A critical review of child maltreatment indices: Psychometric properties and application in the South African context

Guillermina Ritacco [1, 2] *and Shahnaaz Suffla* [1]

[1] Medical Research Council – University of South Africa Safety & Peace Promotion Research Unit
[2] Population Health, Health Systems and Innovation, Human Sciences Research Council

Abstract

The public and academic focus on child maltreatment and neglect and their prevention has spawned a range of surveillance instruments and mechanisms intended to identify child maltreatment and measure its magnitude. While such surveillance responses are obviously important for the prevention and management of child maltreatment and neglect, there appears to have been insufficient attention directed at examining their utility in the South Africa context. A review hereof is likely to offer insights to programme planners and child safety advocates working to mobilise political and community-level actions. Accordingly, the paper considers a sample of child maltreatment scales and measures and critically evaluates them in terms of their psychometric properties, as well as their application value for South Africa. Review findings indicate that despite an obvious lack of evaluative standards for assessing the psychometric properties of child maltreatment measures, those considered in this review appear to perform well with the study populations and in cross-cultural applications. It is suggested that following an appraisal of their linguistic and cultural appropriateness, and the adoption of suitable piloting procedures, the identified scales could be applied in South Africa with confidence in their measurement capabilities.

Keywords: review, child maltreatment and neglect, indices, cross-cultural application, South Africa

INTRODUCTION

Every child has the right to health and a life free from violence. Each year, though, millions of children around the world are the victims and witnesses of physical, sexual and emotional violence. Child maltreatment is a huge global problem with a serious impact on the victims' physical and mental health, well-being and development throughout their lives – and, by extension, on society in general (WHO 2006b:1).

Early studies of child maltreatment have been dominated by epidemiological investigations conducted in collaboration with child protection services (Clement & Chamberland 2007; Straus, Hamby, Finkelhor, Moore & Runyan 1998). As a result, many studies have examined, confirmed or substantiated cases of child maltreatment, while the many unreported cases go unnoticed. This is not to say that these studies are not important, but rather that these tend to highlight only the most severe forms of child maltreatment and only 'scratch the surface' of the phenomenon of child maltreatment (Clement & Chamberland 2007; Dawes & Mushwana 2007; Makoae, Dawes, Loffell & Ward 2008; Straus et al 1998).

This very difficulty in assessing child maltreatment has to do with the very complex issues of defining child maltreatment, cultural differences in what is deemed to be maltreatment, as well as the difficulties in separating sub-optimum parenting from maltreatment. As such, definitions of child maltreatment differ across contexts and depend, to an extent, on study aims. According to the World Health Organization (WHO) (2006b:7), "child maltreatment refers to the physical and emotional mistreatment, sexual abuse, neglect and negligent treatment of children, as well as to

their commercial or other exploitation". In examining other definitions of child maltreatment, it appears that the commonality across them is the reference to emotional, physical and sexual abuse, neglect or omission of care, and exploitation of children. Despite this apparent consensus, much debate surrounds the definition of child maltreatment.[1]

The literature reveals that scholars have written extensively on definitions, the problems inherent in definitions, as well as the discourses ensuing from the use of these various definitions (Hutchison 1990; Straus & Kantor 2005). A salient feature herein is the argument that definitions reflect the specific cultural beliefs and values of the contexts within which they were developed. What one culture sees as 'negligent' or 'exploitative' is not the same in another culture. Accordingly, it is argued that the application of research instruments across contexts can lead to some contexts being viewed negatively on the basis of differing cultural practices. For example, in some countries it is acceptable – although illegal – for children to start working as early as 6 years of age, while in other countries this would be unacceptable and categorised as abuse.[2,3]

To elaborate, other debates surrounding the lack of consensus on definitions of child maltreatment include the contention that child maltreatment is a legal matter and as such is defined by social service systems and not researchers (Cicchetti & Toth 2005). This implies that criteria for diagnosing abuse are largely more overt and physically substantiated. Moreover, there is no agreed-upon set of standards to differentiate acceptable from unacceptable parenting practices. This is further compounded by what to take into consideration when defining what is abusive, that is, is it overt physical signs such as bruises or can more unseen consequences be considered, such as mental health/psychological trauma (Cicchetti & Toth 2005). There have also been variations across periods of history and cultures regarding acceptable versus maltreating parenting, which further complicates the possibility of standardisation or consensus. The notion of intention is frequently linked with these debates (Cicchetti & Toth 2005). Lastly, the literature emphasises the idea that definitions serve different purposes, resulting in not only a lack of consensus, but also the development of many different definitions. For example, what is acceptable in a research setting would not be viable in a legal setting and, hence, the development of variant definitions (Cicchetti & Toth 2005). Similarly, the adoption of different theoretical orientations yields distinct definitions (Cicchetti & Toth 2005).

Owing to studies on child maltreatment focusing on different indicators and definitions of child maltreatment, statistics on child maltreatment generally present as fragmented and, often, as under-representative of the true magnitude of the problem. Where data does exist, statistics appear not to be comparable across countries and are often not comparable across groups of a population either. As such, global rates of child maltreatment are not available; however, estimates of violence against children disaggregated into specific types, such as child homicide rates, female genital mutilation, punishment in the home, forced sexual intercourse and child labour, are obtainable. To draw from some of these statistics, the WHO *Global burden of disease* (2004) figures indicate that 17 699 boys and 13 175 girls between the ages of 0–14 years died in 2004 due to violence. This figure represents 5.15% of all deaths due to intentional violence and 0.05% of the total burden of disease for this age group.[4] Although not specifically presented as an estimate of child maltreatment, it does indicate a

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1   See also Bernstein, Ahluvalia, Pogge & Handelsman (1997), Dawes & Mushwana (2007), Richter & Dawes (2008), Straus et al (1998), Straus & Kantor (2005) and Tang (2006) for additional definitions of child maltreatment and debates on the issue.

2   It is estimated that in economically developing countries, "at least 120 million children between 5 and 15 are working full time, and more than twice as many (or about 250 million) work on a part-time basis" (Maffei, Raabe & Ursprung 2006:211).

3   See ISPCAN's *World perspectives on child abuse* (7th ed 2006) for a more detailed discussion of cross-cultural differences in what is perceived as abusive and what is not.

4   These calculations are based on data from the 2004 WHO report on the Global Burden of Disease.

high incidence of child-directed violence globally. Of these deaths, 7 129 boys and 5 817 girls in Africa between the ages of 0–14 died due to violence (WHO 2004).[5] This accounts for a substantial proportion of the global estimate.

South Africa, like other countries, lacks rigorous monitoring systems for child maltreatment (Dawes & Mushwana 2007), making comprehensive, reliable and valid statistics on child maltreatment difficult to estimate and attain (e.g. Dawes, Long, Alexander & Ward 2006). As such, estimates are interpreted and reported with caution, taking into account the vast potential for under-reporting and non-counting. According to official statistics of the South African Police Service, 48 732 crimes against children were reported for the year 2008/9. Of these, there were 4 034 substantiated reports of the neglect and ill treatment of children (South African Police Service 2010). There were also 843 cases of murder, 782 cases of attempted murder, 12 422 cases of assault with the intent to do grievous bodily harm, 14 544 cases of common assault and 20 141 cases of sexual offences. Reports provided by Childline, a 24-hour helpline for children, reported 1 048 calls related to sexual abuse, 2 535 for physical abuse, 2 914 for emotional abuse and 3 356 for neglect for the year 2007/8 (Childline 2007–8).[6]

Against this backdrop of divergent definitions and deficient data on child maltreatment, the exigency for valid child maltreatment measures continues to receive attention in the public and academic spheres. It is observed that this focus on child maltreatment and neglect and its prevention has spawned a range of surveillance instruments and mechanisms intended to capture, identify and predict child maltreatment, as well as measure the magnitude of child maltreatment encompassing more than just reported cases. While such surveillance responses are obviously important for the prevention and management of child maltreatment and neglect, Hamby and Finkelhor (2000) argue that there have been few endeavours to examine the utility, definitions, discourses and theories that underlie the instruments. Reviews of one or more of these elements can offer insights to programme planners[7] and child safety advocates working to mobilise political and community-level actions. We therefore structure our paper around the following aims:[8]

- to evaluate the psychometric properties of a group of existing scales designed to assess child maltreatment
- to discuss their cross-cultural application and specific utility within the South African context

METHODOLOGY

In order to assess the psychometric properties of the child maltreatment scales, the authors conducted a review of existing research literature. The focus was on studies where the scales were either being validated or used for research purposes. In order to access the literature, the following search engines where used to search for literature on child maltreatment indices: Ebescohost, Science Direct, Jstor, Pubmed and Springer-link. The keywords informing the search were child maltreatment, child abuse, child neglect, physical abuse, sexual abuse, emotional abuse, index, indices, measures, scales, tools and assessments. Initially our search focused on indices of child maltreatment more broadly, which resulted in over 6 000 articles being identified. After reviewing the literature that had been accessed, the search was further refined to include those indices identified as most used and endorsed, as well as those most thoroughly evaluated. A further search included the names of the scales (e.g. Child Trauma Questionnaire), as well as the relevant acronyms (e.g. CTQ). Owing to concerns about space and the imperative to focus the review in terms of depth rather than breadth, the authors excluded some scales from this

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5   This report and data are the latest available from the WHO.

6   The 2009/10 report was not available at the time of review and so the data provided represents the most up-to-date statistics available.

7   The scales reviewed have and can be used by a wide range of professionals, including researchers, nurses, NGO practitioners, social workers and clinical psychologists, to name only a few.

8   It is important to note that this review informs the child maltreatment component of a larger project aimed at child safety, and is therefore one part of a composite research protocol on child injury.

review in favour of granting particular attention to those scales endorsed by the WHO, which has extended a call for a robust engagement with these measures.[9] The focus on these scales in relation to South Africa is observed as an attempt to do just that. In the initial search, the year of publication was restricted to the time span of 2006 up to the present, so that the most current sources could be consulted. However, earlier studies subsequently had to be included because of the paucity of literature for the given period, which specifically included an analysis of psychometric assessments undertaken on the indices. Only studies using the full assessment tool were included and reviewed, as this allowed for a more thorough and less fragmented evaluation of the tool's utility. For the purpose of this review, only English articles were selected.

The measures to be assessed

The following assessment tools are highlighted as being appropriate for the study of the prevalence and incidence of child maltreatment, as well as for assessing the efficacy of intervention and prevention programmes: (a) Parent-Child Conflict Tactics Scales (CTS, CTS-PC); (b) Adverse Childhood Experiences Study Questionnaire (ACE); (c) Juvenile Victimization Questionnaire (JVQ); (d) International Society for Prevention of Child Abuse and Neglect (ISPCAN) Child Abuse Screening Tools (I-CAST C, I-CAST R and I-CAST P); (e) Adult-Adolescent Parenting Inventory (AAPI); (f) Child Trauma Questionnaire (CTQ); and (g) Child Abuse Potential Inventory (CAPI), all of which show strong evidence of utilisation and assessment.

The review revealed that not only are there varying definitions of child maltreatment being used, but also that the theory underlying the scales differs greatly. This has meant that the scales developed offer very different perspectives on child maltreatment. Hence, some of the scales are self-report retrospective measures of early abuse, while other scales measure abuse directly or assess predictors of abuse and micro-level behaviours associated with abuse potential A consideration of when and how each scale is used is therefore important. The identified scales are thus reviewed in relation to a brief description of the theory underpinning them, what they measure, and when and how they can be used, with a more substantial focus on their psychometric properties.

REVIEW FINDINGS

The Conflict Tactics Scale – Parent-Child (CTS-PC)

The CTS-PC looks at behaviours that are associated with child abuse. It is based on conflict theory (Calvete, Corral & Estévez 2007), which suggests that conflict is inevitable and a necessary part of life. According to this theory, the relationship between conflict and group wellbeing is curvilinear, with too much or too little conflict leading to adverse group outcomes (Calvete, Corral & Estévez 2007). Although there are many tactics that can potentially be utilised to resolve conflict, the CTS-PC chooses three modes of dealing with conflict that are particularly important for testing the 'catharsis theory' of violence control, namely: (a) rational discussion, argument and reasoning, (b) the use of verbal and non-verbal acts that symbolically hurt the other and (c) the use of physical force. These tactics inform the constructs assessed by the scale, namely aggression and violence. The subscales of the measure include non-violent discipline, psychological aggression and physical assault. Sixty-two questions make up the three subscales and are scored on a Likert scale. Two versions have been developed, an adult scale and a child scale, the latter allowing for the assessment of young children. It can be used as both self-administered or interview-format styles and is suitable for groups (Straus & Hamby 1997; Straus et al 1998). This scale has been used extensively for epidemiological investigations (Straus & Hamby 1997; Straus et al 1998), but has also been used to assess programme outcomes (Straus & Hamby 1997).

The Conflict Tactics Scale (CTS) and Conflict Tactics Scale Parent-Child (CTS-PC) are some of the most rigorously

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9   Notably, the Home Observation for Measurement of the Environment developed by Caldwell & Bradley (see Boehm 1985), as well as the Mother-Child Neglect Scale developed by Lounds, Borkowski & Whitman (2004) were not included in this review.

evaluated of all the scales reviewed here. Reports of internal consistency reliability include: 0.58 (Straus & Hamby 1997); 0.74–0.89 (Straus 2004); 0.54–0.77 (Ro & Lawrence 2007); and 0.77 (Straus 2007). Test-retest reliabilities are more scarce, with the following being reported: 0.80 (Straus & Hamby 1997); 0.30–0.79 for self-report; and 0.53–0.86 for partner report (Vega & O'Leary 2007) and 0.72 (Straus 2007). Not all studies reported validity coefficient, with many only reporting convergent validity (Straus 2004; Straus 2007; Straus & Hamby 1997; Ro & Lawrence 2007). More specifically, the CTS has been correlated with other theoretically similar constructs as a means of establishing validity. Straus (2004) correlated assault in the CTS with injury reports and obtained a mean correlation coefficient of 0.76. Similarly, Ro and Lawrence (2007) correlate the CTS with a multidimensional measure of emotional abuse and a test on negative social exchange and they report significant correlations of 0.69 and 0.51 respectively. The results of the CTS-PC have been consistent and stable across contexts and present promising results. Both reliability and validity coefficients show potential; however, these are to be interpreted with caution, as the lower bounds reported, namely test-retest reliability as low as 0.3 (Vega & O'Leary 2007), are not even acceptable for research purposes.[10]

Adverse Childhood Experiences Questionnaire (ACE)

Adverse childhood experiences have been linked with many negative health outcomes in later life; these include premature death, delinquency, teenage pregnancy, drug abuse and a myriad of other psychological and social problems. Based on this, the ACE questionnaire looks at adverse childhood experiences that can be linked with negative outcomes in adulthood. The ACE questionnaire includes questions about adverse childhood experiences specifically during the respondent's first 18 years of life. These experiences include physical abuse, verbal abuse, sexual abuse, having a battered mother, parental separation or divorce, and four types of household dysfunction: exposure in the household to drug abuse, mental illness, suicide or criminal behaviour. This assessment tool is used by drawing correlations with negative adult or adolescent outcomes. Some examples are the relationship between ACE and teenage pregnancy (Hillis et al 2004), drug use (Dube et al 2006) and causes of death (Felitti et al 1998).

The psychometric data for the ACE questionnaire were less accessible, although they are widely used especially in longitudinal data collection projects. Test re-test reliabilities for the questionnaire have been good and are reported as follows: the kappa coefficient for emotional abuse was .66 (95% CI, .55–.76); for physical abuse it was .55 (95% CI, .47–.63); and for sexual abuse, it was .69 (95% CI, .61–.77). The kappa coefficient for growing up with household substance abuse was .75 (95% CI, .68–.81) and for growing up witnessing interpersonal violence, it was .77 (95% CI, .68–.85), both of which are high. Additionally, the weighted-kappa coefficient for the ACE score (range: 0–8) was .64 (95% CI, .36–.60). This indicates good test-retest reliability (Dube et al 2004) and is the only study found to report the reliability of the measure.

The convergent validity of the ACE questionnaire has been provided by Edwards et al (2001), where the ACE questionnaire is correlated with previous self-reports of child sexual abuse. Edwards et al (2001) attempted to establish whether participants who indicated having suffered child sexual abuse on another occasion, would answer the ACE questions in accordance with their previous indications. Overall, 5.9% of all respondents answered affirmatively to the question on child sexual abuse. The prevalence of child sexual abuse was 6.1%, while in the non-respondent group it was 5.4%. Persons with a history of child sexual abuse were somewhat more likely to be respondents (*Odds ratio* = 1.4, CI = 1.1–1.6, *p* < .001). The results were positive and significant, adding to the evidence of the validity and reliability of the measure. This is further supported by Felitti et al (1998) and Dube et al (2003).

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10 Generally, lower bounds are acceptable in terms of reliability for research purposes than for clinical purposes and diagnosis. While a reliability of .60 is acceptable for research, a coefficient of .30 is considered to be too low to be acceptable (Tabachnick & Fidell 2001).

The Juvenile Victimization Questionnaire (JVQ)

The JVQ was developed out of recognition of the increased exposure of children to different forms of victimisation and the extent to which victimisation affects children in later life (Finkelhor, Ormrod, Turner & Hamby 2005b; Turner, Finkelhor & Ormrod 2005). The rationale behind the JVQ was to develop an instrument that would be comprehensive, take into consideration important developmental stages, as well as tap into official categorisations of victimisation, leading to the development of victimisation profiles (Finkelhor et al 2005b; Turner et al 2005). This tool allows for the epidemiological assessment of different forms of victimisation, provides an important assessment tool in socio-legal contexts and also serves as a tool for programme evaluation. The JVQ contains screening questions about 34 offences against youth, which cover five general areas of concern: (1) conventional crime, (2) child maltreatment, (3) peer and sibling victimisation, (4) sexual victimisation and (5) witnessing and indirect victimisation. The instrument provides some short, closed-ended follow-up questions to follow endorsement of a victimisation-screening question for more in-depth information. The questionnaire is designed for interview format with children as young as age 8 and as old as age 17. It can be used in a self-administered format for juveniles of 12 years and older. There is also a "caregiver version", in which a caregiver could be interviewed as a proxy for a child, especially a child under age 8. The primary versions of the JVQ enquire about the previous year as the time frame for victimisation reports. However, the instrument can be adapted for a lifetime perspective and for retrospective reporting of childhood events by adult respondents (Finkelhor et al 2005b; Turner et al 2005).

In terms of test re-test reliability, the questionnaire was administered to a small proportion of the original sample, three to four weeks after the first assessment. The mean κ was .59, with a range from .22 to 1.00 (κ's in the range of .40–.75 were considered fair to good; above .75 was excellent; and below .40 was poor). However, the small test-retest sample is not an adequate evaluation of the scale because of low base rates for some items. For example, some screener items had only two endorsements per 100 participants. This has a drastic effect on the κ in that the coefficient has only a few items in the analysis and hence offers skewed results (Finkelhor et al 2005a). The internal consistency reliability was reported as follows: the full JVQ .80; Conventional Crime .61; Physical Assault .64; Property Victimisation .38; Child Maltreatment .39; Sexual Victimisation .51; Sexual Assault .35; Peer or Sibling Victimisation .55; and Peer or Sibling Assault .35. Again, although the low base rate of reporting of the different constructs affects the reliability coefficient, besides property victimisation, child maltreatment and peer or sibling assault, the coefficients are acceptable.

According to Finkelhor et al (2005a), the construct validity of an instrument can be tested by whether it produces results expected by theory or previous research. One of the major and consistent findings from the victimisation literature is that victimisation is associated with trauma-related symptomatology. The correlation coefficients between the JVQ and both the Trauma Symptoms Checklist for Children (TCSS) and Trauma Symptom Checklist for Young Children (TSCYC) show significance at the 0.05 and 0.01 levels. The correlations range from 0.00 for items with low endorsement to 0.35. Although statistically significant, the practical significance of this is questionable, suggesting that the validity of the scale be considered with caution.

The ISPCAN Childhood Abuse Screening Tool (ICAST)

The ICAST was developed using a large bank of questions, subject to two rounds of Delphi review (Runyan et al 2009b). The ICAST-C (child version) focuses on treatment of a child that could potentially be victimising. Screener questions about each type of victimisation were designed to map the categories of assault or child maltreatment conventionally used in legal, research and programmatic settings. The scale includes the following two sections: home victimisation and victimisation at school or work (institutional). In the home module, there are five subscales: physical abuse, physical punishment, psychological abuse, sexual abuse and neglect. In the institutional module, there are three subscales: sexual assault, physical assault and psychological victimisation. The ICAST-C Home has 38 items and the ICAST-C Institution has 44 items. All questions are

asked of the respondent with reference to the previous year. Children are provided with response options of frequency, for example "many times". If children respond affirmatively, they are asked to identify the perpetrator as adult, child or other. This is designed for use with children/youth between 12 and 17 years of age. There is also a parent version, a retrospective version and a peer/sibling version. This tool allows for the assessment of child abuse currently or retrospectively. It can also been used as a screening tool and in epidemiological surveys (Runyan et al 2009b).

The ICAST is a relatively new measure, with only one study published to date (Zolotor et al 2009) outlining its psychometric properties. The strength of the ICAST appears to lie in its cross-cultural application. The data available on the scale are drawn from a cross-national pilot study. Internal consistency reliability for each scale of the home victimisation component is as follows: home exposure to violence 0.69; physical abuse 0.77; psychological abuse 0.78; sexual abuse 0.72; and neglect 0.86. For the institutional victimisation section of the instrument, internal consistency reliability is as follows: physical victimisation 0.85; psychological victimisation 0.86; and sexual victimisation 0.78 (Zolotor et al 2009). Although these reflect promising initial results with high coefficients, more research is needed on the reliability and, more importantly, the validity of this scale. Despite its extensive use, the literature suggests that psychometric evaluations of the scale are lacking.

Adult Adolescent Parenting Inventory (AAPI)

The AAPI arose from a need to empirically locate perpetuation theory (Bavolek 1990; Bavolek & Keene 2009). In terms of child maltreatment, perpetuation theory suggests that learned patterns of abusive parenting are transmitted from parent to child and are replicated by the child upon becoming a parent. Bavolek and Keene (2009) found that an existing theme among the abusive parent population is a reference to their own past abusive childhood histories. Seeking to discover what percentage of abused children become abusive parents as a result of their early childhood maltreatment, Bavolek and Keene (2009) embarked on a construct analysis of the literature on child abuse and neglect to clarify what it constituted. They synthesised what was generally thought to be abusive parenting practices into meaningful constructs comprising the items of the scale (Bavolek & Keene 2009). The AAPI has four subscales: (a) reversing parent-child family roles (role reversal), (b) lack of empathic awareness of children's needs (empathy), (c) inappropriate developmental expectations of children (developmental expectations), and (d) strong parental beliefs in the use of corporal punishment (corporal punishment). The 32 items are answered on a five-point Likert-type scale, ranging from "strongly agree" to "strongly disagree". This scale can be used to assess potential of child maltreatment, as well as for epidemiology and programme evaluation (Paulusic, Crum, Bliss & Bavolek 2008; Weiman, Schreiber & Robinson 1992).

Bavolek (1990) found the AAPI to have an internal reliability of .70 to .86. The internal consistency showed appropriate levels of reliability for each of the subscales (Expectations = .70; Empathy = .75; Corporal Punishment = .81; and Role Reversal = .82). Test-retest reliability of the inventory showed an adequate level of stability over a week's period (.76) (Bavolek 1990).

The original AAPI produced five factors representing the five subscales of the instrument. In a later study by Conners et al (2005), this factor structure was not achieved. Using confirmatory factor analysis, as well as exploratory factor analysis and principal components, analysis yielded differing results, with the emergence of a ten-factor model. In these, eigen values where low, with the ten-factor structure accounting for 56.2% of the total variance. Alpha reliability coefficients were computed for each scale. For the full 40-item scale, the α value was .85. The α coefficients for the subscales were highest for the Lack of Empathy and Value Corporal Punishment scales (.79). The scale demonstrating the lowest internal consistency was Oppressing Children's Power and Independence (.50). Construct validity has been shown by correlating the AAPI with other theoretically similar measures. Correlations are as follows: AAPI with HOME Warmth .19; HOME Acceptance .18; PDMI (Parental Discipline Methods Interview) – Harsh Discipline .36; Parenting Style – Harsh Control

.45; and PKBS (Preschool and Kindergarten Behavior Scales) Problem Behavior .23. All are significant at a level of 0.01 and as suggested by theory. For internal consistency reliability, chronbach alpha values ranged from 0.86 to 0.96. Similarly, Spearman-Brown *r* values ranged from 0.87 to 0.96, both indicating the high internal consistency of the scale and subscales (Bavolek & Keene 2009). The scale also shows discriminant validity in that it discriminated between abusing and non-abusing parents (Bavolek & Keene 2009).

Childhood Trauma Questionnaire (CTQ)

Similar to the JVQ, the CTQ is based on literature showing that childhood trauma has significant negative outcomes for children in later life (Bernstein et al 1994). The CTQ measures the construct of victimisation in the form of maltreatment, including emotional, physical and sexual abuse, as well as emotional and physical neglect. Two versions have been developed, namely a long version comprising 70 items and a shortened version comprising only 28 questions. In addition to the five subscales mentioned above, the CTQ is also equipped with a minimisation/denial scale for the detection of false-negative trauma reports. This is a self-report retrospective measure that, like those mentioned above, asks about respondents' "experiences growing up". Much like the other scales, the CTQ can also be used to evaluate programmes for epidemiological purposes, as well as 'one-off' assessments. The scale can be used for children 12 years and older, but is not suitable for younger children or parents as proxies. Items are rated on a five-point Likert-type scale, with response options ranging from "never true" to "very often true".

Bernstein et al (1997) found a five-factor structure using principal component analysis for the JVQ. The internal consistency of the scale was found to be 0.97, with the range between scales at between 0.81 and 0.95 (Bernstein et al 1997). Similarly, Bernstein and Fink (1998) found test-retest reliabilities from 0.79 to 0.86 (four-month interval) and internal consistency reliability of 0.66 to 0.92. They also showed convergent validity in terms of correlations with clinician-rated interviews of child abuse. Bernstein and Fink (1998) also found a consistent five-factor structure, as was found in previous research. In a community sample, Scher et al (2001) found a test-retest reliability for the whole scale of 0.91. The five-factor structure of the CTQ was confirmed, providing an "excellent fit", $S - B\chi^2 = 312.70$, df = 258; $S - B\chi^2/df = 1.22$; CFI-R = 0.96; RMSEA – 0.05 and SRMR = 0.09. In another study using street-based sex workers, Villano et al (2004) found internal consistency reliability of between 0.58 and 0.93 for the subscales. A confirmatory factor analysis provided an inadequate fit with an exploratory factor analysis; however, using an oblique rotation produced more desirable results. No factor emerged in this sample for physical neglect, suggesting this construct of the CTQ was not conceptually distinct for this sample (Villano et al 2004). This result was closely replicated in an evaluation of a Swedish version of the CTQ (see Lungren et al 2002).

Pavio and Cramer (2004) tested both the four-factor and five-factor models using confirmatory factor analysis, with poor results. When performing an exploratory factor analysis, the five-factor structure emerged and was statistically significant. The factor model explained 53.4% of the variance and reported the internal validity of the whole scale at 0.96 and test-retest reliability at 0.85. Thombs et al (2009) confirmed the five-factor structure shown in a Dutch sample and also showed the scale to have good internal consistency (0.63–0.95). In addition, using a known group's validity analysis, the authors demonstrated the scale to accurately and significantly differentiate between patients and non-clinical controls in the sample (Thombs et al 2009).

The validity and reliability of the scale shown above are promising. Moreover, the scale has produced some sound results when used with different groups in cross-cultural settings. However, an area of concern is the differing factor structures, which could indicate conceptual differences in the understanding of constructs and, therefore, possibly detract from the scale's validity and utility across contexts. Having said that, considering cultural norms and reviewing potentially culturally loaded questions could yield more consistent results and potentially replicate the original factor structure. Despite this concern, the scale has been used in South Africa, although not for the assessment of child maltreatment; it has been used primarily in research on HIV risk behaviours and violence against women (see Abrahams & Jewkes 2005; Dunkle et al 2007; Jewkes et al 2006a; Jewkes et al 2006b; Jewkes et al 2006c). The results of these studies revealed no problems in the application of the scale. However, no psychometric properties are reported for South African samples.

Child Abuse Potential Inventory (CAPI)

The CAPI was designed primarily as a screening tool for the detection of physical child abuse by protective services workers in their investigations of reported child abuse cases. It measures the potential to abuse, using six personality factors that have been shown to be associated with abuse, namely distress; rigidity; unhappiness; problems with the child and self; problems with the family; and problems with others (Milner, Gold & Wimberly 1986; Milner & Wimberley 1979; Robertson & Milner 1983). This scale is used to assess adults, not children, and is an appropriate screening tool for groups and individuals who are considered to be at risk for perpetrating physical child abuse (Milner 1994). Although best used for screening, the CAPI is also utilised for pre- and post-treatment and follow-up assessments in evaluations of programmes involving parents. Included in the 160 items making up the six subscales of the CAPI are three validity scales measuring lie, random response and inconsistency.

Grietans et al (2007) found internal consistency of 0.90 and split-half reliability of 0.89 (Gluttman r (362) = 0.89). Internal consistency of the lie scale was 0.76; of the random response scale, 0.06; and of the inconsistency scale, 0.23. Convergent validity was shown through the significant prediction of child abuse by parenting attribution with regards to child rearing and parenting stress (f [2, 352] = 84.18, p < 0.01). In another study, Walker and Davies (2010) found internal consistency reliability ranging from 0.91–0.95. The reliability of the Greek version of the CAPI showed internal consistency coefficients of .91 for the abuse scale; .93 for the distress factor scale; .86 for the rigidity factor scale; and .80 for the inconsistency validity scale. For the other four-factor scales and two validity scales, reliability coefficients were as follows: unhappiness .41; problems with child and self .26; problems with family .52; problems with others .50; lie .24; and random response .33 (Diareme et al 1997).

Chan et al (2006) reported that a confirmatory factor analysis in a Hong Kong sample showed 66 of the 77 items had factor loadings greater than 3(χ^2 = 4615.203 (p = 0.00), RMSEA = 0.031, NFI = 0.930 and GFI = 0.869). Internal consistency of the abuse subscales were as follows: distress 0.92; rigidity 0.69; unhappiness 0.36; problems with child 0.38; problems with family 0.54; and problems with others 0.54. The CAPI showed convergent validity with the 12-item general health questionnaire, 36-item short-form parenting stress index, as well as the 20-item revised UCLA loneliness scale. A discriminant function analysis showed that the abuse scale has an overall correct classification rate of between 90.4% and 97.1% (Chan et al 2006).

Merritt (2009) correlated the CAPI with various neighborhood factors related to child maltreatment, including neighbourhood rates of child maltreatment (r = 0.12, p = 0.02), in order to establish concurrent validity. Results indicated that variations in CAPI scores across neighbourhoods can be explained by variations in the neighbourhood maltreatment rates. Computations based on these variations indicated that the proportion of variance in the mean CAPI scores explained by the child maltreatment rate is 0.99. The construct validity of the instrument was tested by examining the factorial structure using varimax rotations. Only five factors were meaningful for the study, explaining 34.1% of the variance in the data set. As demonstrated by Chan et al (2006), a factor analysis yields inconsistent results across samples and groups.

The reliability and validity reported by the above studies are adequate, although not very high. The inconsistency of the factor analyses are of concern and allude to problems with construct validity. Although the CAPI appears to be widely used, a review of its psychometric properties suggests caution in the use of this scale; which would be appropriately addressed through a consideration of the revision and piloting of items for use in specific contexts.[11]

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11   See also Milner & Crouch (1997) and Milner, Gold, Ayoub & Jacwitz (1984).

DISCUSSION

As much in South Africa as globally, child maltreatment presents a pervasive and debilitating social ill, not only for individuals, but for society in general Given this, the ability to measure and assess the extent of the problem is particularly important. In addition, in situations where large resources are allocated to programmes aimed at the prevention and treatment of child maltreatment, measurement and evaluation become important for gauging programme impact and outcomes. In line with the aims of the paper, the assessment tools reviewed here mark different attempts at furthering our knowledge of child maltreatment and evaluating its magnitude. As can be discerned from the review findings, the measures are all developed from and located within different theoretical standpoints. They not only measure the phenomenon through diverse conceptual lenses, but also measure the phenomenon from different perspectives (i.e. child, parent, retrospective) and time frames (i.e. current, previous year, during first 18 years of life, etc.). This variation in measurement instruments appears, in some part, to be the result of inconsistencies in the definitions of child maltreatment and differing study objectives.

The reliabilities of scales presented in this review are arguably good in that they average around $r = 0.6$. An area of concern, however, is that this is an acceptable coefficient value for research, but not necessarily for diagnostic purposes (Field 2005; Tabachnick & Fidell 2001). Their diagnostic function refers to the use of these tools as screening measures, that is, for admittance to intervention programmes, as is frequently the case. A 'misdiagnosis' here would mean that an individual potentially fails to access relevant support services. As reported, validity statistics are far less available and the variations in factor structures across samples suggest differences in the conceptualisation and development of items, which tend to undermine the scales' validity. Although some variations can be overcome with language changes and the elimination of culturally loaded items, it is an area that is particularly significant in the matter of their cross-cultural application. The lack of systematic evaluations of the indicated child maltreatment scales, as well as the reporting of evaluation results, is evident from this review. Nonetheless, the scales show promise and allude to their potential utility within the South African context.

More specifically, of the studies reported, limitations relate to sample sizes being small, non-probability samples being used and samples often not being representative of the group or population being studied. In addition, Chan et al (2006) argue for a greater use of matched samples, which would contribute greatly to establishing the validity of the scales. More critical to the cross-cultural application of these measures, there appears to be an over-reliance on exploratory factor analysis. This method is useful for the initial development of assessment tools and to understand how factors perform across contexts; however, it should not be used when seeking to test the validity of an assessment tool (Tabachnick & Fidell 2001).

In terms of their application in South Africa, only the CTQ is observed to have been utilised. The CTQ has been used mainly in studies of HIV and risky sexual behaviour, with at least one study having employed it to examine the experience of child abuse and how it relates to violent behaviour in adults (see Dunkle et al 2007; Jewkes et al 2006a, 2006b, 2006c). The authors are aware that the ACE questionnaire is currently being applied by a South African research institution. At the time of writing, however, no further information or data was available on its psychometric properties and applicability to the South African context. Nevertheless, Pierce and Bozalek (2004) propose that these scales are potentially appropriate for use in South Africa, since they are based on risk factors[12] and conceptualisations of child maltreatment that are relevant to the South African setting, provided that cognisance is taken of the fact that South Africa is a multicultural and multilingual society. It would therefore be important not only to achieve language equivalence; attention would also need to be directed to conceptual and cultural equivalence so that the scales can be used reliably and validly.

In the absence of South African-developed child maltreatment instruments, the scales reviewed seem promising

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12 These include low socioeconomic status, low birth weight, child temperament, ethnicity, child disability, family structure, family size and single parenting, maternal age, maternal educational attainment, parental involvement, parent-child interactions, social isolation, social support, unemployment and population density (Mersky, Berger, Reynolds & Gromoske 2009; Stith et al 2009)

in furthering study on the epidemiology, aetiology and prevention of child maltreatment in the country. Nevertheless, it is acknowledged that this review is limited in its scope and analysis. There are other scales available that could be as applicable, if not more so, to the study of child maltreatment in South Africa, but their limited endorsement excluded them from this analysis. Similarly, restrictive access to some international literature on the subject means that not all available and published literature could be reviewed. Future research would be instructive if it focused on the piloting and application of tools demonstrated to be promising. Ultimately, the development of a comprehensive framework is needed for the construction and evaluation of child maltreatment tools to prevent further fragmentation of focus, disciplinary isolation, development discontinuities and methodological inconsistencies (Hamby & Finkelhor 2000).

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