explore the difference between factor scores and sum scores, we calculate internal consistency of the two approaches (calculating coefficient omega total for factor scores and Cronbach’s alpha for sum scores). Correlations in our validity analyses were adjusted for multiple tests using the Holm correction (Aickin & Gensler, 1996).

7. Results

Prevalence rates and descriptive statistics of retrospectively reported EAs (yes/no items) are shown in Table 1, alongside descriptive statistics of their corresponding severity scores. For the purposes of this table, mean severity is based on participants who indicated yes. Only 30% in the SHARE sample and 21% in the Resist sample reported that they did not experience any of these EAs, whereas the rest reported at least one type of EA ($M_{SHARE} = 1.79, SD = 1.63, M_{Resist} = 1.79, SD = 1.84$).

In both samples, the most commonly reported event was a death of a very close friend or family member, followed by parental mental illness and a major upheaval between parents. The least commonly endorsed items were maternal separation and being the victim of violence in SHARE, and parental criminality in Resist. The adversity with highest mean severity (among those experiencing that adversity) was the ‘other’ category in the SHARE sample and seeing a parent or sibling being the victim of violence in the Resist sample. The adversity with lowest mean severity was having an unemployed parent in SHARE and being separated from parents for more than one year in Resist. Overall, prevalence and mean severity of items were similar across both samples. However, the prevalence of item 2 (parental upheaval), 10 (parental unemployment), 11 (parental alcohol/drug abuse) and 13 (other) was higher in SHARE; the mean severity of item 5 (Did you ever see a parent, sibling or significant other being the victim of violence?) was higher in Resist, all $p < .01$ (see bolded numbers Table 1).

7.1. Factor structure

Parallel analyses according to Horn (Horn, 1965) and the scree plots identified one primary factor for the yes/no items and their respective severity scores in both SHARE and Resist. Table 2 depicts Eigenvalues, explained variances, and factor loadings of the EFAs.

In both samples, factor loadings for item 1 (death of a significant other) were below classic thresholds of .30 (Stevens, 2012) for both yes/no and severity. This was also true for the yes/no question for item 6 (Were you extremely ill or injured?) and item 7 (Was a parent, sibling, or significant other seriously ill or injured?). The severity factor loadings of item 6 were below the .30 threshold in the subsequent CFA in both samples, for item 7 they were only below this threshold in the subsequent CFA in the Resist sample. Yes/no factor loadings of item 13 (other major upheavals) were not satisfactory in Resist. However, the other severity scores for items 6, 7, and 13 displayed good factor loadings across both samples. Given the prevalence and theoretical importance of these items, we kept them for subsequent CFA. As item 1 had a low factor loading in both samples and on both scales, we ran the CFAs both with and without the item.

7.2. Confirmatory factor analyses

CFA factor loadings are displayed in Table 2. We note that loadings differ substantially, by a range of .6 to .8 for each model (e.g. minimum loading .18,
Table 2. EFA/CFA factor solutions and loadings based on tetrachoric (yes/no) and polychoric (severity) correlations.

| SHARE | Resist |
|-------|--------|
| Eigenvalue | Yes/No | Severity | Yes/No | Severity |
|       | 3.45 | 3.57 | 3.55 | 5.00 |
| % Variance | 29 | 31 | 27 | 38 |
| 1. A death of a very close friend or family member? | .16/ .16 | .21/ .18 | .13/ .13 | .19/ .21 |
| 2. A major upheaval between your parents (such as divorce, separation)? | .52/ .54 | .44/ .49 | .63/ .66 | .55/ .59 |
| 3. A traumatic sexual experience (raped, molested, etc.)? | .44/ .43 | .51/ .42 | .34/ .39 | .64/ .43 |
| 4. Were you the victim of violence (child abuse, mugged or assaulted other than sexual)? | .77/ .79 | .74/ .89 | .76/ .77 | .81/ .83 |
| 5. Did you ever see a parent, sibling or significant other being the victim of violence? | .74/ .76 | .70/ .76 | .90/ .90 | .75/ .94 |
| 6. Were you extremely ill or injured? | .19/ .22 | .48/ .23 | .07/ .11 | .55/ .18 |
| 7. Was a parent, sibling, or significant other seriously ill or injured? | .24/ .26 | .35/ .35 | .21/ .23 | .48/ .27 |
| 8. Did a parent, sibling, or significant other suffer from mental illness? | .68/ .69 | .59/ .71 | .57/ .56 | .49/ .58 |
| 9. Were you separated from one of your parents for more than 1 year? | .58/ .54 | .68/ .52 | .35/ .44 | .67/ .42 |
| 10. Was either of your parents unemployed for more than 1 year when they wanted to be working? | .64/ .66 | .59/ .64 | .40/ .43 | .58/ .33 |
| 11. Was parental, sibling, or significant other alcohol or drug use severe enough to cause family problems? | .61/ .62 | .64/ .65 | .68/ .67 | .75/ .64 |
| 12. Did parents, siblings, or significant others engage in criminal activities severe enough to cause | - | - | .68/ .61 | .77/ .71 |
| 13. Did you experience any other major upheaval that you think may have shaped your life or personality | .45/ .48 | .51/ .52 | .23/ .23 | .58/ .33 |

maximum loading .89; even without the lowest loading item 1, differences in loadings across all models are greater than .50. Fit statistics are shown in Table 3. The one-factorial structure was confirmed for both scales (yes/no and severity) in the SHARE sample: all fit indices indicated good fit and the internal consistencies (ω_{total}) were good. For the Resist yes/no scale, the RMSEA showed a good fit, and CFI and TLI an acceptable fit, whereas the WMRM was close to the cut-off value for a good model fit. Omega total (ω_{total}) indicated good internal consistency. For the severity scale in Resist, the WMRM and RMSEA indicated a good fit, whereas CFI and TLI showed an acceptable fit. The internal consistency was good. Conducting the CFAs without item 1 led to a slight improvement in fit of all models. Most notably, after this adjustment, the severity scale of Resist met the threshold for a good fit (on all fit indices). Internal consistencies were still good in all models. Further analyses are based on the full scale including item 1 because of the theoretical relevance of the item (see discussion section).

7.3. Comparison of factor scores versus sum scores

Setting all factor loadings to equity to test the model fit of approximate sum score models resulted in a rather poor model fit (this was reflected across all fit indices, see Table 3). When equal loadings were assumed in the sum score, reliability (as indicated by coefficient α) was somewhat lower than the reliability based on varying loadings from the factor analysis (indicated by coefficient ω_{total}, see Table 3). The correlation between the factor scores and sum scores was between .88 and .94, with R² between these scores being between .77 and .88, representing 23% to 12% unexplained variability between factor scores and sum scores.

Table 3. CFA for both samples.

| SHARE | W1 | Equal loadings | Resist | RMSEA 90% CI | ω_{total} | α |
|-------|----|----------------|--------|---------------|----------|---|
| χ² (df) | p | WMRM | CFI | TLI | Root Mean Square Residual |                |    |
| Full model | 75.93 (54) | .026 | 0.99 | .98 | 0.97 | .03 | [.01; .04] | .81 | .80 |
| W1 | 60.18 (44) | .053 | 0.96 | .98 | 0.98 | .03 | [.01; .04] | .82 | .81 |
| Equal loadings | 279.45 (65) | < .001 | 1.89 | .76 | 0.75 | .08 | [.07; .09] | - | - |
| Full model | 104.04 (54) | < .001 | 0.85 | .96 | 0.95 | .04 | [.02; .05] | .83 | .83 |
| W1 | 80.47 (44) | .001 | 0.78 | .97 | 0.96 | .04 | [.02; .05] | .84 | .84 |
| Equal loadings | 375.57 (65) | < .001 | 1.59 | .76 | 0.76 | .09 | [.08; .10] | - | - |
| Resil | 99.77 (65) | .004 | 1.05 | .92 | 0.91 | .03 | [.02; .05] | .80 | .78 |
| W1 | 82.82 (54) | .008 | 1.02 | .94 | 0.92 | .03 | [.02; .05] | .81 | .79 |
| Equal loadings | 234.96 (77) | < .001 | 1.61 | .65 | 0.64 | .07 | [.06; .07] | - | - |
| Full model | 120.61 (65) | < .001 | 0.86 | .94 | 0.92 | .05 | [.03; .06] | .88 | .88 |
| W1 | 85.70 (54) | .004 | 0.78 | .96 | 0.95 | .04 | [.03; .05] | .89 | .89 |
| Equal loadings | 358.57 (65) | < .001 | 1.50 | .60 | 0.67 | .09 | [.08; .10] | - | - |

Note. CFI = Comparative Fit-Index; TLI = Tucker-Lewis-Index; WMRM = Weighted Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; df = degrees of freedom, W1 = Without item 1; Equal loadings = All factor loadings are constraint to equity to test the assumption of sum score models.
7.4. Validation

All YCAS factor scores were significantly related to all mental health measures and the maltreatment measure, supporting the validity of the YCAS (Table 4). There was no discernible difference in these associations between yes/no and severity scales, neither for factor scores nor for sum scores. Generally, factor scores and sum scores had comparable associations with external validators (see confidence intervals in Table 4). In both samples, women reported more EA for all YCAS scores (factor scores and sum scores, Table 4).

8. Discussion

Measuring EA is challenging with regard to content coverage and validation procedures (McLennan et al., 2020; Saini et al., 2019). The present study therefore developed and validated a new EA scale, based on several pre-existing EA measures, for the assessment of multiple EAs and their respective severity. This scale was aimed at covering a reasonable breadth of events, ranging from sexual abuse to parental mental illness, whilst simultaneously being parsimonious. We tested the scales in two different samples comprising adolescents and young adults, respectively.

8.1. Factor structure and factor loadings

We identified a one-factorial structure that showed good reliability and acceptable-to-good model fit in both samples. Most factor loadings were good, especially for (i) being a victim of violence, (ii) parents being the victim of violence, and (iii) parental drug abuse. These items are thus well-suited to reveal inter-individual differences in the underlying adversity construct, consistent with most established EA scales that also include these items (e.g. Morrill et al., 2019). A few items, however, loaded below acceptable factor loading cut-offs. In interpreting this, it is important to remember that EA is a broad construct that has been assessed with a limited number of items. The breadth of the construct can result in lower indicator loadings because items are not necessarily representative for the entire latent construct but only capture a part of this latent construct. Psychometrically, these items are therefore not ideally suited to differentiate between participants on the entire latent constructs, but a closer content examination reveals the merits of including such items. For example, item 13 was an open item covering anything not addressed in the YCAS. Given the wide breadth of potential adversities, this item could vary broadly in its loading across individuals. This open-ended question had the highest reported mean severity in the SHARE sample (and second highest in Resist), indicating that this item may measure adversities of great personal relevance. This could be important because population-based associations between EA and mental health do not necessarily translate into individual prediction models (Baldwin et al., 2021).

Equally, this finding may suggest that we are still missing relevant adversities, which could improve the scope of the YCAS (see for more detail below). While more domain-specific questionnaires (e.g. for sexual abuse) are likely to have more uniform factor loadings, they lack important breadth of information when assessing EA. Therefore, it appears reasonable to accept a few lower factor loadings in an overall good fitting model for studies that aim to cover the broad construct of EA with a limited number of items (Bollen, 1984; Morrill et al., 2019).

8.2. Validity of the scale

In both samples, all scales (yes/no and severity) were significantly related to mental health measures
(including self-esteem), supporting the validity of the YCAS. More specifically, higher EA was associated with lower mental health and self-esteem. This pattern of results mirrors common findings of EA and mental health research (McLaughlin et al., 2010, 2012; Shonkoff et al., 2012; Van Harmelen et al., 2016). Given the cross-sectional nature of the present data, we are not able to draw conclusions about the predictive validity of the YCAS. One could argue that the adversities took place in the past, while we assessed concurrent mental health and self-esteem. This would provide a temporal perspective and could potentially indicate temporal causality. On the other hand, current mood may affect the evaluation of retrospective EA reports and this may especially affect the EA severity questions. YCAS factor scores were also associated with a more domain-specific adversity scale tapping into maltreatment (Higgins & McCabe, 2001). Establishing this positive, yet moderate, association between our broad measure and this more domain-specific aspect of EA points to the concurrent validity of the YCAS.

### 8.3. Severity indicator and scoring methods

We have demonstrated the psychometric soundness of the severity scale, which should give researchers more confidence in implementing this indicator. When using this indicator, it needs to be considered that the severity scale inherently captures the entire information the presence-versus-absence scale contains and merely adds in a more fine-grained assessment when someone indicates ‘present’ on an adversity item. For 9 of 13 tested associations, the EA severity score had descriptively higher correlations with the outcome measures than the yes/no score. However, these differences were small and confidence intervals overlapped. Hence, we have no formal evidence that the severity scores are a better indicator than yes/no scores, but our results suggest that they are equally valid. Danese and Widom (2020) findings suggest that the cognitive appraisal and hence the remembered severity of an event may be critical for subsequent mental health, over and above whether an event occurred. In the present study, we may be seeing evidence of this at the item level: For some of the yes/no items that displayed rather low factor loadings, the severity items displayed higher loadings on their respective underlying factor (e.g. serious illness, serious parental illness, and ‘other’ adversities), thus providing more information. However, as yes/no and severity facets yielded comparable associations with external validators, it may well be acceptable to use only the yes/no items, particularly when scale brevity is an important consideration. Given that these indicators assess different facets of the experiences, it is, however, important to interpret our findings in light of the limited range of validation measures we have used. Future studies therefore need to test whether incorporating the severity measures adds utility for a more diverse range of validation measures and research questions.

The broad range of loadings observed (minimum .18 – maximum .89) shows that the sum scores are not as accurate as the factor scores (McNeish & Wolf, 2020). This was further substantiated by poor model fit for measurement models that assumed equal factor loadings for all items, as implicit when using a sum score. Moreover, we found somewhat lower internal consistencies of the sum scores compared to the factor scores (α vs. ωtotal). We found up to 23% unexplained variability between factor scores and sum scores. While in our study most conclusions remained the same, another study reported that a 3% unexplained variability between factor scores and sum scores resulted in different findings based on these scores (McNeish & Wolf, 2020). Therefore, researchers who use YCAS sum scores should be cognizant of these limitations and/or ideally test whether such a model empirically holds in their own analyses.

### 8.4. Wording and item coverage

Developing EA measures is a task that needs continuous refinement (McLennan et al., 2020). In this regard, we acknowledge that the wording of some or all of our items could be improved to pinpoint EAs more accurately. For example, whilst the ‘death of a very close friend or family member’ (item 1) can indeed be a very stressful event for adolescents and young adults (Hobson et al., 1998), the death of a grandparent may more often be an inevitable experience when compared to the death of parents, siblings, or close friends. Therefore, on average, coping may be easier in the more expected circumstance of a death of a grandparent. To assess whether this distinction holds, future work could refine item 1 to focus only on death of a parent, sibling, or close friend. In terms of content coverage, we acknowledge that the YCAS did not contain items specific for emotional and physical neglect, which are likely to improve the construct and content validity of the measure. Likewise, bullying could be added as it has been suggested to contribute incrementally to subsequent mental health beyond classic EAs (Cronholm et al., 2015; Finkelhor et al., 2015). Moreover, there are several forms of socio-economic adversity (e.g. having to rely on free meals, being evicted, having home electricity or water services shut off, being unable to pay for important home repairs, and/or experiencing poverty or homelessness) and environmental adversities (e.g. destroyed home or neighbourhood for example, due to a fire, natural disaster, or war) that are currently lacking from the YCAS. We recommend that future studies include
these adversities and test their functioning within this scale to move the field forward. Testing such new items can be beneficial as shown with the item we included addressing criminal activities of parents. Factor loadings for this item were excellent, thus adding important information to the latent construct.

### 8.5. Sample evaluation

Both samples were not representative of the general population. The SHARE sample had high rates of self-harm: lifetime engagement in NSSI (n = 282, 48%; Cassels, 2018) was far higher than adolescent population prevalence estimates (17%-29%; Swannell, Martin, Page, Hasking, & St John, 2014). The Resist sample of University of Cambridge medical students, admitted to a demanding programme at a selective university, is likely to come from families with higher levels of education and socio-economic status than the general population (Undergraduate Admission Statistics, 2017). Indeed, 80% or more of the Resist sample had both parents with educational attainment greater than secondary school, which is higher than in the general population (Richardson et al., 2020). Despite the differences in these samples, the YCAS scores were associated with mental health and self-esteem in both samples.

Whilst factor loadings and EA prevalences were comparable across both samples, we could not formally test measurement invariance between the two samples. This was because in order to improve the measure we changed the wording of some items and added one extra item to YCAS in Resist. When descriptively comparing the two models, we found an equivalent factor structure and similar psychometric properties in these demographically different samples, which suggests that the YCAS functioned similarly in the two studied samples. The magnitude of the correlations in our validation analyses was somewhat higher in SHARE (r = .20–.37) compared to Resist (r = .10–.24), but different constructs were used to assess mental health across the samples. Only self-esteem was measured for both samples using the same measure and the magnitude of correlations was again smaller in Resist (range [-.11; -.15]) compared to SHARE (range [-.29; -.33]). One explanation may be that the Resist sample was older and thus a greater time is likely to have elapsed since the EA experience. Thus, these participants may have had a longer time window to recover from the consequences of EA (Fritz et al., 2019). Moreover, SHARE participants were not only younger but most were also living with their parents. Thus, EA was more likely to be proximal and in some cases, the EA may have involved people the participants were still sharing a household with, which may keep the adversity more present. A second explanation may be that the SHARE sample oversampled adolescents who self-harm, which suggests that SHARE captured a more vulnerable sample of young people.

### 8.6. Further limitations and considerations

The sections above have revealed important limitations of our study with regard to the wording of our items, content coverage of the YCAS, and specifics of the samples that we have used. As a further limitation, we note that our items were solely based on previous research and that no individuals with lived experience were involved in the process of selecting adversities and adjusting the wording of our items. Thus, we may have missed important subtleties to improve the wording or important items tapping into other adversities (e.g. discrimination). Therefore, future studies should consult individuals with lived experience and include them in these processes. Ideally, individuals from diverse ethnic backgrounds should be included to reduce potential ethnocentric biases. So far, the validity of the YCAS has only been established for young adolescents and young adults. Both SHARE and RESIST consist of participants from wealthier socio-economic backgrounds, and both samples were predominantly white. Therefore, the psychometric functioning of the YCAS across gender, age groups, and different cultural or sociodemographic groups needs to be demonstrated empirically by thoroughly testing measurement invariance of the YCAS across these different groups (Vandenberg & Lance, 2000). Increased sample size in the groups being compared would be required to enable such analyses.

In particular, invariance testing across age groups is important because we set no boundaries for the age range of EA. Therefore, the scale could be, in principle, applied from young childhood (once the lower bound for age appropriateness and readability of these questions has been determined, e.g. Black, Mansfield, & Panayiotou, 2020) to young adulthood. We have set no upper age boundaries because both samples were relatively young and in important transitional phases (being in school and university). Yet, future studies should define an upper age limit empirically to ensure that young adults refer to events that account as EA (e.g. experiencing parental divorce when one is an adult may not necessarily be experienced as equally adverse as when being a child). Another solution regarding the age applicability would of course be to use the scales across all age groups, but to only assess EAs up to a predetermined age, for example, the age of 18 years. This would warrant that people answer the scale for the time frame until most of them have lived at home and had to rely on their parents for support. Such an approach would have the advantage that the scale is applicable across the entire life course but would have the disadvantage that an arbitrary
threshold would need to be determined from which onwards traumatic and severely stressful experiences would no longer count towards the EA score. This would also require an additional psychometric evaluation, and it still may be the case that younger people interpret given items differently than older people. In light of these shortcomings and those previously mentioned, we acknowledge that the YCAS could be improved by further adaptations and evaluations. We believe, however, that we have outlined and demonstrated some important starting points that may aid future research on the complex concept of adversity.

9. Conclusions

With the development and validation of YCAS, we believe that we have complemented existing EA measures by providing a scale that parsimoniously enhances both the scope and psychometrical soundness of EA. The severity indicators yielded a scale that was at least as reliable, valid, and psychometrically sound as yes/no indicators. This gives evidence that adversity severity can be effectively incorporated into the YCAS and may be an important avenue of future research.

Notes

1. To illustrate this point, a child that has experienced a serious illness, parental divorce, and parental unemployment would have the same adversity score of three as a child who experienced parental drug abuse, parental mental illness, and sexual abuse. This is a rather unlikely assumption.

2. https://osf.io/g2nkw/?view_only=1ec7b12cdfb740f4ba989a347fa221974

3. 96–98% of the data was available for each item set: Resist yes/no items: n = 438/451; Resist severity items: n = 432/451; SHARE yes/no items: 582/596; SHARE severity items: 575/596.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

PS was funded by the Causauswerk. JF was funded by the Medical Research Council. MC was funded by Gates Cambridge. SN was funded by the Wellcome Trust and the Cundill Centre (Toronto). The SHARE and Resist studies were funded by Gates Cambridge, the Medical Research Council and the Cambridge Department of Psychiatry.

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Data Availability

The Resist data are available at the Cambridge data repository upon acceptance of the manuscript (https://doi.org/10.17863/CAM.75429). Data for the SHARE study could not be made available because participants did not consent to this.

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