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# Multiple types of child maltreatment and adolescent mental health in Viet Nam

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**Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español.** المقالة لهذه الكامل النص نهاية في الخلاصة لهذه العربية الترجمة.

## Abstract

**Objective** To examine the prevalence of multiple types of maltreatment (MTM), potentially confounding factors and associations with depression, anxiety and self-esteem among adolescents in Viet Nam.

**Methods** In 2006 we conducted a cross-sectional survey of 2591 students (aged 12–18 years; 52.1% female) from randomly-selected classes in eight secondary schools in urban (Hanoi) and rural (Hai Duong) areas of northern Viet Nam (response rate, 94.7%). Sequential multiple regression analyses were performed to estimate the relative influence of individual, family and social characteristics and of eight types of maltreatment, including physical, emotional and sexual abuse and physical or emotional neglect, on adolescent mental health.

**Findings** Females reported more neglect and emotional abuse, whereas males reported more physical abuse, but no statistically significant difference was found between genders in the prevalence of sexual abuse. Adolescents were classified as having nil (32.6%), one (25.9%), two (20.7%), three (14.5%) or all four (6.3%) maltreatment types. Linear bivariate associations between MTM and depression, anxiety and low self-esteem were observed. After controlling for demographic and family factors, MTM showed significant independent effects. The proportions of the variance explained by the models ranged from 21% to 28%.

**Conclusion** The combined influence of adverse individual and family background factors and of child maltreatment upon mental health in adolescents in Viet Nam is consistent with research in non-Asian countries. Emotional abuse was strongly associated with each health indicator. In Asian communities where child abuse is often construed as severe physical violence, it is important to emphasize the equally pernicious effects of emotional maltreatment.

## Introduction

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Research into the prevalence and consequences of child abuse and neglect has been changing in focus in recent years. In the past, most community-based and clinical studies assessed a single type or at most two types of maltreatment. However, it is now becoming clear that particular types of abuse seldom occur alone. A significant proportion of young people questioned in community-based surveys in Australia, Canada, Israel and the United States of America (USA), report having suffered multiple types of maltreatment (MTM) as children.[1–7] When adolescents and adults who have experienced MTM are compared with those who have suffered only a single type of maltreatment, MTM victims usually have substantially more mental health and behavioural problems.[8–11] The evidence supports an additive model of maltreatment effects.[2]

A further significant development in research has been an exploration of the role of the individual, family and social contexts in which victimisation occurs.[12] Social ecology models recognize that maltreatment is but one childhood experience among many that can affect mental health later in life. This approach is well illustrated by a recent national survey of children and adolescents in the USA. Turner et al. [11] considered a spectrum of cultural, socioeconomic and family influences on well-being, in addition to specific types of child maltreatment. Hierarchical regression analysis revealed that background factors contributed significantly to variance in mental health, independently of maltreatment, neglect and other forms of non-victimisation trauma and adversity (such as exposure to serious physical illness, accidents or parental substance abuse). A compelling conclusion is that research into statistical linkages between child maltreatment and health may be confounded unless causal factors associated with both are included in multivariate models.[11,12]

These approaches to child maltreatment research have rarely been applied in developing countries. One study in Turkey of 862 school students aged 14–17 years examined potential associations between four forms of abuse and neglect and suicide attempts and self-mutilation.[13] Logistic regression revealed a linear association between each form of maltreatment and both harmful behaviours, but that study did not adjust for social and family influences. In Thailand, a small survey of 202 young adult residents of Bangkok found an association between common mental disorders and background family conditions (low parental education, domestic violence) as well as childhood emotional and sexual abuse, with the latter two factors remaining

significantly associated with mental disorders after adjustment for family characteristics.[14]

To date, no descriptive or analytical research into child maltreatment in Viet Nam has been published in peer-reviewed journals. In Asia little research has been conducted on the relative health effects of social contexts and childhood adversity, broadly defined. Extrapolation of the insights gained in non-Asian countries is problematic because the prevalence of specific acts of violence, their perpetrators and the social settings in which abuse occurs vary among countries and cultures.[15–18] Indeed, considerable differences appear to exist between Asia and other regions in the frequency of child sexual abuse and intrafamilial or school-based physical abuse.[19–22]

The factors that potentiate child abuse and place children at risk of poor mental health might not be generalisable across cultures. For example, some of the main risk factors for both child abuse and mental distress in children in economically developed nations, such as parental divorce, step-parenting, maternal alcohol and drug abuse and neighbourhood violence,[4,7] are comparatively rare in Asian countries. In addition, researchers in countries with multicultural populations, particularly in North America, often emphasize ethnic and cultural differences,[22,23] yet this source of variation may be less influential in comparatively monoracial societies, such as China, Japan and Viet Nam.

The specific objectives of this study were: (i) to describe the prevalence of child maltreatment among a large sample of Vietnamese adolescents, (ii) to examine the possible cumulative effects of various types of child abuse on depression, anxiety and self-esteem; and (iii) to analyse the relative contributions of individual, family and social factors and of child maltreatment to the variation seen in the prevalence of mental health disorders in adolescence, and (iv) to compare our results to recent findings in developed countries.

## Methods

### Study participants

In 2006 we conducted a cross-sectional survey in a convenience sample of eight secondary schools (four lower-level and four higher-level) in two districts (one in urban Hanoi and one in rural Hai Duong province) in the north of Viet Nam. Students in consenting schools were in randomly selected classes. Of the 2737 students from

61 classes eligible to participate, 2591 completed the questionnaire, for a response rate of 94.7%.

## Measures

The survey instrument was developed to ensure face validity in Vietnamese culture and socioeconomic conditions. Questionnaire content and wording were formulated from literature review and qualitative, in-depth interviews with teachers, parents and students, and focus group discussions with students. A quantitative pilot survey of 299 students assessed construct validity and internal consistency.

### *Child maltreatment*

We developed four subscales by adapting items from questionnaires used internationally, such as the Revised Conflict Tactics Scale,[24] the Juvenile Victimization Questionnaires,[25] the Childhood Trauma Questionnaire[26] and several other scales used in Australia,[5,27] China[19,20] and South Africa.[28]Item wording reflecting value judgements (e.g. "abused", "molested", "victim", etc.) was avoided in favour of descriptors of specific behaviours such as "kicking", "yelling at you", and "exposing their private parts". The reference period for all items was "when you were growing up"; therefore the estimates comprised events over the respondent's entire lifetime rather than a recent time period

A child emotional maltreatment (CEM) scale included 7 items using 5 response options ranging from *never* to *always* (score range: 0–35; mean score: 11.87; standard deviaton, SD: 3.74; Cronbach's alpha coefficient, $\alpha$: 0.81). The child neglect (CN) scale consisted of 7 items about emotional or physical neglect (response options from *never* to *always*; (score range 0–35; mean score: 9.15; SD = 3.71; $\alpha$: 0.78). Child physical maltreatment (CPM) was assessed with 6 items (response options from *never* to *always*) (score range: 0–30; mean score: 7.85; SD: 1.95; $\alpha$: 0.63). The 8 child sexual abuse (CSA) questions inquired about unwanted contact and non-contact sexual experiences, with 3-point responses of *never, once* or *more than once* (score range 0–24; mean score: 9.26; SD: 2.75; $\alpha$: 0.75). The CSA scale had different response options because the *often* to *always* options lacked face validity. The items and raw prevalence data are provided in Appendix 1 (available at:

http://www.hlth.qut.edu.au/ph/about/staff/dunne/Appendix_1_for_BWHO_paper_Jan_2010_Nguyen_Dunne_Le.pdf ).

#### *Definition of abuse and neglect*

The scales in the previous section make it possible to distinguish adolescents who suffer rare or infrequent maltreatment from those who frequently experience multiple and/or single acts. This minimizes the chances that respondents who indicate only one or perhaps a few items will be classified as "abused". To estimate the prevalence of each type of child maltreatment, respondents who scored at or above the mean on each subscale were classified as having experienced that type of maltreatment.[5,29,30] The mean is used as a cut-off partly to compensate for the number of false positives and false negatives for each form of maltreatment.[5,29] The number of types of child maltreatment suffered was summed for each respondent, with MTM scores ranging from 0 to 4.

Following questions about emotional, physical and sexual abuse, respondents were asked to name the perpetrators of ostensibly severe acts (threatening to hurt or kill them; beating or hitting them with a fist or objects; forcing them to have sexual intercourse). The lists included adults and peers in the family, school and general community. Respondents were not asked to name the perpetrators of neglect because qualitative interviews in the pilot study revealed that responsibility could rarely be attributed to individuals.

#### *Measures of mental health*

Respondents completed the 20-item Center for Epidemiological Studies Depression Scale (CES-D),[31] which has been used extensively with adolescents.[19,20,31,32] In the present survey, the CES-D had very good internal consistency ($\alpha$: 0.85). The 10-item Rosenberg Self-esteem Scale (RSES)[33] measures global feelings of self-worth or self-regard. Internal consistency in the present study was relatively good ($\alpha$: 0.73) and similar to that found internationally.[34] Confirmatory factor analysis of data from 299 students in a pilot survey replicated the four factors of the CES-D[35] and two factors of the RSES[36] in a Vietnamese sample.[37]

An anxiety scale was developed specifically for this study because the researchers felt that the extant scales had low validity when translated to Vietnamese. The new scale included 13 items measuring various anxiety symptoms. Exploratory

factor analysis of pilot data yielded three factors, labelled *fears*, *tension* and *worries*, having moderate internal consistency ($\alpha$: 0.72, 0.64 and 0.62, respectively).[37] The total score can range from 13 to 39. In the current survey this scale had good internal consistency ($\alpha$: 0.79).

#### *Personal, family and social background*

The survey instrument included questions on demographics (e.g. region, age, gender, ethnicity, religion, and family economic status); family characteristics (e.g. parents' marital status, whom children currently live with, number of siblings, parent education level and occupation, adolescents' perceived parental drug and alcohol problems); educational performance (e.g. self-rated past year academic achievement, and having ever repeated a year); the respondents' general physical health status (having a diagnosed chronic disease, and self-rated health status); body satisfaction; and family environment (e.g. frequent parental quarrelling and fighting, perceived parental relationship quality and the adolescents' usual source of emotional support when help is needed). The full questionnaire in both Vietnamese and English languages is available from the first author

#### *Ethical approval*

The research project was approved by Human Research Ethics Committees at the Hanoi School of Public Health and the Queensland University of Technology.

### Statistical analysis

Statistical analyses were stratified by gender. Analyses of variance explored bivariate associations between MTM and mental health In multivariate models the scores for each type of child maltreatment and for depression, anxiety and self-esteem were entered as continuous variables. Six sequential multiple regression models were tested. Background variables with significant bivariate associations were entered first *en bloc*. Four child maltreatment variables were entered next *en bloc*. To enable comparisons, the model and statistical summary were designed to resemble those reported by Turner et al.[11].

## Results

### Sample characteristics

Of the 2591 respondents aged 12 to 18 years (mean: 15.0 years; SD: 1.47), 52.1% were female. Just over half (51.5%) lived in Hanoi, while 48.5% lived in the predominantly rural Hai Duong province, both in the north of the country. Almost all students (99.1%) identified themselves as members of the Kinh ethnic majority, and 90.7% said they practiced no formal religion. Most shared a similar family structure in that 90.6% had married parents who lived together, while only 5.6% had parents who were divorced or separated and 4.7% had either one or two deceased parents. The majority (70.1%) had one sibling,11.5% were only children and 18.4% had two or more siblings.

Aspects of the family environment are summarized in Table 1. Few adolescents said their parent(s) had a problem with alcohol or drugs. More than one in four said their parents quarrelled sometimes or often, while 7.7% reported that parental fighting occurred sometimes or often. Most adolescents rated their parents' relationship as happy (52.4%) or very happy (26.7%). When asked whom they talked to when they "needed help", 40.3% indicated they sought friends more often than family members, while nearly 20% said they did not talk to anyone at all.

### Prevalence and co-occurrence of child maltreatment

The rates for each maltreatment item answered positively in the questionnaire are shown in Appendix 1. Item-by-item prevalence (defined as having ever suffered the maltreatment) varied widely. Nearly all children reported having been "yelled at" and having had someone "try to make them feel guilty," whereas relatively few reported unwanted sexual acts (less than 5% for most individual items). Using the summative estimates for each subscale (Table 2), males were more likely than females to be classified as experiencing physical abuse as a child, while females reported more emotional abuse and physical or emotional neglect. There was no significant difference between genders in the prevalence of child sexual abuse, including reports of forced intercourse ever by 2.8% of males and 2.7% of females. About two-thirds (67.4%) of the respondents were classified as having suffered at least one form of maltreatment, with one in four having experienced only one type. Substantial proportions reported MTM: 20.7%, two types; 14.5%, three types, and6.3%, four types.

Adolescents named one or more perpetrators only for ostensibly severe acts. Perpetrators of emotionally abusive threats to hurt or kill the child were reported to be fathers (30.5%), mothers (26.5%), siblings (16.7%) and other relatives such as cousins and aunts (7.7%). Physical violence (kicking, beating or hitting with the fist or objects) was most commonly perpetrated by fathers (43.9%), siblings (21.0%), strangers (19.2%), mothers (18.2%) and neighbours (9.6%). Perpetrators of unwanted sexual penetration were mostly outside of the family; male strangers (29.5%), female strangers (22.3%) and neighbours (14.3%) were named most frequently, followed by brothers (7.2%) and fathers (5.3%).

### MTM and mental health problems

Bivariate associations between MTM and mental health problems are illustrated in Fig. 1. Analysis of variance revealed statistically significant main effects of MTM on each measure for both females and males. The effect sizes for MTM on depression were large ($\eta^2$: 0.17 for females and 0.19 for males). Moderate effect sizes were observed with anxiety ($\eta^2$: 0.10 for both genders) and self-esteem ($\eta^2$: 0.08 for females and 0.09 for males).

Tukey's post-hoc comparison of mean depression, anxiety and self-esteem scores across MTM groups revealed statistically significant mean differences ($P < 0.05$) in 83% (20/24) of contrasts, indicating dose- response effects (data not shown).

### Individual, family and social variables

The results of six sequential multiple regression models is summarised in Table 3. For the two models predicting depression, the variables of region (rural), low emotional support at home during childhood, self-rated poor general health and perceived low academic achievement (for males) and (for females) rural region, fathers' low-level occupation, low body satisfaction, low emotional support at home, and low academic achievement showed significance. The addition of four types of child maltreatment increased the fraction of explained variance by 8.8% for males and 7% for females. Emotional maltreatment and neglect were significant independent predictors for both genders. The models explained 28% of depression variance among males and 26% among females.

Anxiety among males was significantly associated with rural region, self-rated poor general health, the presence of a diagnosed chronic disease, dissatisfaction with the body, and frequent parental quarrelling. Anxiety among females was significantly associated with older age, rural region, fathers' low-level occupation, self-rated poor health status, diagnosed chronic disease, and dissatisfaction with the body. Addition of child maltreatment to the model explained a further 6% of the variance between genders. CEM and CN predicted anxiety for males. For females, the significant maltreatment predictors were CEM and CPM. The final models explained 22% (males) and 21% (females) of the variance in anxiety.

Background variables significantly associated with self-esteem for females included rural region, perceived unhappy parental relationship, low body satisfaction, poor self-rated general health, perceived low academic achievement and school punishment in the past year. Self-esteem among males was associated with the same variables, plus mothers' low level of education. Child maltreatment explained a relatively small proportion of the additional variance in self-esteem among males (4.4%) and females (5%). CEM was again a significant predictor for both genders. These models explained 28% and 23% of the variance among females and males, respectively..

## Discussion

This study is the first to examine the links between child maltreatment and mental health of young people in Viet Nam. The experiences ranged from unpleasant, common acts of conflict such as being yelled at or spanked, to being insulted, threatened, neglected physically or emotionally, and to the relatively less common experiences of sexual abuse. We have not attempted to draw direct international comparisons of raw prevalence estimates for most of the abusive or neglectful acts, as there are few studies that report directly comparable behaviourally specific estimates for most of the items considered here. However, the findings regarding CSA warrant comment. In developed, non-Asian countries, estimates of lifetime CSA experiences among female adolescents are comparatively higher than among males and usually, females report substantially more penetrative sexual abuse.[38] In this Vietnamese sample there were no differences between the genders, either for forced penetration or for the combined CSA scores, which adds to another finding in south-east Asia (Thailand) of gender equivalence in sexual abuse risk.[14] It is also notable that the

prevalence of penetrative abuse of males (2.8%) falls in the middle of the range for developed, non-Asian society survey estimates of 1% to 5%, while the estimate for females (2.7%) falls well below the usual range of 5% to 10%[38]

This paper extends to a developing country the analysis of the effects of MTM and models the relative contribution to adolescent mental health of maltreatment within the context of broader individual, family and social adversity. The multivariate models explained between 21% and 28% of the variance in depression, anxiety and self-esteem. The findings are consistent with research in Australia[5] and the USA,[11] both in terms of the bivariate dose–response relationships between MTM and mental health and of the proportions of the variance explained. For example, in their population-based survey of 1000 children and adolescents aged 10–17 in the USA, Turner et al.[11] found linear relationships between multiple victimisation and other childhood adversities on the one hand and adolescent depression and anger/aggression on the other, with regression models explaining between 20% and 26% of the variance.

This similarity in findings is remarkable because the samples appear to be quite different. In addition to the very substantial economic differences between affluent non-Asian countries and Viet Nam, the basic demographic profiles of the samples are also dissimilar with differences in ethnic diversity, parental divorce and presence of step-parents, and child-reported parental substance abuse problems. Both the Australian and USA surveys included the wide diversity typically found in samples in these countries; in contrast, the adolescents in northern Viet Nam were very homogenous. Nearly all (99%) were of the same ethnic group and the great majority (91%) had two parents who were living together. Most lived in small families (82%) as an only child or with one sibling. Notably, these demographic factors often found to be associated with adolescent mental health in developed non-Asian countries[2,11] were not significant predictors in Viet Nam, possibly due to the small number of demographically different adolescents.

Beyond these elements of sample composition, however, findings regarding other determinants are consistent with those of international studies.[38,39] Family characteristics such as conflict-ridden parental relationships and poor parent-child interactions (as indicated by a child's need to seek emotional support outside the family) were independent predictors, especially for depression. Also consistent with

other research findings[40] is that satisfaction with one's body predicted all three mental health measures, especially among females.

In some Asian societies there is still relatively little awareness of child maltreatment as a public health problem.[41] For example, research in Hong Kong Special Administrative Region[42,43] and in mainland China[44] has shown that many adults perceive child abuse primarily in terms of very harsh physical assault. Several studies in China have shown that up to 7 in 10 adults believe that child sexual abuse usually involves physical force detectable through clinical examination.[43,44] In this region, there has been relatively little research into emotional maltreatment, although "harsh parenting", including high demands and strict controls on behaviour, is common.[41,45] The effects of emotional maltreatment are of particular importance to family and school-based programs that aim to promote adolescent mental health in Asia. Protecting children from physical harm and sexual violation – while important – must be complemented with efforts to engender stronger emotional support and respect for children's psychological needs.

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Table 1. **Family environment characteristics for adolescents incuded in cross-sectional study of MTM in childhood and adolescent mental health, Viet Nam, 2006**

| | No. of respondents | Percent of sample |
|---|---|---|
| **Parents' marital status (*n* = 2588)** | | |
| Living together | 2347 | 90.6 |
| Divorced | 115 | 4.4 |
| Separated | 29 | 1.2 |
| Deceased (one or both) | 97 | 3.7 |
| **Whom do you talk to when you need help? (*n* = 2591)** | | |
| Father | 114 | 4.4 |
| Mother | 447 | 17.3 |
| Brother/sister | 378 | 14.6 |
| Other relative | 53 | 2.0 |
| Friend | 1044 | 40.3 |
| No one | 496 | 19.1 |
| Others | 59 | 2.3 |
| **Perceived happiness of parental relationship (*n* = 2580)** | | |
| Very happy | 690 | 26.7 |
| Happy | 1353 | 52.4 |
| Not sure | 418 | 16.2 |
| Unhappy | 93 | 3.7 |
| Very unhappy | 26 | 1.0 |
| **Parental fighting (*n* = 2572)** | | |
| Never | 1936 | 75.1 |
| Rarely | 446 | 17.4 |
| Sometimes | 171 | 6.7 |
| Often | 19 | 0.8 |
| **Parental quarrelling (*n* = 2579)** | | |
| Never | 767 | 29.7 |
| Rarely | 1093 | 42.4 |
| Sometimes | 641 | 24.8 |
| Often | 78 | 3.1 |
| **Parent drug and/or alcohol problems (*n* = 2582)** | | |
| No | 2501 | 96.8 |
| Yes | 81 | 3.2 |

MTM, multiple types of maltreatment.

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Table 2. **Lifetime prevalence of specific types of maltreatment and of MTM in childhood in cross-sectional study of adolescent mental health, Viet Nam, 2006**

| | Female (%) | Male (%) | Whole sample (%) |
|---|---|---|---|
| **Emotional abuse** | 42.5 | 36.3** | 39.5 |
| **Physical abuse** | 41.6 | 54.0*** | 47.5 |
| **Sexual abuse** | 18.5 | 21.0 | 19.7 |
| **Neglect** | 33.4 | 24.9*** | 29.3 |
| **MTM** | | | |
| None | 33.1 | 31.5 | 32.6 |
| One type | 24.6 | 27.5 | 25.9 |
| Two types | 20.5 | 20.9 | 20.7 |
| Three types | 15.3 | 13.6 | 14.5 |
| All four types | 6.0 | 6.5 | 6.3 |

MTM, multiple types of maltreatment; $^{**}P < 0.01$; $^{***}P < 0.001$ ($X^2$ test).

Table 3. **Results of sequential multiple regression of individual, family and social variables and child maltreatment on adolescent mental health, Viet Nam, 2006**

| Variable | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | $\beta$ | $t$ | $R^2$ change | $F$ change | $\beta$ | $t$ | $R^2$ change | $F$ change |
| **Depression** | | | | | | | | |
| **Step 1** | | | 0.206 | 11.79*** | | | 0.185 | 11.10*** |
| Rural region | −0.13 | −4.03*** | | | -0.11 | −3.37*** | | |
| Father low-level occupation | | | | | 0.07 | 2.16* | | |
| Low emotional support in family | 0.08 | 2.71** | | | | | | |
| Self-perception of poor health | 0.17 | 5.60*** | | | 0.14 | 5.15*** | | |
| Low body satisfaction | | | | | 0.15 | 5.31*** | | |
| Perceived low academic achievement | 0.11 | 3.57*** | | | 0.09 | 3.21** | | |
| Repeated class | 0.06 | 2.19* | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Step 2** | | | 0.07 | 24.19*** | | | 0.088 | 32.19*** |
| Sexual abuse | 0.04 | 1.44 | | | 0.04 | 1.28 | | |
| Physical abuse | 0.03 | 0.97 | | | 0.02 | 0.58 | | |
| Neglect | 0.14 | 4.02*** | | | 0.14 | 3.98*** | | |
| Emotional abuse | 0.18 | 4.63*** | | | 0.22 | 6.03*** | | |
| **Anxiety** | | | | | | | | |
| **Step 1** | | | 0.175 | 9.60*** | | | 0.165 | 9.65*** |
| Rural region | -0.09 | –2.62[c] | | | -0.10 | –2.95[b] | | |
| Father low-level occupation | | | | | 0.07 | 2.04* | | |
| Parents frequently quarrel | 0.12 | 3.52*** | | | | | | |
| Chronic disease(s) during childhood | 0.13 | 4.31*** | | | .09 | 3.32** | | |
| Self-perception of poor health | 0.18 | 5.94*** | | | 0.17 | 6.08*** | | |
| Low body satisfaction | 0.07 | 2.12* | | | 0.13 | 4.48*** | | |
| **Step 2** | | | 0.062 | 20.11*** | | | 0.059 | 20.16*** |
| Sexual Abuse | 0.03 | .85 | | | 0.02 | .57 | | |
| Physical Abuse | 0.06 | 1.73 | | | 0.08 | 2.48* | | |
| Neglect | 0.10 | 2.71** | | | 0.07 | 1.84 | | |
| Emotional Abuse | 0.18 | 4.62*** | | | 0.18 | 4.68*** | | |
| **Self-esteem** | | | | | | | | |
| **Step 1** | | | 0.208 | 11.91*** | | | 0.220 | 13.77*** |
| Rural region | 0.07 | 2.20* | | | 0.13 | 4.04*** | | |
| Mother low-level education | -0.10 | –2.51* | | | | | | |
| Perceived unhappy parental relationship | -0.09 | –2.38* | | | -0.08 | –2.25* | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Low emotional support in family | -0.09 | −3.19** | | | | | | |
| Self-perception of poor health | -0.11 | −3.73*** | | | -0.11 | −3.88*** | | |
| Low body satisfaction | -0.17 | −5.45*** | | | -0.27 | −9.59*** | | |
| Perceived low academic achievement | -0.07 | −2.39* | | | -0.11 | −3.86*** | | |
| Frequent punishment at school | -0.08 | −2.54* | | | -0.06 | −2.26* | | |
| **Step 2** | | | 0.044 | 14.68*** | | | 0.050 | 18.18*** |
| Sexual abuse | 0.00 | .09 | | | 0.02 | 0.52 | | |
| Physical abuse | -0.04 | −1.19 | | | 0.03 | 1.01 | | |
| Neglect | -0.06 | −1.79 | | | -0.04 | −1.08 | | |
| Emotional abuse | -0.18 | −4.70*** | | | -0.25 | −6.79*** | | |

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

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Appendix 1. **Child maltreatment questions used in the interview, with item responses (%) by gender (*n* = 2591)**

| Type of Act (When you were growing up…) | Never | | Rarely | | Sometimes | | Often | | Always | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Emotional Acts** | | | | | | | | | | |
| Someone yelled at you | 3.2 | .4 | 6.0 | 1.2 | 2.6 | 1.9 | .4 | .0 | .8 | .5 |
| Insulted you | 1.6 | 7.4 | 7.2 | 8.1 | .2 | 1.9 | .2 | .1 | .8 | .6 |
| Tried to make you feel guilty | 9.2 | 1.6 | 1.2 | 0.1 | 2.9 | 0.1 | .8 | .5 | .9 | .7 |
| Embarrassed you in front of others | 5.6 | 5.9 | 5.1 | 3.8 | .3 | .1 | .4 | .1 | .6 | .1 |
| Tried to make you feel like you are a bad person | 9.3 | 8.4 | 8.3 | 5.3 | .5 | 3.1 | .0 | .2 | .6 | .6 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Said they wish you had never been born | 5.5 | 0.4 | .1 | .6 | .4 | .6 | .0 | .2 | .0 | .3 |
| Threatened to hurt or kill you | 4.2 | 8.8 | 1.2 | .2 | .3 | .3 | .0 | .7 | .3 | .1 |
| **Neglectful Acts** | | | | | | | | | | |
| Did not provide enough food to eat | 2.1 | 5.2 | .3 | .5 | .4 | .6 | .6 | .2 | .6 | .4 |
| Made you wear dirty clothes | 5.9 | 8.4 | .2 | .3 | .5 | .3 | .2 | .0 | .2 | .0 |
| Did not take care of you when sick | 3.8 | 0.7 | .6 | .9 | .2 | .3 | .5 | .5 | .9 | .6 |
| Did not make you feel important | 7.3 | 4.0 | 9.1 | 7.0 | .6 | 4.4 | .7 | .3 | .4 | .3 |
| Did not look | 8.6 | 9.1 | 3.4 | 7.6 | .4 | 1.0 | .8 | .9 | .8 | .3 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| out for you | | | | | | | | | | |
| We re not close to you | 7.8 | 5.9 | 1.9 | 7.1 | .2 | 1.6 | .3 | .9 | .7 | .5 |
| We re not source of strength to you | 2.6 | 2.6 | .3 | 2.6 | .2 | .4 | .2 | .5 | .7 | .1 |
| **Physical Acts** | | | | | | | | | | |
| So meone pushed, grabbed, shoved or threw something at you | 5.0 | 3.2 | 4.9 | 8.1 | .3 | .9 | .6 | .7 | .2 | .1 |
| Lo cked you in confined space | 1.3 | 6.1 | .2 | .4 | .2 | .4 | .2 | .0 | .0 | .0 |
| Tie d you up or chained you | 2.5 | 7.0 | .0 | .8 | .4 | .1 | .0 | .1 | .1 | .0 |
| Sp anked you | 0.1 | 7.2 | 8.5 | 7.9 | 8.1 | 2.1 | .6 | .7 | .7 | .1 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Kicked, beat or hit you with fist or objects | 7.1 | 5.2 | 5.9 | 0.3 | .8 | .8 | .8 | .7 | .4 | .1 |
| Choked or burned or scalded you | 2.8 | 5.5 | .0 | .7 | .9 | .8 | .2 | .0 | .1 | .0 |

| **Unwanted Sexual Acts** | **Never** | | **Once** | | **More than once** | |
|---|---|---|---|---|---|---|
| | **M** | **F** | **M** | | **M** | |
| Spoke to you in sexual way | 87.7 | 88.5 | 5.2 | .4 | 7.2 | .1 |
| Exposed their private parts to you | 96.6 | 96.7 | 1.6 | .4 | 1.8 | .9 |
| Made you see sexual scenes on video, porn magazines, photos | 94.1 | 98.8 | 3.2 | .0 | 2.7 | .1 |
| Touched or fondled your private parts | 90.5 | 94.4 | 4.2 | .6 | 5.3 | .0 |
| Made you touch or fondle their private parts | 95.6 | 98.8 | 1.8 | .5 | 2.6 | .7 |
| Tried to have sexual intercourse | 96.0 | 97.6 | 1.5 | .1 | 2.6 | .3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| with you but was unsuccessful | | | | | | |
| Had sexual intercourse with you | 97.2 | 97.3 | 1.9 | .0 | 1.0 | .7 |
| Did other things to you in sexual ways | 97.3 | 98.2 | 1.5 | .0 | 1.3 | .8 |

Fig. 1. **MTM in childhood and mental health in adolescents from two northern districts in Viet Nam, 2006**