



## The validation of the E-Victimisation Scale (E-VS) and the E-Bullying Scale (E-BS) for adolescents

Lawrence T. Lam<sup>a,b,\*</sup>, Yongxin Li<sup>c</sup>

<sup>a</sup>The School of Medicine Sydney, The University of Notre Dame Australia, Australia

<sup>b</sup>Discipline of Paediatrics and Child Health, Sydney Medical School, The University of Sydney, Australia

<sup>c</sup>Institute of Psychology and Behaviour, Henan University, Kaifeng, PR China

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### ABSTRACT

This study investigates the psychometric properties of the E-Victimisation Scale (E-VS) and E-Bullying Scale (E-BS) designed to assess Cyber Bullying among Chinese adolescents. Participants were 484 adolescents aged between 11–16 years randomly recruited from high schools within a region. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were applied to investigate the factorial structure of these scales. Reliability was examined by Cronbach's alpha coefficients by sex. The convergent validity was investigated by correlations among these scales and the Centre for Epidemiological Studies-Depression for Children as well as the Zung's Anxiety Scales. A single-factor model for the E-VS and a 2-factor model for the E-BS were resulted from the EFA with large factor loadings and about 47% and 56% of variance explained respectively. Cronhach's alpha values provided evidence for good internal reliability with values ranging from 0.55 to 0.96. Correlations between the E-VS and Depression as well as Anxiety scales showed positive and significant relationships, however, the E-BS was only related to Depression. Psychometric evidence has shown that both E-VS and E-BS are valid instruments for measuring Cyber bullying behaviour and victimisation. Further studies are required on the test–retest reliability, discriminate validity, responsiveness, as well as normative information for standardisation.

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### 1. Introduction

Bullying has first been formally defined as a wilful behaviour with a conscious desire of someone to hurt or put another person under stress (Tattum & Tattum, 1992). As the definition evolved through time, additional characteristics have been included to describe the behaviour. These included: repeated actions; systematic manner; a desire to harm; an imbalance of power or an abuse of power; enjoyed by the aggressor; and victim feels oppressed (Farrington, 1993; Rigby, 2002; Smith, Cowie, Olafsson, & Liefsooghe, 2002; Smith & Sharp, 1994). With advancements of information technologies bullying behaviour, particularly among young people, has been manifested not just face-to-face but also through the cyber space. As a result, the new terms “Cyber-bullying” and “E-bullying” have been evolved (Patchin & Hinduja, 2006). In general, E-bullying is defined as threatening, intimidating, and harassing behaviour targeting others using the Internet and other digital devices such as emailing, texting, or instant messaging (Kowalski, Limber, & Agatston, 2008).

It has been suggested that bullying in young people should be considered a public health issue because of its immediate effects and long-term sequelae on the mental health of the victim (Feder, 2007). A growing number of studies suggesting the detrimental effects of bullying on the mental health of young people have been identified in the literature (Allison, Roeger, & Reinfeld-Kirkman, 2009; Arseneault, Bowes, & Shakoor, 2010; Fitzpatrick, Dulin, & Piko, 2010; Luukkonen, Räsänen, Hakko, & Riala, 2010; McMahon, Reulbach, Keeley, Perry, & Arensman, 2010; Rivers & Noret, 2010; Stassen Berger, 2007; Tharp-Taylor, Haviland, & D'Amico, 2009; Undheim & Sund, 2010). These studies found that victims of bullying were more susceptible to physical ill-health, severe mental health problems including depression, self-harm, and violent behaviour (Arseneault et al., 2010; Fitzpatrick et al., 2010; Luukkonen et al., 2010; McMahon et al., 2010). Young people victimised by psychological and physical bullying were also more likely to be involved in substance abuse (Tharp-Taylor, Haviland, & D'Amico, 2009). The effect of victimisation during childhood and adolescence might also be long-lasting and would impact on the health and quality of life later on in adulthood (Allison et al., 2009). Similarly, it has also been demonstrated that E-bullying has the same detrimental effect on the mental health of young people (Hinduja & Patchin, 2007; Wolak & Finkelhor, 2006; Ybarra, 2004).

\* Corresponding author at: School of Medicine Sydney, The University of Notre Dame Australia, Darlinghurst Campus, 160 Oxford Street, Darlinghurst NSW 2010, Australia. Tel.: +612 8204 4477; fax: +612 9357 7680.

E-mail address: [lawrence.lam@nd.edu.au](mailto:lawrence.lam@nd.edu.au) (L.T. Lam).

In terms of the prevalence of E-bullying among children and adolescents, a growing wealth of knowledge has been accumulating in developed countries (Ybarra, 2004; Ybarra & Mitchell, 2007). In the national study on health behaviour in school-aged children in the US, it was found that about 14% of the surveyed grade 6–10 children had experienced bullying electronically (Wang, Iannotti, & Nansel, 2009). In another recent survey study among middle and high school students in Canada, it was revealed that about half (49.5%) had been bullied online and nearly 34% had involved in online bullying behaviour (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). However, in these studies information was elicited not using a standardised and validated tool. In fact, little information on well-designed and validated E-Bullying Scale has been provided from the literature.

In terms of developing countries, such as China, information on E-bullying is scarce. According to the most recent report by the China Internet Network Information Centre (CNNIC) CNNIC, 2010, there were 420 million net-citizens who are Chinese citizen at the age of 6 or above and had used the Internet in the first half year in 2010. Of these about 30.7% were young people still studying in high schools or universities (CNNIC, 2010). For the application of mobile Internet access, instant messaging has been identified as the most popular use of cyber technologies for all ages (CNNIC, 2010). This was followed by mobile search and music downloads. In terms of the magnitude and means of E-bullying among adolescents in China, little information has been revealed from the literature. Li (2006) reported that about 33% of children had experienced bullying through the digital media and a smaller percentage had engaged in E-bullying behaviour. A later study by the same author also suggested that most students experienced E-bullying through multiple digital sources with chatroom and text messaging being the most common means (Li, 2008).

One reason for the limited information is the lack of a suitable measuring instrument that has been properly developed and validated for assessing E-bullying and victimisation in the Chinese youth population. This results in a lack of systematic data collection in this important area of adolescent health. Moreover, a lack of proper assessment in the exposure to bullying or involvement in bullying behaviour posts a significant limitation on the possibility of good epidemiological studies on the aetiology, effects, and potential intervention of bullying behaviour. Furthermore, it renders international comparisons of results impossible. Hence, there is an urgent need for the development and validation of a measur-

ing instrument for E-bullying and victimisation in the Chinese language.

This study aims to examine the psychometric properties, including the factor structure, reliability and validity, of the E-Victimisation Scale (E-VS) and the E-Bullying Scale (E-BS) developed for adolescents in the Chinese population.

## 2. Material and methods

### 2.1. Sample and procedure

The sample was generated using a two-stage random clustering sampling technique. First, 5 different high schools were randomly selected from the list of high schools in the city of Kaifeng located in the Henan Province. Second, one or two classes were selected randomly from each school with all students in the class recruited in the sample. As a result, a sample of 484 adolescents aged between 11–16 years was included in this validation study. The sample consisted of 244 (50.4%) males and 240 (49.6%) females with a mean age of 13.5 years (s.d. = 0.9), and 67% ( $n = 325$ ) aged younger than 14 years. The survey was conducted on campus at different schools within the same week. Selected students were invited to participate in the survey via school principals and their teachers, and were encouraged to fill in a self-reported questionnaire designed specifically for the study. Consent was implicated by a voluntarily response to the questionnaire. Institute ethics approval for the study was granted by the Human Ethics committee of the Henan University. For psychometric analytical studies two sub-samples, the experimental (for an exploratory study) and test (for a confirmatory study) samples, were generated randomly from the whole sample with similar age and sex distributions.

### 2.2. Materials

The conceptualisation of the scales and the formation of the item pool were based on the Aggression and Victimisation Scale (AVS) by Orpinas and Horne (2006). The AVS is a well-developed and validated short tool designed specifically to assess bullying behaviour and victimisation among adolescents. Items for the E-Victimisation and E-Bullying Scales were generated based on ideas obtained from the AVS. These items were then pooled together to form the initial item bank. Items in the bank were then further screened by the authors for their suitability to be included in the initial scales according to the situation in China. As a result 12 items, 6 for the E-VS and 6 for the E-BS, were included for psychometric analyses. As a self-reported instrument, these scales adopted the format of the original AVS which asks respondents to indicate the frequency of occurrences of certain situations to them or how often respondents perform certain behaviour in the last 7 days prior to the survey. As a 7-day time period was used in the original VAS, the E-VS and E-BS also employed the same time period for ease of international comparison. A response set with a rating from 0 to 6 corresponding to a range of 0 times to 6 times or more was used. These items were then incorporated in the survey questionnaire in conjunction with other measuring instruments. To examine the convergent validity of E-VS and E-BS, the Chinese version of the Centre for Epidemiological Studies Depression Scale for Children (Weissman, Orvaschel, & Padian, 1980), and the Zung Self-rating Anxiety Scale (Zung, 1965) were also included. All these instruments were properly translated using the forward and backward translation procedures, validated, and widely used among the Chinese adolescent population. Included in the questionnaire was demographic information, such as age and sex of students for sub-group analyses.

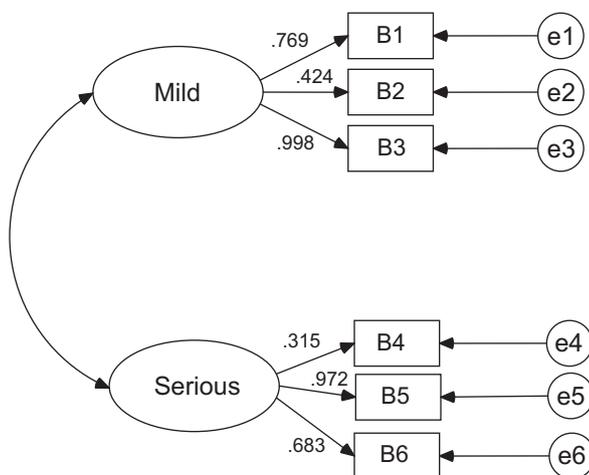


Fig. 1. Factor structure obtained from the confirmatory factor analysis using path analysis approach.

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