

# **RECOMMENDED CAMBODIAN MEASURES OF CHILD AND ADULT MENTAL HEALTH**

**A Report for the  
Louvain Cooperation au Developpement's  
Research Project on the Psychosocial Effects  
of Cambodian Parental Migration on Children**

by  
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## Introduction

This report initially presents a review of published and unpublished articles and reports on the rates of adult and child mental health disorders in Cambodia, including a section on maintaining factors. A cursory review of the psychosocial distress construct then follows. Finally, a review of psychological measures used in prior research in Cambodia is presented, some of which were not published, but nonetheless are based on studies with large samples sizes and sound psychometric methodology. After presenting each measure, all of which are divided into psychosocial distress measures and process measures, a recommendation by the current author is made regarding whether or not each particular measure should be used in the forthcoming migration study. The expertise and discretion of the research group will ultimately decide which measures will be included in the study. Lastly, the measures that were available to the author, in both Khmer and English, were compiled into a separate addendum.

## Summary of Findings

The prevalence and incidence rates of adult psychiatric disorders in Cambodia vary considerably in the few existing published studies, mostly due to sampling and other methodological differences. But, all have found relatively high rates of trauma, mood, anxiety, and psychotic spectrum disorders. Further, the confluence of corruption, poverty, adult mental illness, and ongoing human rights abuses can negatively affect the mental health adjustment of children. Despite the complex interactions between protective and risk factors for children living in lower and middle income countries, the mental health status of Cambodian children remains vastly understudied. In fact, to this author's knowledge, no nation-wide, random stratified sampling investigation of Cambodian child mental health prevalence or incidence has ever been published. This may be due, in part, to the paucity of validated measures and the appropriate cut-scores for measures assessing particular disorders for Cambodian children. Additionally, assessing psychiatric disorders in children presents several nosological challenges. One way of circumventing some of these challenges is to assess what is known as psychosocial distress.

The psychosocial distress construct generally describes psychological distress, poor resilience, and maladaptive functioning. Given the number and complexity of risk and protective factors effecting childhood psychosocial distress, more rigorous investigations are required, which utilize diverse measures and more nuanced analyses. Without sufficiently assessing and statistically controlling for other variables known to affect childhood psychosocial distress, any interpretation of the results may be incorrect or biased. As such, a comprehensive battery of measures is recommended as it can assess not only the main aspects of the psychosocial distress construct, but also the other factors known to influence child psychosocial distress. These include: psychological distress, resilience, behavioural dysfunction, adverse life events, parental attachment, abuse and neglect, parenting styles, and grief.

**Child Participants:** Cambodian Symptoms and Syndromes Addendum, Khmer Child Functional Impairment Scale, Khmer Connor-Davidson 10-item Resilience Scale, Adverse Events Scale, Child Trauma Questionnaire-Short Form, Alabama Parenting Questionnaire-9, Adolescent Attachment Measure, and the Expanded Grief Inventory.

**Adult Participants:** Cambodian Symptoms and Syndromes Addendum, Khmer Connor-Davidson 10-item Resilience Scale, Alabama Parenting Questionnaire-9. For grandparents, additionally use the PTSD Checklist-Civilian, and the stressor portion of the Harvard Trauma Questionnaire.

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## **A. The Mental Health Status of Adults in Cambodia**

The prevalence or incidence rates of adult psychiatric disorders in Cambodia vary considerably in the few existing published studies, mostly due to sampling and other methodological differences. Yet, each have found relatively high rates of trauma, mood, anxiety, and psychotic spectrum disorders. Of note, Somasundaram, van de Put, Eisenbruch, and de Jong (1999) published one of the first studies examining the prevalence rates of mental health disorders after the Final Act of the Paris Conference on Cambodia was signed in 1991. They reported the diagnostic intake rates of 839 children and adults from four outpatient hospital-based clinics in Battambang province and Phnom Penh. Their findings included the following clinician-diagnosed rates: Schizophrenia (18%), psychotic spectrum (15%), anxiety (18%), depression (14%), PTSD (3%), somatization disorder (2%), manic episode (3%), and organic psychosis (4%). The researchers did not report separate the diagnostic rates of adults and children in their results.

Next, two studies by de Jong and colleagues (2001) and de Jong, Komproe, and Van Ommeren (2003) surveyed the prevalence rates of common mental health disorders in several post-conflict and war-torn countries including Algeria, Cambodia, Ethiopia, and Palestine. Cambodia—second only to Algeria—had a high prevalence rate of PTSD (28.4%), mood disorders (11.5%), anxiety disorders (40.0%), and somatoform disorders (1.6%), with an aggregated disorder prevalence rate of 53.4%. Despite these high rates in Cambodia, the risk for developing a disorder was higher in Palestine, presumably because it is still in an intermittent state of war.

In 2004, Dubios and colleagues conducted a mental health survey in Kampong Cham province which utilized the Hopkins Symptom Checklist-25 (HSCL-25; Mollica, Wyshak, de Marneffe, Khuon, & Lavelle, 1987) and the Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992), which are measures that were developed or modified to assess trauma exposure and distress symptoms in survivors of the wars in Indochina. They found the following prevalence rates based on the Diagnostic and Statistical Manual of Mental Disorders (DSM), Fourth Edition, Text Revision [DSM-IV-TR; American Psychiatric Association (APA), 2000] criteria in their sample of 769 adult respondents: Depression (42.4%), PTSD (7.3%), and anxiety (53%). Additionally, 33.5% of the respondents endorsed significant impairment related to their mental illness. Lastly, a nation-wide, mental health survey conducted by the Psychology Department at the Royal University of Phnom Penh (RUPP) in 2012 found comparatively similar prevalence rates of anxiety (27.4%) and depression (16.7%), lower rates of PTSD (1.6% to 3.1%), and a high number of completed suicides at 42.4 suicides per 100,000 per year (Schunert et al., 2012).

Despite these high rates of adult mental illness, access to mental health care in Cambodia remains limited. The Leitner Center for International Law and Justice released a report on mental health in Cambodia from a human rights perspective (McLaughlin, & Wickeri, 2012). They cited research which found large “treatment gaps” (McLaughlin, & Wickeri, 2012; p. 16) between the mental health disease burden and the amount of resources spent on mental health in low income countries, particularly in Southeast Asia. They also reported that there were almost no epidemiological studies or other data on mental health disorders in Cambodia, which the researchers stated led to continued inaction by policy officials who were tasked with addressing and treating the country’s mentally ill. Lastly, McLaughlin and Wickeri (2012) quoted a deputy from the Cambodian National Program for Mental Health who stated that the government spent only US\$30,000 on mental health, which amounted to roughly 0.02% of Cambodia’s entire health budget in 2011.

## **B. Maintaining Factors of Cambodian Children’s Mental Health**

Corruption, poverty, adult mental illness, and human rights abuses in Cambodia—in addition to other factors—can negatively affect the mental health adjustment of children. Psychologists studying child development have recognized a number of influences which can lead to poor psychological outcomes. These include biological factors (e.g., genetic and other pre- and postnatal disease processes) and psychological factors (e.g., lower intelligence and difficult temperament), as well as early life stressors, including child abuse, social disadvantage, parental loss and substance abuse, and familial discord (Carr, 1999). Other environmental influences which can cause vulnerabilities in infancy and childhood include poor attachment, or parent-child bonding, and maladaptive parenting styles (Carr, 1999), which may have been caused by their parents’ own physical and sexual abuse histories, and psychological maladjustment (e.g., Carr, 1999; Bailey, Moran, & Pederson, 2007; Schwerdtfeger, & Goff, 2007; Stovall-McClough, & Cloitre, 2006). For instance, the mental health disorder prevalence rates for mothers in lower- and middle-income countries (LAMICs) was comparatively higher at 15.9% in the prenatal phase, and 19.8% in the postnatal phase, adding further risk to the psychological well-being of children in poorer countries (Fisher et al., 2012). Most noteworthy, both poverty and child abuse—which are associated with anxiety, depression and substance use—are considered to be the most preventable factors in the development of these mental health disorders (World Health Organization [WHO] & the Prevention Research Centre of the Universities of Nijmegen and Maastricht, 2004).

Further, Tol, Song, and Jordans (2013) reviewed 53 peer reviewed articles examining factors that affected childhood resilience in armed-conflict and post-conflict LAMICs. The authors defined resilience as a dynamic, rather than a static construct, that can differ across gender, cultural, and intra-cultural strata. Given the mixed findings across these studies, only the most robust findings will be presented here. Individual protective and promotive factors included higher levels of positive self-view, adaptive coping, as well as higher intelligence and creativity. Familial protective factors included sufficient levels of parental supervision, support, and healthy psychological functioning. The authors noted several limitations to their investigation, including the cross-sectional nature of most of the studies and the use of measures that may have been less sensitive to local idioms of childhood distress.

Lastly, childhood adherence to some cultural values, such as honor and familial cohesion, may cause distress within certain contexts (Akello, Reis, & Richters, 2010; Eggerman, & Panter-Brick, 2010). This may be true for some Cambodian children regarding prosocial behaviour according to two unpublished reports by van Domburgh and colleagues (2016) and Laezer, Högger Klaus, and Sisokhom (2015). That is, in these two unpublished reports using large sample sizes, prosocial behaviour was associated with higher levels of psychological distress. These results, while generally inconsistent in the child prosocial behaviour literature, were supported by the findings of other studies that examined more complex interactions between parents' psychological well-being, socioeconomic status, child gender, and discrepancies between the parental and child assessments of the child's own prosocial behaviour (Hay & Pawlby, 2003; Nantel-Vivier, Pihl, Côté, & Tremblay, 2014; Taylor, P. J., & Wood, A. M., 2013). These findings supported the assertion that the relationships between some childhood risk and protective factors are complex, culturally specific, and somewhat elusive. For example, in other Cambodian studies, the intergenerational transmission of trauma from survivors of the Khmer Rouge (KR) regime as manifested by the anxiety and depression symptoms in their children were generally mediated by maladaptive parenting, including role-reversing, rejecting, and overprotective parenting styles (Field, Om, Kim, & Vorn, 2011; Field, Muong, & Sochanvimean, 2013).

### **C. The Mental Health Status and Abuse of Cambodian Children**

Despite these complex interactions between protective and risk factors for children living in LAMICs, the mental health status of Cambodian children remains vastly understudied. In fact, to this author's knowledge, no epidemiological study of Cambodian child mental health prevalence or incidence has ever been published. This may be due in part to the paucity of validated measures for Cambodian children. While some extant measures assess multiple DSM-5

(APA, 2013) diagnostic categories, such as the Youth Self-Report (YSR; Achenbach, 1991), the YSR is proprietary, has 112 items, and has been deployed primarily to Khmer refugee youth. It has never been validated or deployed in a Cambodian nation-wide study. The current author also could not find any validation study of the Khmer YSR, which is designed to assess 11-17 year olds. Lastly, Jegannathan, Kullgren, & Deva (2015) referenced an unpublished study, which involved a census of 15 villages in the Cambodian province of Kandal. The researchers of the study utilized the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2000) and reported that using parent and teacher assessments, 13% and 20% of children, respectively, manifested either emotional or behavioral problems. Of note, the original Khmer version of the SDQ has not been sufficiently validated and had several psychometric problems, including a missing item for both the teacher and parent versions. Other problematic issues will be discussed later in the Measures of Psychosocial Distress section of this report.

As a result of the lack of validated prevalence measures and studies in Cambodia, researchers and clinicians in Cambodia generally rely upon global child psychiatric prevalence rates, which hover around 20%. For example, the WHO (2001) reported a global neuropsychiatric disorder prevalence rate for children and adolescents with one or more disorders at being between 10% and 20% based on studies from Ethiopia, Germany, India, Japan, Spain, Switzerland, and the US. Belfer (2008) found similar rates in his excellent review of global child and adolescence mental health prevalence. He concluded that up to 20% of children and adolescents struggled with a debilitating mental health disorder and that suicide was “ranked third as the leading cause of death among adolescents” (Belfer, 2008; p. 226). Kieling and colleagues (2011) published the same prevalence rates in their review of 16 surveys conducted within LAMICs.

In addition to mental health status of adults examined in the 2012 RUPP survey, 8.0% of the female respondents and 10.6% of the male respondents reported that they had experienced abuse as a child (Schunert et al., 2012). For the purposes of their study, child abuse was described as “physical or sexual violence or severe neglect” (Schunert et al., 2012; p. 16). Additionally, findings from the Cambodia’s Violence Against Children Survey 2013 by the United Nations Children’s Emergency Fund Cambodia (UNICEF) found that 6.4% of female respondents and 5.2% of male respondents aged 14 to 17 years reported at least one incident of sexual abuse before the age of 18 years [Ministry of Womens’ Affairs (MoWA), UNICEF, US Centers for Disease Control and Prevention (CDC), 2014]. The survey authors described sexual abuse as “unwanted sexual touching, unwanted sexual intercourse attempts, as well as forced or pressured intercourse” (MoWA, UNICEF, & CDC, 2014; p. 17). Furthermore, 52.7% of female respondents

and 54.2% of male respondents reported at least one incident of physical violence prior to the age of 18 years.

Mothers were reported as being the most frequent perpetrator of physical violence within the home and male teachers were reported as being the most common perpetrator of physical violence outside the domestic setting (MoWA, UNICEF, & CDC, 2014). Relatively high rates of aggression in Cambodian children—11.5% of the homes surveyed—were also found in the RUPP Cambodian Mental Health Survey (Schunert et al., 2012), which the authors attributed their parents' traumatic histories. Lastly and most importantly, child abuse has been associated with many adverse outcomes including psychological disorders, such as depression, anxiety, substance and other process addictions, as well as suicidal ideation which can manifest at any time throughout the child's lifespan (Felitti et al., 1998; van der Kolk, Hopper & Crozier, 2001).

#### **D. Psychosocial Distress: A Multifaceted Construct**

Prior to suggesting appropriate measures for the Louvain Cooperation au Developpement (LD) migration study, a brief review of psychosocial distress (PD) is in order given the original research questions of the study. PD is a psychological construct which has developed separately within distinct disciplines including mental health, academia, and general medicine. No consensus has been established in any of these fields regarding which particular elements constitute PD. However, the construct of PD generally includes a host of psychological capacities and vulnerabilities, which can affect the way an individual assesses stressors that span events from the ordinary to the horrific. An individual's psychology is also moderated by an ancient evolutionary stress-response physiology, as well as the presence of a supportive or punitive social environment.

Some researchers within the field of academia have aptly synthesized the social elements and symptoms of PD within both strength- and deficit-based categories (Tsang, Wong, & Lo, 2012). In their excellent review of child psychosocial distress measures, Tasng, Wong and Lo (2012) placed the following constructs into their deficit-based category: 1) Psychological dysphoria, such as depression or anxiety; 2) Having impaired emotional awareness and a diminished ability to express emotions; and 3) Social maladjustment with peers, friends, and family. Their strength-based category included: 1) Psychological euthymia, or a general sense of well-being; 2) The ability to regulate emotional arousal; 3) Prosocial behaviour and interfamilial connectedness; and 4) Resilience, self-mastery, and positive self-view.

Additionally, researchers within the medical field have identified other aspects of psychosocial distress including: substance abuse, having a psychiatric history, sexual dysfunction

or having a sexual abuse history, and functional impairment (Goldberg & Novack, 1992). Further, in an effort to examine the relationship between psychosocial stressors and disease morbidity, such as stroke and cardiovascular disease, other medical professionals have identified many adverse events which can increase disease risk and mortality. These distressing events have included: 1) Ongoing work-related stress and acute life stressors including bereavement and natural disasters (Everson-Rose & Lewis, 2005); and 2) Correlates of depression including "...caregiver strain, racial disparities, loss of income, and living in impoverished areas" (Brainin & Dachenhausen, 2013; p. 305). Other adverse stressors include poverty and its sequelae, suicidality, chronic pain, gender-based violence, war- and atrocity-related trauma, political repression, and forced relocations—each of which can contribute to the development of stress-related psychiatric conditions (Jacob, 2013).

More germane to the current study, the authors of the Child Psychosocial Distress Screener (CPDS) defined the PD construct to include three "overlapping theoretical premises" (Jordans, Komproe, Ventevogel, Tol, & de Jong, 2008, p.291) which drove the development of their measure's item content. They described psychosocial as mental health functioning that varies individually between distinct cultural contexts. Second, they adhered to a "contextual model of distress" (Jordans et al., 2008, p.291), whereby the child is seen as dwelling within a specific culture that influences how they describe their distress symptoms and maladaptive functioning. Third, both personal strengths and weaknesses, or resilience and protective factors, were included given that these can often enhance a child's response to distress. Lastly, these authors defined distress as "a continuum of nonspecific forms of suffering and problems" (Jordans et al., 2008, p.291). In sum, the PD construct generally describes the psychological distress, the lack of resilience, and the level of behavioral dysfunction in an individual.

## **E. The Paucity of Validated Psychological Measures for Khmer Children**

Very few published measures have been developed or translated specifically for Cambodian youth, aside from the Adolescent Attachment Measure (Field, Tzadikario, Pel, & Ret, 2014), the Cambodian Developmental Assessment Test (Rao et al., 2012), the Child Exploitation Psychosocial Assessment Tool (CEPAT; Bass, Bolton, & Bearup, 2010), the Child Functional Impairment Scale (K-CFIS; van Domburgh and colleagues, 2016), the Connor-Davidson 10-item Resilience Scale (Kh-CD-RISC10; Duong & Hurst, 2016), the Parents' Academic Involvement Scale (Eng, 2013), and the Khmer version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2000). Of these childhood measures, only the CEPAT and the SDQ assess the levels of psychological distress and behavioural dysfunction, but the SDQ has not yet been sufficiently

validated in Cambodia. Further, the few extant surveys and studies that examine the mental health adjustment of Cambodian children have generally employed measures of distress or psychiatric disorders that have been developed and validated in adult populations, such as the Indochinese version of the HSCL-25, the Extended Grief Inventory (EGI; Layne, C. M., Savjak, N., Saltzman, W. R., & Pynoos, R. S., 2001) the Cambodian Symptoms and Syndromes Addendum (C-SSA; Hinton, unpublished), and the Khmer version of the PTSD Checklist-Civilian (PCL-C; Field & Chhim, 2008; Sonis et al., 2009).

The use of adult measures, which may be less sensitive to childhood symptoms and distress idioms, necessarily limit the generalizability of any findings in child samples. Much to their credit, the following investigators took the time and care to translate childhood measures of distress from other languages into Khmer. Tol and colleagues (2011) translated the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001) and the Depression Self-Rating Scale (DSRS; Berleson, 1981), to use as criterion to validate their measure of childhood functioning in LAMICs. However, neither the CPSS or the DSRS were validated prior to being deployed in their study. Additionally, Field, Om, Kim, and Vorn (2011), Field, Muong, and Sochanvimean (2013), and Field, N. P., Tzadikario, E., Pel, D., & Ret, T. (2014) used other childhood measures which had been translated into Khmer for their studies, including the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979), the Adolescent Attachment Measure (AA; Field, N. P., Tzadikario, E., Pel, D., & Ret, T., 2014), and the Relationship with Parents Scale (RPS; Alexander, 2003). Measures assessing other constructs, including childhood functioning and resilience, have been validated to a greater extent including the K-CFIS and the Kh-CD-RISC10. The Child Psychosocial Distress Screener (CPDS; Jordans et al., 2008) was not considered in this report given its inherently low reliability and relatively weak psychometrics in a large Cambodian child sample (van Domburgh and colleagues, 2016).

## **F. Measures of Psychosocial Distress**

Several measures which could be utilized in LD's forthcoming migration study have been developed or translated into Khmer from a Western measure of distress to assess psychological maladjustment in Cambodian children. They will be described in kind and reviewed according to this author's intimate knowledge of a large unpublished dataset by van Domburgh and colleagues (2016) comprised of 1,643 Cambodian children from both rural and urban areas. A brief review of the development and psychometric characteristics of the measures will be provided for the HSCL-25, the C-SSA, and the SDQ. Additionally, the K-CFIS and Kh-CD-RISC10 will also be reviewed with the current section, as they are measures of childhood and adolescent functioning

and resilience. Unless otherwise noted, all of the following van Domburgh and colleagues (2016) descriptive and psychometric analyses were performed using IBM SPSS and AMOS Version 23 to conduct the analyses. The exploratory factor analyses (EFAs) were performed using several criteria to select the number of factors to retain in the solution, including visual examination of the scree plot, and more analytically by employing two different statistical tests: 1) Parallel analysis (PA; Horn, 1965); and 2) Velicer's (1976) minimum average partial (MAP) test.

Parallel analysis involves performing EFAs on randomly generated matrices based on the number variables of the measure being studied, as well as the number of cases in the original sample. The amount of variance accounted for by each component, or eigenvalue, in the original EFA is then compared to the averaged eigenvalues of the randomly generated matrices. Only those factors in the original EFA with eigenvalues greater than the randomly generated matrices are retained in the solution, thus determining the number of factors with greater than chance—or true—variance. The MAP test is performed by first calculating a correlation matrix of the variables' means and then squaring their average coefficient. An EFA of the data set is then performed and after partialing out the variance from the first factor of the EFA, the average coefficient of the matrix is computed and squared again. Then the variance of the first and second factor are partialled out of the matrix. These steps are repeated for each subsequent factor. The factor with the lowest, or minimum, average squared coefficient is the last factor in the solution to be retained. All of the variance from the factors in the solution is considered systematic and the remaining variance is considered unsystematic. The revised O'Connor (2000) SPSS syntax was used to calculate both the MAP tests and PAs.

## **1. The Hopkins Symptom Checklist-25**

Assembled from items of various existing measures, the Hopkins Symptom Checklist (HSCL) was first developed by Derogatis, Lipman, Rickels, Uhlenhuth, and Covi (1974) to assess “somatization, obsessive-compulsive, interpersonal sensitivity, anxiety, and depression” (Derogatis et al., 1974; p. 1). The original version contained 58 self-report items and was validated within several clinical and normative American adult samples. Other versions of the HSCL with more items then followed, but a shorter version comprised of 25 items was developed by Winokur, Winokur, Rickels, and Cox (1984) to diminish testing burden and narrow the focus of the inventory to only assess symptoms of anxiety and depression in the general medical practice setting. Indochinese versions of the HSCL-25 were then developed by Mollica, Wyshak, de Marneffe, Khuon, and Lavelle (1987) though appropriate translation and back-translation into Khmer, Vietnamese, and Lao. These measures' cut-scores were derived using the DSM-III

(APA, 1980) criteria. Despite being normed in adult samples, the Khmer version of the HSCL-25 has been frequently used in studies examining anxiety and depression in Cambodian child samples.

Kindly see Table 1 and 2 for the descriptive and correlation matrices from van Domburgh and colleagues (2016). The HSCL-25 demonstrated a unitary or single-factor structure in an exploratory factor analysis (EFA). Cursory CFA analyses were performed to compare the single- and two-factor (depression and anxiety) models of the HSCL-25 using the bootstrapping method to correct for the skewed item-level data. While the two-factor model showed slightly better fit, the high correlation between the anxiety and depression subscales ( $r = .92, p = .000$ ) did not support its incremental, or discriminate, validity despite the analysis being an examination of model fit. While it may be a sufficient measure of general psychological distress, the use of other measures developed specifically for Cambodians that contain fewer items may be more prudent for the forthcoming LD migration study. Lastly, for an excellent review of child psychiatric comorbidity and its various causes—including sample heterogeneity, insufficient diagnostic criteria and methodology—kindly see Caron and Rutter’s (1991) paper which cogently presents possible explanations of these findings.

Table 1  
*HSCL-25 and C-SSA Descriptive Statistics*

Scale/Subscale	<i>M</i>	<i>SD</i>	<i>α</i>	Median	Mode	Min	Max
HSCL-25 Anxiety (Summed)	4.15	4.08	.84	3.00	1	0	30
HSCL-25 Depression (Summed)	5.68	5.34	.83	4.00	0	0	35
HSCL-25 Total (Summed)	9.84	8.85	.90	8.00	3	0	62
HSCL-25 Anxiety (Item Mean Score)	0.42	0.41		0.30	.10	0	3.00
HSCL-25 Depression (Item Mean Score)	0.38	0.53		0.38	.00	0	2.33
HSCL-25 Total (Item Mean Score)	0.39	0.35		0.32	.12	0	2.48
C-SSA Total	21.00	5.20	.85	20.00	15	0	57

*Note.*  $n = 1643$ . HSCL-25 = Hopkins Symptom Checklist-25. C-SSA = Cambodian Symptom and Syndrome Addendum.  $\alpha$  = Cronbach’s alpha coefficient.

**Pros:** Widely used in Cambodia in both adult and child samples; robust psychometrics

**Cons:** Not developed for or normed in child samples; does not demonstrate sufficient incremental validity in Cambodian child samples; cut-scores inappropriate for use in child samples

**Suggestion:** Do not use for child or primary caretaker participants.

## 2. The Cambodian Symptoms and Syndromes Addendum

With over ten years of clinical experience working with Cambodian refugees in America who had survived the KR genocide, Dr. Devon Hinton has studied a many of the symptoms and syndromes commonly experienced and described by his patients. Over this period of time, he and his colleagues systematically and methodically studied each of these symptoms and syndromes in a series of over 15 peer reviewed journals (e.g., Hinton, Chhean, Fama, Pollack, & McNally, 2007; Hinton, Chhean, Pich, Hofmann, & Barlow, 2006; Hinton, Chhean, Pich, Um, Fama, & Pollack, 2006; Hinton, Hinton, Pich, Loeum, & Pollack, 2009; Hinton, Pich, Chhean, & Pollack, 2005; Hinton, D. E., Pich, V., Marques, L., Nickerson, & Pollack, 2010; Hinton, Pich, Safren, Pollack, & McNally, 2006; Hinton, Um, & Ba, 2001). This body of work culminated in the development of the Cambodian Symptoms and Syndrome Inventory (C-SSI; Hinton, Kredlow, Pich, Bui, & Hofmann, 2013).

Hinton and colleagues (2013) divided the 18 symptoms and 19 syndromes of the C-SSI into four distinct categories: 1) The biology of trauma, or somatic-based symptomology; 2) Ethnophysiological cultural syndromes, or collections of symptoms ascribed to culturally-bound physiological phenomena, such as a *khyâl*, or wind; 3) Metaphoric dimensions, or the use of cultural metaphors to describe symptoms, such as “‘My brain is spinning’ (*wul khueu khabaal*), meaning ‘I am overwhelmed’” (Hinton et al., 2013, p.352); and 4) Traumatic reactions to trauma-related symptoms, such as dizziness, which were likely experienced during their traumatization. A shorter version of the C-SSI called the Cambodian Symptom and Syndrome Addendum (C-SSA) is comprised of 15 items, which were selected based on their “clinical salience” (D. E. Hinton, personal communication, March 19, 2016).

The C-SSA has been widely used a culturally sensitive measure of general distress in both adult and child populations in Cambodian studies. Based on the unpublished dataset of 1,643 Cambodian youth from van Domburgh and colleagues (2016), the C-SSA demonstrated a single-factor solution if item 15, which queries the number of sleep paralysis episodes, “Ghost pushing you down,” was removed prior to performing an EFA. Further, the C-SSA correlates highly with the HSCL-25 Anxiety subscale ( $\rho = .72, p < .000$ ), the HSCL-25 Depression subscale ( $\rho = .69, p < .000$ ), and the HSCL total scale ( $\rho = .75, p < .000$ ). Additionally, in a subsequent hierarchical regression analyses using the Child Functional Impairment Scale (K-CFIS; van Domburgh et al., 2016) as the dependent variable, the C-SSA was the only measure to contribute to the model’s significance, establishing its incremental validity over the HSCL-25 in a child Cambodian sample.

**Pros:** Widely used in Cambodia in both adult and child samples as a measure of general distress; robust psychometrics in both child and adult samples; uses culturally sensitive idioms of distress; relatively brief.

**Cons:** Does not utilize a cut-score for diagnostic purposes

**Suggestion:** Use for child and primary caretaker participants.

### 3. The Strengths and Difficulties Questionnaire

The single-sided Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is comprised of 25 items divided into five subscales including Emotional Symptoms, Conduct Problems, Hyperactivity/Inattention, Peer Problems, and Prosocial Behaviour. An additional Total Difficulties subscale is an aggregate of the first four subscales. The SDQ has several versions including teacher, parent, and self-report versions for children ages 11 to 17 years, and teacher and parent versions for children aged four to 10 years. The SDQ has been translated in over 60 languages and has been used in epidemiological studies or as an outcome measure (Vostanis, 2006). The factor structure and subscale internal consistency of the SDQ has varied across forms and languages, as would be expected. While many studies have supported the theoretical five-factor model, others have found competing four- and three-factor solutions (Stevanovic et al., 2015). Unfortunately, the history of the SDQ in Cambodia has been less than remarkable.

The first Khmer translation (Goodman, 2000) that was accepted by the original measure's author was removed from the SDQ website (<http://www.sdqinfo.com/>) after it was discovered that item 18 was missing from the translation. A second translation was attempted, but the standard translation/reverse-translation, expert review, and pilot test protocol was not followed and hence subjected the translation to possible lexical nonadherence. While similar in content to the original Khmer translation, the van Domburgh and colleagues (2016) dataset utilized and based its analyses on this second translation. Aside from the weak Cronbach alpha levels for the Conduct Problems, the Hyperactivity/Inattention, and the Peer Problems subscales, the Total Difficulties also had the lowest correlation magnitudes with the HSCL-25 subscales and C-SSA. Kindly see Tables 2 and 3.

The EFA indicated a strong two-factor solution comprised of an Emotional/Behavioural Problems subscale and a Prosocial subscale. This solution required that some of the reverse-scored items retain their raw scoring in order to maintain the interpretability of the two subscales. The two factors or subscales demonstrated better psychometrics, including stronger internal consistency, as noted in Table 2, as well as convergent validity, not shown in this report.

Table 2  
SDQ, K-SDQ and Subscales Descriptive Statistics

Subscale	<i>M</i>	<i>SD</i>	$\alpha$	Median	Mode	Min	Max
SDQ Emotional Problems	2.85	2.20	.68	3.00	2	0	10
SDQ Conduct Problems	1.42	1.46	.47	1.00	0	0	8
SDQ Hyperactivity	2.55	1.73	.41	2.00	3	0	10
SDQ Peer Problems	2.93	1.52	.08	3.00	2	0	10
SDQ Total Distress	9.75	4.73	.71	9.00	7	0	30
SDQ Prosocial	6.01	2.29	.68	6.00	5	0	10
K-SDQ Emotional/Behavioral Problems	5.54	4.12	.78	5.00	5	0	26
K-SDQ Prosocial	12.38	4.23	.81	13.00	12	0	20

Note. *n* = 1643. *M* = Mean; *SD* = Standard deviation;  $\alpha$  = Cronbach's alpha coefficient; Min = Minimum score; Max = Maximum score; SDQ = Strengths and Difficulties Questionnaire; K-SDQ = Khmer Version of the Strengths and Difficulties Questionnaire.

Table 3  
Correlation Matrix of HSCL-25, C-SSA, SDQ and Demographic Variables

Variables	1	2	3	4	5	6
1. Student Age	—					
2. Gender	-.03	—				
3. Area (Rural vs. Urban)	-.11**	-.03	—			
4. HSCL-25 (Anxiety)	.17**	.11**	-.19**	—		
5. HSCL-25 (Depression)	.23**	.07**	-.12**	.70**	—	
6. SDQ Total Distress	.07**	.03	-.06*	.50**	.50**	—
7. C-SSA	.20**	.06**	-.17**	.72**	.68**	.44**

Note. HSCL-25 = Indochinese Version of the Hopkins Symptom Checklist-25; SDQ = Strengths and Difficulties Questionnaire; C-SSA = Cambodian Symptom and Syndrome Addendum. Negative correlations with the Gender and Area variables indicate associations with male participants and rural areas. All Spearman correlations are two-tailed. \* $p < .05$ ; \*\* $p < .01$ .

CFAs and test-retest reliability were not performed on the SDQ in the van Domburgh and colleagues (2016) study. Of note, if future Khmer translations find the same two-factor solution, the utility of using the SDQ's peripheral functionality based on their large proprietary datasets—which are based on the five-factor solution—will likely be compromised.

**Pros:** Widely used in other countries for epidemiological and outcome studies.

**Cons:** Has never been validated in Cambodia and current versions have considerable methodological flaws and problems; the original five-factor structure demonstrated poor psychometrics in a large Cambodian child sample

**Suggestion:** Do not use for child participants.

#### 4. The Khmer Child Functional Impairment Scale

The development of the Khmer version of the Child Functional Impairment Scale (K-CFIS; van Domburgh et al., 2016) was based largely on the original methodology proposed by Tol, Komproe, Jordans, Susanty, and de Jong (2011). In their study, Tol and colleagues (2012) proposed the use of a culturally sensitive measure of functional impairment which could: 1) Identify youth in need of mental health services; 2) Help aid psychiatric diagnoses; 3) Serve as an outcome measure in research and clinical assessment; and 4) Identify which symptom clusters are associated with the greatest areas of functional impairment. Their review of the literature also revealed a lack of culturally specific measures of functional impairment, which served as their primary rationale for developing a measure of child functional impairment.

To develop item content, van Domburgh and colleagues (2016) employed similar qualitative methods during the development phase of the K-CFIS including child, parent, and teacher focus group discussions (FGDs), as well as diary-keeping of child participants from both primary and secondary schools. These qualitative methods led to a 10-item measure which assessed three primary domains of daily functioning including self-care, academics, and family relations. The 10-item measure was pilot tested in classroom and an additional unspecified item, “difficulties with other activities,” was added for a total of 11 items.

The K-CFIS item means ranged between .37 and .64, whereas their standard deviations ranged between .66 and .84. Both of these ranges are comparatively small, suggesting similar item content and levels of endorsement across the sample. The lowest endorsed impairment item was maintaining hygiene, whereas those items pertaining to familial relations tended to be endorsed at higher levels. The K-CFIS total score correlated with only one demographic variable: male gender at  $\rho = .06$ ,  $p < .05$ . The Cronbach’s alpha level for the K-CFIS scale total was .83 for the 11-item version, and .82 for the 10-item version, which are *Moderate* according to Ponterotto and Ruckdeschel’s (2007) rubric. Test-retest reliability was examined in class of 37 sixth-grade students, who were aged 10 to 13 years. For the 11-item version, the Pearson coefficient was  $r = .74$  and the Spearman-Brown coefficient was  $r_{sb} = .85$  which were acceptable, but slightly lower than the 10-item version at  $r = .76$  and  $r_{sb} = .86$ , respectively.

The EFA indicated a single-factor structure. Subsequent CFAs supported the single-factor solution and suggested a slightly better fit if item 11, the nonspecific item, was removed. Kindly see Figure 1. Of note, the error terms of item 6, “Difficulties spending time with friends,” and item 7, “Difficulties at school,” were allowed to correlate given the high correlation of the two items ( $\rho = .457$ ,  $p < .001$ ). This association follows logically given that most young children

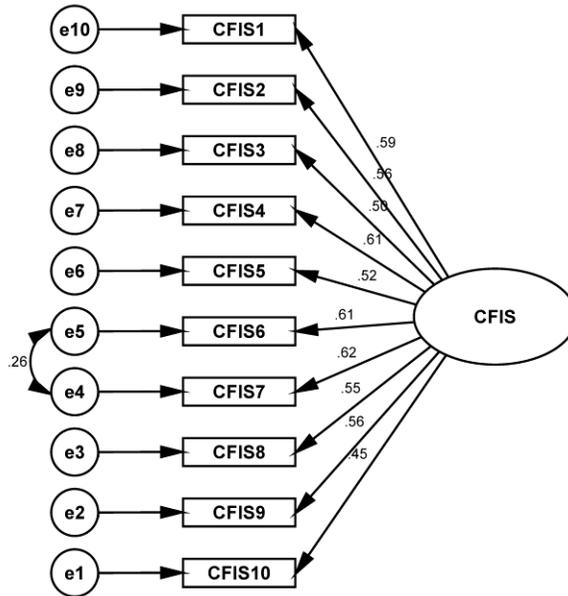


Figure 1. The 10-item single factor K-CFIS model. All of the factor loadings ranged from .45 to .62. Given the relatively high correlation of items 6 and 7 ( $\rho = .457, p < .001$ ), their error terms were allowed to correlate.

spend time with their friends at school. In sum, the K-CFIS demonstrated sufficient reliability and validity, including concurrent validity (see Table 5), across a range of functioning relevant to Cambodian youth.

**Pros:** Developed specifically for Cambodian children using sound qualitative methods; demonstrated sufficient psychometrics in large child sample.

**Cons:** The above psychometric findings have not been reproduced given the novelty of the measure.

**Suggestion:** Use for child participants.

## 5. The Khmer Connor-Davidson 10-item Resilience Scale

The Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was originally developed as a 25-item measure of resilience related to trauma exposure in the US. The content was derived from earlier works based on the construct of resilience, including self-control, optimism, adaptability, social bonding, resistance to stressful situations, etc. The original authors reported a five-factor solution for their measure, but they did not state exactly how they performed the EFA or how they selected the number of factors to retain. Presumably, they used the Kaiser criterion, or retaining factors with eigenvalues greater than one. Of note, the Kaiser criterion is comparatively inaccurate in identifying the number of components or factors to retain in a solution (Velicer & Jackson, 1990). In one study, Costello and Osborne (2005) found that the

Kaiser criterion overestimated the number of factors in 36% of their Monte Carlo simulations. Their five-factor solution also contained a number of cross-loadings, however, the measure did demonstrate other content validity across a normative and several clinical samples.

Campbell-Sills and Stein (2007) then shortened the CD-RISC to a 10-item version after conducting a series of EFAs, using the interpretability criterion, and CFAs to identify the most salient items and robust scale structure. Their revised scale consisted of two factors: *Hardiness* and *Persistence*. A subsequent hierarchical regression analysis revealed that resilience, as measured by the CD-RISC-10, was a protective or moderating factor for psychological distress related to childhood abuse. More recently, Duong and Hurst (2015) conducted a validity study of the CD-RISC-10 in a Cambodian sample of 798 high school students, aged 14 to 24 years, in urban and rural areas of Phnom Penh, Battambang, and Mondulhiri. The Kh-CD-RISC-10 demonstrated moderate internal consistency with a Cronbach’s alpha of .82. The authors utilized PA to identify a single-factor structure, which was confirmed in subsequent CFAs that had item loadings ranging from .40 to .75. Lastly, no test-retest analyses were performed and the scale is proprietary, requiring a fee for its usage. In order to facilitate understanding of the breadth of the measure, however, the English version items of the CD-RISC-10 are listed above in Table 4.

Table 4  
*English Version Items of the CD-RISC-10*

Item Content
1. I am able to deal with change.
2. I can deal with whatever comes my way.
3. I try to see the funny side of things when I am faced with problems.
4. Dealing with stress can make me stronger.
5. I tend to bounce back after being sick, injury, or other hardships.
6. I believe I can achieve what I want, even there are problems.
7. Under pressure, I still think clearly.
8. I do not lose hope from failure.
9. I think of myself as a strong person when dealing with life’s challenges and difficulties.
10. I am able to handle unpleasant or painful feelings like sadness, fear and anger.

*Note.* CD-RISC-10 = Connor-Davidson Resilience Scale-10. Adapted from “Factor loading of the Kh-CD-RSIC10 from principal axis factoring,” by C. Duong, C. and C. P. Hurst, *BMC Research Notes*, 9(1), 297.

**Pros:** Sufficiently validated in an adolescent and young adult Cambodian sample. One of the few, if not only, measures of resilience validated for Cambodian youth.

**Cons:** Psychometric findings have not been reproduced. The measure is proprietary and requires a fee for usage.

**Suggestion:** Use for child and primary caretaker participants.

## G. Psychological Process Measures

Given the number and complexity of risk and protective factors effecting childhood psychological adjustment, more rigorous investigations require diverse measures and nuanced analyses, such as structural equation modelling. This will not only aid in understanding the interactions in children of migrant parents, but on a practical level, help control for potentially confounding variables when examining differences with the control group. Without sufficiently assessing and statistically controlling for other variables known to affect childhood PD, any interpretation of the results may be incorrect or biased. As such, the following measures are recommended as they assess the most robust constructs known to impact child PD. These include adverse events, parental attachment, abuse and neglect, parenting styles, and—for the purposes of the proposed study—grief. Again, after a brief review of each measure’s development, the known psychometrics of the scale’s deployment in Cambodia will be provided in kind.

### 1. Adverse Life Events

During the qualitative phase of the K-CPDS development, van Domburgh and colleagues (2016) conducted several FGDs comprised of 32 children and 31 parent participants from Phnom Penh, as well as rural and urban areas of Takeo and Kampong Chhnang. The purpose of the FGDs was to identify the most common adverse events experienced by the child participants, in addition to their idioms of distress. While the K-CPDS did not demonstrate sufficient reliability, a list adverse events from these FGDs, which was originally produced for item content, was added to several traumatic events selected from the HTQ and then compiled into a 15-item dichotomous measure for research purposes.

The mean number of adverse events experienced by the sample was 3.61 ( $SD = 2.50$ ). Seeing a dead body, worrying about family problems, and experience or witnessing serious violence were rated as the top three adverse events. Kindly see the Figure 2 for a bar chart of the aggregated adverse events from the van Domburgh and colleagues (2016) sample. Of note, living or being separated from a parent or parents was rated sixth and endorsed by 28.4% of the child sample. The KR-20 for the scale was  $r = .65$ , but based on: 1) The variance between the item level means and standard deviations; and 2) The increased levels of endorsement among items, the tau-equivalence assumption was not met. As such, this magnitude likely represented a lower bound of internal consistency. A cursory principal component analysis was also performed, which was equivalent to a categorical PCA for dichotomous items, and suggested a two-component solution. The components, however, failed to meet the interpretability criteria.

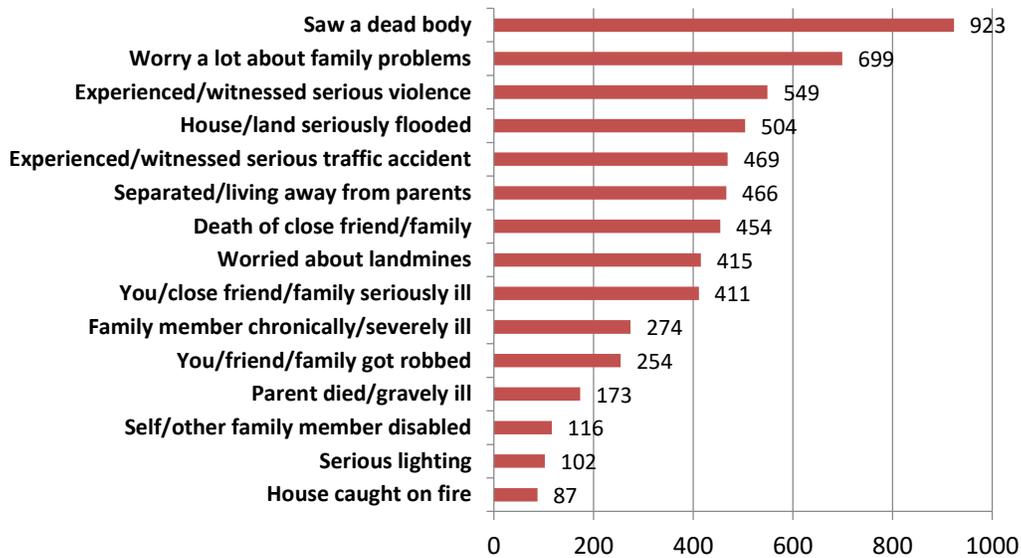


Figure 2.  $n = 1,642$ . The number of aggregated adverse events endorsed by the van Domburgh and colleagues (2016) sample.

Table 5  
Correlation Matrix of Adverse Events, Functional Impairment, and Distress Variables

Variables	1	2	3	4	5
1. K-CFIS Total	—				
2. Adverse Life Events	.212**	—			
3. SDQ Total Distress	.313**	.309**	—		
4. HSCL-25 Anxiety	.367**	.410**	.500**	—	
5. HSCL-25 Depression	.365**	.410**	.502**	.704**	—
6. C-SSA Total	.365**	.422**	.437**	.715**	.683**

Note.  $n = 1643$ . K-CFIS = Khmer Child Functional Impairment Scale. HSCL-25 = Hopkins Symptom Checklist-25. C-SSA = Cambodian Symptom and Syndrome Addendum.

Despite these weak psychometric characteristics, the scale did demonstrate sufficient concurrent validity as shown in Table 5, suggesting potential utility of the scale. Also, given the research nature of the measure, it can be easily modified. For example, the item querying living or being separated from a parent or parents can be removed given that these will be inclusion/exclusion criteria for the migration study groups. Further, other items can be adjusted to improve their salience along a more theoretical subscale structure. The scale scoring could also be transformed from dichotomous to a Likert-type distress scale, and any pertinent content from the qualitative portion of the migration study can be incorporated into the measure. Lastly, given the high level of endorsement of adverse events in some of the participants, a time constraint regarding when the adverse event took place should be emphasized, especially when administering the measure to younger participants.

**Pros:** Item content derived from Cambodian child and parent focus groups; easily modified given the experimental nature of the scale

**Cons:** Not developed specifically as a stand-alone measure; demonstrated poor psychometrics

**Suggestion:** Modify for use with child participants

## 2. The Child Trauma Questionnaire-Short Form

The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) was originally developed as a 70-item retrospective measure of childhood abuse. Its psychometric properties were examined in adult substance abuse samples from two US hospitals. The item content was derived from an exhaustive review of the child abuse and neglect literature. Three of the items were written to assess the level of response bias related to social desirability or under reporting of maltreatment given the sensitive nature of the questions. An additional brief structured interview, the Childhood Trauma Interview (CTW; Bernstein et al., 1994), was developed in concert with the CTQ in order to examine the validity of both measures. The researchers utilized PCA and the interpretability criterion to identify a four-component solution: 1) Physical and emotional abuse; 2) Sexual abuse; 3) Physical neglect; and 4) Emotional neglect. Ten of the items were removed from the PCA analyses, including the three response bias items, because of their low inter-item correlations, component loadings, or ambiguous content. The internal consistency of the scale and all subscales were sufficient, and their magnitudes of association with the CTW supported both measures concurrent validity. Nevertheless, all of the 10 excluded items were retained for future research aimed improving the content and structural validity of the CTQ.

More accurate and rigorous statistical methods were employed in a subsequent study by Bernstein and colleagues (2003), which examined the CTQ in a normative and three clinical samples—including an adolescent psychiatric inpatient sample. EFA, CFA, multiple group comparisons, and latent means analyses were performed and resulted in a 28-item version comprised of six subscales: 1) Emotional abuse; 2) Physical abuse; 3) Emotional neglect; 4) Physical neglect; 5) Sexual abuse; and 6) an additional three-item Minimization-Denial (MD) subscale to measure response bias. The CTQ Short Form (CTQ-SF; Bernstein et al., 2003) demonstrated sufficient reliability, validity, as well as a relatively similar five-factor structure across all samples. Kindly see Table 6 for the descriptive statistics of the CTQ-SF and K-CTQ-26 from the van Domburgh and colleagues (2016) study. Because each of the CTQ-SF clinical subscales consisted of five items, the mean magnitude for each subscale indicates the level of endorsement across the sample.

Table 6  
*CTQ-SF and K-CTQ-SF Subscale Descriptive Statistics*

Scale/Subscale	<i>M</i>	<i>SD</i>	<i>α</i>	Median	Mode	Min	Max
CTQ Emotional Abuse	6.97	2.60	.65	6.00	5	5	23
CTQ Physical Abuse	6.36	2.41	.72	5.00	5	5	14
CTQ Sexual Abuse	5.62	1.92	.75	5.00	5	2	24
CTQ Emotional Neglect	12.50	4.78	.77	12.00	10	5	25
CTQ Physical Neglect	10.45	2.97	.33	10.00	9	5	21
K-CTQ-26 Abuse	13.38	4.52	.79	12.00	10	10	42
K-CTQ-26 Neglect	18.23	6.33	.80	18.00	16	7	35
K-CTQ-26 Sexual Abuse	6.83	2.27	.76	6.00	6	6	29
CTQ Minimization/Denial (Continuous)	8.61	2.52	.42	9.00	11	3	15
CTQ Minimization/Denial (Dichotomous)	0.65	0.79	.46	.00	0	0	3

*Note.* *n* = 1643. CTQ = Childhood Trauma Questionnaire Short Form; K-CTQ-26 = Khmer Version of the Childhood Trauma Questionnaire Short Form.

The lowest mean was for the Sexual Abuse subscale at 5.62 (*SD* = 1.92), followed by the Physical Abuse subscale at 6.36 (*SD* = 2.41) and the Emotional Abuse subscale at 6.97 (*SD* = 2.60). The Emotional Neglect subscale mean was the largest at 12.50 (*SD* = 4.78), followed by the Physical Neglect subscale at 10.45 (*SD* = 2.97). Of note, several items directly queried whether or not the participant believed that they were physically, sexually, or emotionally abused. Examining only these questions in the sample, which were missing 28 values for gender, 17.9% of the sample (19.4% of males, 16.4% of females) endorsed being physically abused, 5.5% (6.0% of males, 4.6% of females) endorsed being sexually abused, and 12.7% (12.9% of males, 12.6% of females) reported being emotionally abused.

EFA was performed without the three-item MD subscale items and revealed a three-factor solution: 1) Abuse; 2) Neglect; and 3) Sexual abuse. The abuse and neglect subscales simply loaded onto two respective factors rather than four. Interestingly, two of the Physical Neglect items (1 and 6)—not having enough to eat and having to wear dirty clothes—had poor loadings and were removed from the scale. This was surprising given the ubiquity of poverty and its presumed association with food insecurity, as well as the dusty rural environments of Cambodia. Neither item correlated significantly with the MD scale nor were their levels of endorsement particularly low compared to the other items. So, some other confounding variable or variables were likely the influence. Another anomaly involved item 25, which queried if the individual believed she or he was emotionally abused. The item loaded onto the Sexual Abuse scale rather than the Abuse subscale. While emotional abuse is concomitant with sexual abuse, it

Table 7  
*Correlation Matrix of Demographic Variables, K-CTQ-26 and C-SSA*

Variables	1	2	3	4	5	6	7
1. Age	—						
2. Gender	-.03	—					
3. Area (Rural vs. Urban)	-.12**	.04	—				
4. K-CTQ-26 Abuse	.01	-.05	.11**	—			
5. K-CTQ-26 Neglect	-.10**	-.10**	.24**	.25**	—		
6. K-CTQ-26 Sexual Abuse	-.03	-.05	.10**	.42**	.19**	—	
7. CTQ MD (Continuous)	-.01	.05*	-.17**	-.17**	-.59**	-.13**	—
8. C-SSA	.20**	.06**	.18**	.38**	.04	.24**	-.01

*Note.* K-CTQ-26 = Childhood Trauma Questionnaire-Short Form-26; MD = Minimization/Denial subscale; Cambodian Symptoms and Syndromes. Negative correlations with the Gender and Area variables indicate associations with male and rural areas. All tests are two-tailed. \* $p < .05$ ; \*\* $p < .01$ .

may also be a cultural distress idiom of sexual abuse in Cambodia, and so the translation of this item should be re-examined. Cursory CFAs were employed to compare the original five-factor structure with the empirical three-factor model consisting of the remaining 22 items using the Bollen-Stine bootstrapping method to correct for item asymmetry. The three-factor K-CTQ-26 model was superior across all fit indices and suggested better discriminate validity with lower magnitudes of correlations between factors.

One notable strength of the CTQ is the inclusion of the MD subscale to measure response bias which Bernstein and colleagues (1994) considered minimizing or denying maltreatment. Within the Cambodian context, this is a novel construct and no other validity scale has ever been deployed or validated in the country to this author's knowledge. Bernstein and colleagues (1994) originally suggested scoring the MD subscale items as dichotomous, that is, only giving a score of one to those items that were endorsed at the maximal value, giving a total possible score of three for the scale. However, MacDonald and colleagues (2016) conducted a large, multinational meta-analysis and concluded that the MD subscale could be utilized as a continuous variable. Further, they found that the CTQ Emotional Neglect subscale was especially susceptible to minimization or denial, particularly at the higher levels. This is exactly what Domburgh and colleagues (2016) found in their dataset, as shown in Table 7. Of note, inter-item analyses suggested that the translation of MD scale item 10 should be reviewed, given that its deletion would increase the subscale's internal consistency. Lastly, cursory moderation analysis of the K-CTQ-26 MD scale was performed using the K-CTQ-26 Neglect subscale as the independent variable and the C-SSA scale as the dependent variable. The moderating effects of the MD scale

were found to be conditional, or significant, only with MD values over 9 with increasing effect sizes thereafter. These moderation effects, the lack of correlation between the MD subscale and the C-SSA, and the high correlation between the MD subscale with the K-CTQ-26 Neglect subscale, can explain the insignificant correlation found between the K-CTQ-26 Neglect subscale and the C-SSA scale.

**Pros:** Measures both child neglect and abuse; includes response bias subscale

**Cons:** Demonstrated different factor structure than original short form study; the translation of several items (1, 6, 10, and 25) should be re-examined. Also consider adding *traditional healer* and *monk* to item 9 to increase cultural salience.

**Suggestion:** Use with child participants; deploy full the CTQ-SF to replicate Cambodian findings

### 3. The Alabama Parenting Questionnaire-9

In original Alabama Parenting Questionnaire (APQ) article, Shelton, Frick and Wootton (1996) reviewed the literature on which parenting practices had the most robust findings regarding their impact on childhood emotional and behavioral functioning. They found that parental involvement and supervision, inconsistent discipline, corporal punishment, and positive parenting had the highest associations with various behavioral outcomes for children. The researchers' item content was based largely upon the telephone interview measure utilized at the Oregon Social Learning Center (OSLC; Capaldi & Patterson, 1989; Patterson, Reid, & Dishion, 1992). They deleted redundant items and added others items querying non-violent forms of discipline. The different theoretical subscales of the final 42-item APQ included: Involvement, Positive Parenting, Poor Monitoring/Supervision, Inconsistent Discipline, Corporal Punishment and Other Discipline Practices. Four different formats were created including global and telephone assessments for both the parent and child. Most of their analyses focused on the measure's criterion validity and the reliability between measure formats. No analyses of the factor structure of the original APQ were performed, but the subscales demonstrated moderate internal consistency.

Elgar, Waschbusch, Dadds, and Sigvaldason (2007) then developed a short form of the original APQ 42-item measure using EFA and CFAs on several large adult and child samples. EFA was first performed on an Australian community sample of 1,402 parents. The authors used PA and MAP analyses to identify three factors in their solution and then selected the three highest loading items in each remaining factor. The three-factors of the APQ short form (APQ-9) included Poor Supervision, Inconsistent Parenting, and Positive Parenting. Subsequent CFAs were performed on 1,296 mother and 745 father participants whose children were attending

Canadian schools for children with behavioural problems. The CFAs supported the three-factor structure across parental gender, and each subscale’s concurrent validity was adequate using measures of childhood disorders, including Conduct Disorder and Attention Deficit Hyperactivity Disorder. Lastly, the APQ-9 was examined in a smaller Canadian community sample of 133 parents and the results were generally supportive of the prior two analyses.

The following data analyses were performed using unpublished data from the Laezer, Högger Klaus, and Sisokhom (2015) study which consisted of 211 grandmothers, 217 mothers, and 535 children aged 11 to 17 years. One of the primary aims of the study was to examine the intergenerational transmission of trauma emanating from the KR regime era, and so only familial-related subsamples were collected. Given the subsamples sizes, only the analyses from the third generation, or children were presented here. Cursory EFA supported the same three-factor structure as the Elgar, Waschbusch, Dadds, and Sigvaldason (2007) study with item loadings ranging from .911 to .401. However, item 8, which queries whether the child’s parents know who their friends are, failed to load onto any factor using the .31 cut-off magnitude. This is likely due to the biased sampling which contained only children who lived with or near to both their mothers and grandmothers. When deployed to a more general sample, this poor item loading will likely not be replicated. As such, the following results included item 8, but appropriate caution should be used when interpreting the data given the biased sampling due to the nature and research questions of the study.

Table 8  
*APQ-9 and C-SSA Descriptive Statistics and Cronbach’s Alpha Levels*

Scale/Subscales	<i>M</i>	<i>SD</i>	Median	Mode	Min	Max	$\alpha$
APQ-9 Positive Parenting	9.60	2.85	10.00	9	2	15	.74
APQ-9 Poor Supervision	5.06	2.00	5.00	3	2	15	.45
APQ-9 Inconsistent Parenting	5.60	2.33	5.00	3	2	14	.25
C-SSA	21.47	6.08	21.00	19	14	56	.87

*Note.* *n* = 535. APQ-9 = Short Version of the Alabama Parenting Questionnaire; C-SSA = Cambodian Symptoms and Syndromes Addendum; *M* = Mean; *SD* = Standard deviation;  $\alpha$  = Cronbach’s alpha.

Table 8 listed the descriptive and internal consistencies of the APQ-9 and C-SSA from the Laezer, Högger Klaus, and Sisokhom (2015) study. The low alpha levels of APQ-9 Poor Supervision and Inconsistent Parenting are not only likely due to the low number of items in each scale, but also to the aforementioned sample bias. Of note, the children in the sample endorsed Positive Parenting to a greater magnitude as compared to the other two APQ-9 subscales. It is possible that if the CTQ MD scale had been deployed with the measure, it might have indicated

Table 9  
Correlation Matrix of Demographic Variables, APQ-9, and C-SSA

Subscale	1	2	3	4	5	6
1. Age	—					
2. Gender	-.107*	—				
3. Demographic Area	.109*	.006	—			
4. APQ Positive Parenting	-.071	-.105	.027	—		
5. APQ Inconsistent Parenting	.045	.065	.179**	.038	—	
6. APQ Poor Supervision	.096*	-.065**	.120**	-.087*	.211**	—
7. C-SSA	.162**	-.014	.156**	-.014	.207**	.089*

Note.  $n = 535$ . APQ-9 = Short Version of the Alabama Parenting Questionnaire; C-SSA = Cambodian Symptoms and Syndromes Addendum. Positive correlations with Gender indicate an association female children. Positive correlations with Demographic Area indicate an association with rural areas.

some bias in the participants' responding. Table 9 lists the Spearman correlation matrix of the demographic variables, the APQ-9, and the C-SSA from the Laezer, Högger Klaus, and Sisokhom (2015) study. Children from rural areas endorsed significantly higher levels of maladaptive parenting styles and psychological distress. Male participants reported significantly higher levels of poor parental supervision. While each APQ-9 subscale correlated in the hypothesized direction with child psychological distress, the Positive Parenting subscale did not correlate negatively with Inconsistent Parenting subscale. Again, this is likely due to the biased sample characteristics.

**Pros:** Brief measure of robust, empirically-based parenting styles

**Cons:** Demonstrated poor psychometrics in a Cambodian child sample, however, this was likely due to sampling bias related to the design of the study.

**Suggestion:** Use with child and primary caretaker participants

#### 4. Adolescent Attachment Measure & Expanded Grief Inventory

To this author's knowledge, there are no sufficiently validated measures of attachment or grief for Cambodian children. However, Field, Tzadikario, Pel and Ret (2014) utilized two measures, which assessed the constructs of attachment and grief. These were appropriately translated from English to Khmer in a study of 48 adolescents whose fathers had died within three years of the study. The first instrument was the eight-item Adolescent Attachment Measure (AA; Field, N. P., Tzadikario, E., Pel, D., & Ret, T., 2014), which was adapted from the People in My Life (PIML; Ridenour, Greenberg, & Cook, 2006) measure and modified to include only positive aspects of attachment. The AA was administered to the adolescent participants to assess the quality of attachment to their deceased father, living mother, close relative, sibling, and friend.

The alpha levels for each of these relationships ranged from .75 to .94 in the Cambodian sample. The second instrument was the 28-item Expanded Grief Inventory (EGI; Layne, Savjak, Saltzman, & Pynoos, 2001) which assesses older children and adolescent grief along three subscales: Adaptive Grief, Complicated Grief, and Traumatic Grief. The alpha levels in the Cambodian sample ranged from .64 to .73. No other psychometrics were listed for either measure other than descriptive statistics. The concurrent validity of each scale, however, was supported by bivariate correlations and mediation analyses. Of note, one particular finding was that only communication with the surviving mother about the loss of the father, as measure by another instrument, was associated with adaptive grief.

Given the sample size and lack of other validity testing, the Field, Tzadikario, Pel and Ret (2014) study could be considered a robust pilot test for the AA and EGI within the Cambodian context. Also, these measures can be modified for use in the forthcoming migration study. The AA should also have the highest degree of adaptability, whereas the EGI, may require a greater degree of modification.

**Pros:** Both measures been successfully administered to an adolescent Cambodian sample

**Cons:** Both measures have not been sufficiently validated; EGI designed originally to assess grief related to the death of a loved one.

**Suggestion:** **Modify for use with child participants**

## H. Additional Adult Measures

The above review has recommended administering the C-SSA, Kh-CD-RISC-10, and APQ-9 to the primary caretakers of the child participants. However, given that some of the child participants will be separated from both parents as a result migratory work, their grandparents will likely be the primary caretakers. Given the age of the child participants' grandparents, these elders will have likely experienced trauma during the Khmer Rouge regime. In these instances, the Khmer version of the PCL-C, which assesses PTSD symptom severity using DSM-IV-TR (APA, 2000) criteria, and the first part of the HTQ, which queries various traumatic experiences during the wars in Indochina, should be administered. The rationale against solely giving the entire HTQ is that the diagnostic items are based on the older DSM-III (APA, 1980) PTSD criteria. A modified version of the HTQ traumatic experiences will be included in the measure addendum of the current report.

## **I. Administering Measures to Children and Adolescents**

Asking a Cambodian child or adolescent about her or his emotions, personal life events, and family relations in the form of a questionnaire is likely a novel experience. Further, the cognitive development of younger children diminishes their ability to answer questions that require certain levels of abstraction, which may be beyond their capacity. As such, children under 13 years of age should have the items read to them individually and in private, when possible. This will improve the reliability, and hence validity, of the measures. Administering the measures to children 13 years or older may be done in a group or classroom setting, but the testing should be well proctored. Care should also be taken to adhere to an item's content if a youth requires clarification. Lastly, the battery of measures should be readministered to a sample of 30 children, preferable older than 13, after seven days in order to establish test-retest reliability. Assuming test-retest correlations at or above .45, this sample size will yield sufficient statistical power above the .80 level.

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