

Child Maltreatment 1



Burden and consequences of child maltreatment in high-income countries

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Child maltreatment remains a major public-health and social-welfare problem in high-income countries. Every year, about 4–16% of children are physically abused and one in ten is neglected or psychologically abused. During childhood, between 5% and 10% of girls and up to 5% of boys are exposed to penetrative sexual abuse, and up to three times this number are exposed to any type of sexual abuse. However, official rates for substantiated child maltreatment indicate less than a tenth of this burden. Exposure to multiple types and repeated episodes of maltreatment is associated with increased risks of severe maltreatment and psychological consequences. Child maltreatment substantially contributes to child mortality and morbidity and has longlasting effects on mental health, drug and alcohol misuse (especially in girls), risky sexual behaviour, obesity, and criminal behaviour, which persist into adulthood. Neglect is at least as damaging as physical or sexual abuse in the long term but has received the least scientific and public attention. The high burden and serious and long-term consequences of child maltreatment warrant increased investment in preventive and therapeutic strategies from early childhood.

Introduction

Maltreatment of children by their parents or other caregivers is a major public-health and social-welfare problem in high-income countries. It is common and can cause death, serious injury, and long-term consequences that affect the child's life into adulthood, their family, and society in general. The 2006 WHO report on prevention of child maltreatment¹ drew attention to the need for this topic to achieve the prominence and investment in prevention and epidemiological monitoring that is given to other serious public-health concerns with lifelong consequences affecting children—such as HIV/AIDS, smoking, and obesity—and it recommended expansion of the scientific evidence base for the magnitude, effects, and preventability of the problem. This Series of four papers critically assesses this expanding evidence base

with the aim of informing policy and practice relating to child maltreatment. We focus mainly on high-income countries and eastern European countries that are in economic transition, since the problem and systems for response differ in low-income and many middle-income countries. In this first paper of the Series, we aim to quantify the magnitude of the problem, its determinants, and consequences. The second charts the evidence underpinning recognition and response by professional agencies dealing with children. The third assesses what works for prevention of child maltreatment and associated impairment, and the final paper discusses how consideration of children's rights could enable a more coherent and effective approach to child maltreatment.

Burden of child maltreatment and definitions

Child maltreatment encompasses any acts of commission or omission by a parent or other caregiver that result in harm, potential for harm, or threat of harm to a child

Search strategy and selection criteria

We did a comprehensive search of PubMed, Psychinfo, and Education Resources Information Center (ERIC) for any systematic reviews or overviews related to child maltreatment published after 2000 (to June, 2008) and then scrutinised reference lists of relevant studies. We also searched PubMed, ERIC, and Psychinfo using additional synonyms and indexing terms specific to each outcome. Searches on PubMed were enhanced with the related articles facility for selected studies. Recent psychological abstracts, child abuse and neglect abstracts, and criminal justice abstracts were also searched. We searched websites posted by governments or major advocacy bodies on child maltreatment for reports on incidence and prevalence rates.

Key messages

- A substantial minority of children in high-income countries are maltreated by their caregivers
- Repeated abuse and high levels of neglect mean that for many children maltreatment is a chronic condition
- Parental poverty, low educational achievement, and mental illness are often associated with child maltreatment
- Child maltreatment has longlasting effects on mental health, drug and alcohol problems, risky sexual behaviour, obesity, and criminal behaviour, from childhood to adulthood
- Neglect is at least as damaging as physical or sexual abuse in the long term, but has received the least scientific and public attention
- The high burden and serious, longlasting consequences of child maltreatment warrant increased investment in preventive and therapeutic strategies from early childhood

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This is the first in a Series of four papers about child maltreatment

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	Definition	Comment
Child maltreatment*	Any act of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child. Harm does not need to be intended	In the USA, 82% of substantiated cases were perpetrated by parents or other caregivers ³
Physical abuse*	Intentional use of physical force or implements against a child that results in, or has the potential to result in, physical injury	Includes hitting, kicking, punching, beating, stabbing, biting, pushing, shoving, throwing, pulling, dragging, shaking, strangling, smothering, burning, scalding, and poisoning. 77% of perpetrators were parents according to US figures for substantiated physical abuse ³
Sexual abuse*	Any completed or attempted sexual act, sexual contact, or non-contact sexual interaction with a child by a caregiver†	Penetration: between mouth, penis, vulva, or anus of the child and another individual. Contact: intentional touching directly or through clothing of genitalia, buttocks, or breasts (excluding contact required for normal care). Non-contact: exposure to sexual activity, filming, or prostitution. For substantiated cases in the USA in 2006, 26% of perpetrators were parents and 29% a relative other than a parent. ³ Parents form a smaller percentage (3–5%) of perpetrators of self-reported sexual abuse ⁴
Psychological (or emotional) abuse*	Intentional behaviour that conveys to a child that he/she is worthless, flawed, unloved, unwanted, endangered, or valued only in meeting another's needs. <i>In the UK, the definition includes harmful parent-child interactions which are unintentional: "the persistent emotional ill-treatment of a child such as to cause severe and persistent adverse effects on the child's emotional development"</i> ⁵	Can be continual or episodic—eg, triggered by substance misuse. Can include blaming, belittling, degrading, intimidating, terrorising, isolating, or otherwise behaving in a manner that is harmful, potentially harmful, or insensitive to the child's developmental needs, or can potentially damage the child psychologically or emotionally. Witnessing intimate-partner violence can be classified as exposure to psychological abuse. 81% of substantiated cases in the USA were perpetrated by parents ³
Neglect*	Failure to meet a child's basic physical, emotional, medical/dental, or educational needs; failure to provide adequate nutrition, hygiene, or shelter; or failure to ensure a child's safety	Includes failure to provide adequate food, clothing, or accommodation; not seeking medical attention when needed; allowing a child to miss large amounts of school; and failure to protect a child from violence in the home or neighbourhood or from avoidable hazards. Parents make up 87% of perpetrators of substantiated cases in the USA ³
Intimate-partner violence	Any incident of threatening behaviour, violence, or abuse (psychological, physical, sexual, financial, or emotional) between adults who are, or have been, intimate partners or family members, irrespective of sex or sexuality	Most frequently the perpetrator is the man in heterosexual couples, but there is growing recognition of violence inflicted by women. One community survey reported unanimous agreement that punching, slapping, or forcing a partner to have sex should be regarded as intimate-partner violence, but there was less consensus about emotional or economic abuse

*Definitions are based on Centers for Disease Control and Prevention report 2008, with modifications in italics.² †Includes substitute caregivers in a temporary custodial role (eg, teachers, coaches, clergy, and relatives).

Table 1: Definitions of child maltreatment

(usually interpreted as up to 18 years of age), even if harm is not the intended result.² Four forms of maltreatment are widely recognised: physical abuse; sexual abuse; psychological abuse, sometimes referred to as emotional abuse; and neglect. Increasingly, witnessing intimate-partner violence is also regarded as a form of child maltreatment. Consensus definitions place responsibility for safeguarding children from maltreatment on all caregivers, including teachers, trainers, or child minders (table 1).² In practice, however, 80% or more of maltreatment is perpetrated by parents or parental guardians, apart from sexual abuse, which is mostly perpetrated by acquaintances or other relatives (table 1).

Reliable measurement of the frequency and severity of child maltreatment is not straightforward. We review three types of studies that measure the frequency of maltreatment. The first two types are community studies based on self-reports from victims who are old enough to comply with surveys, or studies based on parents reporting severe physical punishment or patterns of care. The third type involves official statistics from agencies investigating victims (eg, child-protection services) or police (investigating victims and offenders). All these measures have biases and inconsistencies: thus the prevalence figures in panel 1 are presented as a range of estimates. Despite the uncertainty of these estimates, the gap between the low rates of maltreatment substantiated by child-protection agencies and the ten-fold higher rates reported by victims or parents

underlines the fact that only a few children who are maltreated receive official attention.^{25–27} Studies that have linked self-reports to official statistics for child protection provide direct evidence of under-reporting to agencies. One study reported evidence of contact with child-protection services in only 5% of children who were physically abused and 8% of those sexually abused.²⁶ Another showed that even children who were being monitored by agencies reported four to six times more episodes of abuse than did official records.²⁸

The discrepancies between official statistics and community studies are even more substantial when examined by age at maltreatment. National statistics from child-protection agencies in the UK and USA show an inverse relation between rate of reports and age for all categories of maltreatment apart from sexual abuse, which is stable across the age range.^{3,7} Opposite trends have been noted for self-report or parent-report studies in the UK and USA for physical, sexual, or psychological abuse, whereas the prevalence of neglect seems to remain relatively constant.^{20,27,29} Explanations for these diverging trends include increased risks of under-reporting by parents of younger children, and underdetection of maltreatment by child-protection agencies in older children.

Although self-reports or parent reports are probably closer to the true, unobserved rate of maltreatment than are official reports to agencies, they might still be underestimates. Biases in self-reports of sexual abuse have been investigated, although problems such as

forgetting, denial, misunderstanding, and embarrassment also apply to other forms of maltreatment.³⁰ All these problems are likely to lead to the under-reporting rather than over-reporting of sexual abuse of children.^{25,31,32} Test-retest studies have shown modest to moderate agreement between successive self-reports by young adults of sexual or physical abuse several years later (κ coefficient 0.4–0.6) and good agreement is shown for all types of victimisation several weeks later.^{25,27,33} One study using latent class methods estimated that reported rates of child sexual abuse were roughly half the true but non-observed rate.²⁵

Studies measuring physical abuse in young children use parent reports of physical violence, whereas parent or adolescent self-reports can be used in older children to yield similar estimates.^{25,27} Comparison between official statistics and parent-report studies within a country suggest that only a small proportion of these cases are investigated by child-protection services (panel 1). For example, a systematic review in the UK estimated that around one in 30 children who were physically abused by parents (yearly prevalence 9%) were investigated by social-welfare services responsible for child protection, and only one in 250 children who were physically abused were monitored in accordance with a child-protection plan.¹⁰

Measurement of sexual abuse relies on retrospective self-report studies of episodes that are recalled years later by adolescents or adults. Between 5% and 10% of girls and 1% to 5% of boys are exposed to penetrative sexual abuse during childhood, although figures that include any form of sexual abuse are much higher (panel 1). These estimates are supported by results of a meta-analysis of worldwide studies of variable quality and methodologies,²⁰ but they probably give a lower limit of the true rate of sexual abuse because of under-reporting.

Few studies have examined the prevalence of psychological abuse. Results from large population-based, self-report studies in the UK and USA showed that 8–9% of women and about 4% of men reported exposure to severe psychological abuse during childhood.^{16,17} Similar figures have been recorded for psychological abuse in the past year in boys and girls (10.3%).¹⁵ Higher rates have been reported in eastern Europe by similar measures (panel 1).¹²

Measurement of neglect in the community is difficult, partly because there are many aspects of omission or lack of provision of care that are harmful or could place a child at risk of harm.³⁴ UK and US studies noted that between 1.4% and 10.1% of children or their mothers reported persistent absence of care or instances in which a child was hurt because of insufficient supervision (panel 1). Neglect has received little attention from self-report and parent-report studies despite being the most frequent category of child maltreatment recorded by child-protection agencies (panel 1).³⁷

Panel 1: Burden of maltreatment—prevalence of maltreatment in the past year per child population or cumulative prevalence during childhood

Agency reports

UK (England)

- 1.50% of children were estimated to have been referred to social services for abuse (excluding neglect and intimate-partner violence);⁶ the rate for all social welfare referrals for children (<18 years) in 2007 was 4.96% per year⁷
- 0.84% of all social welfare referrals were estimated to have been investigated for abuse;⁶ 2.77% of children were investigated in 2007
- 0.30% of children started on a child-protection plan in 2007 (previously child protection registration);⁷ reports according to primary reason were: neglect 44%, physical abuse 15%, multiple 10%, psychological abuse 23%, and sexual abuse 7%

USA

- 4.78% of children were investigated in 2006³
- 1.21% of children were substantiated in 2006; primary reasons were: neglect 60%, physical abuse 10%, multiple 12%, psychological abuse/unknown 11%, and sexual abuse 7%

Canada

- 2.15% of children were investigated in 2003⁸
- 0.47% of children remained suspicious⁸
- 0.97% of children were substantiated; primary reasons were: neglect 38%, physical abuse 23%, psychological abuse 23%, and sexual abuse 9%

Australia

- 3.34% of children were referred in 2002–03⁹
- 0.68% of children were substantiated; primary reasons were: neglect 34%, physical abuse 28%, psychological abuse 34%, and sexual abuse 10%

Self-reported maltreatment or parent-reported perpetration

Physical abuse

- 3.7–16.3% (5–35% cumulative) of children per year experienced severe parental violence or worse, which is likely to place child at risk of harm; typically included studies classified hitting with fist/object, kicking, biting, threatening/using a knife/weapon as severe violence (review includes studies in UK, USA, New Zealand, Finland, Italy, and Portugal);^{10,11} slapping, hitting, and grabbing were classified as minor violence and are not counted in the figures shown here
- 12.2–29.7% is the yearly prevalence of physical abuse for Macedonia, Moldova, Latvia, and Lithuania¹²
- 24–29% is the cumulative prevalence of physical abuse for Siberia, Russia, and Romania^{13,14}

Psychological abuse

- 10.3% is the yearly prevalence of psychological abuse (verbal abuse by adults or told not wanted; US study)¹⁵
- 4–9% is the cumulative prevalence based on categories consistent with severe emotional abuse (studies in Sweden, USA, and UK)^{16–18}
- 12.5–33.3% is the yearly prevalence of severe or moderate psychological abuse reported for four eastern European states (Macedonia, Latvia, Lithuania, and Moldova)¹²

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Children who witness intimate-partner violence can be harmed psychologically by witnessing the experience or by being caught up in the violence. The reported prevalence of witnessing intimate-partner violence during childhood ranges from 8–10% in Swedish children aged 15–16 years, who were surveyed in 2000 and 2006,

(Continued from previous page)

Sexual abuse

- Cumulative prevalence of any sexual abuse: 15–30% for girls and 5–15% for boys; cumulative prevalence of penetrative sexual abuse: 5–10% for girls and 1–5% for boys (any sexual abuse includes non-contact, contact, or penetrative abuse); figures are taken from population-based studies in developed countries (Australia, New Zealand, Canada, and USA)^{4,19}
- Similar results were derived in a meta-analysis by Andrews and colleagues²⁰ of studies worldwide (93 for boys and 143 for girls): estimates of childhood prevalence rates were: non-contact sexual abuse (3.1% boys, 6.8% girls); contact sexual abuse (3.7% boys, 13.2% girls); penetrative sexual abuse (1.9% boys, 5.3% girls); and any sexual abuse (8.7% boys, 25.3% girls)

Neglect

- 1.4–15.4% is the incidence^{15,21} (6–11.8% cumulative childhood prevalence^{17,22}) of persistent absence of care or provision likely to place a child at risk of harm (eg, not enough food, no medical care when needed, no safe place to stay,¹⁵ serious absence of care,¹⁷ or in maternal reports—child hurt because of lack of supervision,²¹ self-report and maternal-report studies from USA and UK)

Witnessing intimate-partner violence*

- 10–20% is the yearly prevalence estimates based on a review of US community studies by Carlson.²³ Few recent studies have been undertaken
- 8–25% is the childhood prevalence of witnessing intimate-partner violence—cross-sectional surveys of adolescents and adults^{18,24}

*This category is not included in child-protection reports, therefore not listed in first part of panel.

to 24% reported in a survey of 8600 adult members of a US health maintenance organisation.^{18,24} The risk of other forms of child maltreatment for witnesses of intimate-partner violence is 30–60%.^{35,36}

Children who are exposed to one type of maltreatment are often exposed to other types on several occasions or continuously. How frequently this abuse occurs is underestimated by official reports because recording of more than one type of maltreatment is often discouraged by child-protection agencies and official reports often do not capture the chronology of exposure over time. However, retrospective self-report studies consistently show that some children are exposed to more than one type of maltreatment.^{3,7,15,16,37} This pattern is emphasised by detailed examination of narratives in US child-protection reports of 519 cases of maltreatment, in which high rates of multiple types of maltreatment were reported (36–91% depending on the classification used) with emotional abuse rarely occurring alone (1.2%).³⁸ Exposure to multiple types of abuse contributes to high rates of repeated referrals to child-protection services—eg, 22% of children with substantiated maltreatment in the US were re-reported within 24 months,³⁹ with similar rates in the UK (24% within 27 months) and in eight European countries (7–33%).^{40–42} Factors that consistently affect re-reporting to agencies are primarily ongoing risk factors in the child (such as disability or chronic medical disorders), in the parent (such as alcohol misuse), indices of social adversity (such

as low income, contact with services), and multiple or chronic maltreatment, particularly neglect.⁴³ Re-report can also indicate increased surveillance.^{27,39,42–46}

Much less is known from self-report studies about patterns of maltreatment for more than one child in a family. However, an analysis of child-protection referrals in the UK showed that maltreatment was restricted to one specific child, who was more likely to be abused physically or sexually, in 44% of 310 index cases. Referrals of multiple siblings (56% of cases) were linked to neglect or psychological abuse. Parental difficulties and family stressors—such as family conflict and separation, drug or alcohol misuse, or family criminality—were associated with maltreatment of all children in the family (37%).⁴⁷

Throughout childhood, maltreatment by parents or other caregivers merges with other forms of victimisation. In a nationally representative study, Finkelhor and colleagues^{27,48} noted that the 22% of children aged 2–17 years who had four or more types of victimisation in the previous year—including physical, sexual, or psychological abuse; neglect; or exposure to crime, assault, witnessing intimate-partner violence; or peer or sibling victimisation—were much more likely to be victimised the following year than were those who had fewer types of victimisation, and to have the most serious victimisations and most serious psychological symptomatology. Evidence from several studies suggests that children who are exposed to one type of maltreatment are at high risk of other types and of repeated exposure over time, and that the frequency of exposure is correlated with the severity of maltreatment.^{16,24,48,49} For a few children, maltreatment is a chronic condition, not an event.

Determinants of maltreatment

Characteristics of the victim

Understanding what characteristics of parent-child relationships place children at increased risk of maltreatment within a family is complex and beyond the scope of this review. Girls have a higher risk of being sexually abused than do boys, although rates of other types of maltreatment are similar for both sexes in high-income countries.^{3,7,20,50} In low-income countries, girls are at higher risk for infanticide, sexual abuse, and neglect, whereas boys seem to be at greater risk of harsh physical punishment.⁵¹

Disabled children are at increased risk of maltreatment, although whether their disability is a cause or consequence is uncertain.^{52–54} A record-linkage study in the USA showed a cumulative prevalence of any maltreatment in 9% of non-disabled children and in 31% of disabled children.⁵² The overall prevalence of any recorded disability was 8%, but a quarter of all maltreated children had a disability.

Characteristics of the parents and community

Identification of the separate effects of parental characteristics on the risk of child maltreatment is challenging

since many factors are inextricably clustered. Poverty, mental-health problems, low educational achievement, alcohol and drug misuse, and exposure to maltreatment as a child are strongly associated with parents maltreating their children. The extent to which each of these risk factors is causally related to the occurrence of maltreatment is hard to establish. Risk factors might affect the child differently depending on the type of maltreatment and might also be linked to the adverse consequences of maltreatment. The ecological model conceptualises maltreatment as multiply determined by forces at work in the individual, in the family, and in the community and culture, and suggests that these determinants modify each other. Thus, parental risk factors can be modified by the environment and community.⁵⁵ Nevertheless, some relationships can be generalised. First, income and parental education are risk factors for child maltreatment, although their importance varies with the type of maltreatment.^{17,22,43,56,57} Second, socioeconomic inequalities are especially steep for deaths from child abuse.⁵⁸ Third, in the USA, there is controversy about the extent to which ethnic differences in allegations and substantiation of maltreatment, and in deaths from injury due to maltreatment, are explained by sociodemographic characteristics.^{48,59–61} However, ethnic differences in the overall risk of maltreatment are largely explained by sociodemographic characteristics, apart from for children of mixed or multiracial heritage who have an increased risk.²² Fourth, although a clear pathway exists by which parental drug and alcohol problems can cause child maltreatment in individual families, evidence for a causal link within populations is less certain. However, substance misuse is undoubtedly a common factor in incidents involving both spouse and child maltreatment.⁶²

Last, the community environment seems to have a small to moderate effect in addition to family and individual characteristics. A UK cohort study⁶³ reported that individual strengths distinguished resilient from non-resilient children who were exposed to physical abuse under conditions of low but not high family and neighbourhood stress, which was manifested by high crime and low social cohesion, and informal social control. Similarly, a systematic review⁶⁴ reported that 10% of the variation in child health and adolescent outcomes, including maltreatment, was explained by neighbourhood socioeconomic status and social climate.

Changes over time

Evidence suggests that physical and sexual abuse are decreasing in some settings. In the USA, substantiated reports of sexual and physical abuse have fallen by around 50% from the mid-1990s to 2005 (webfigure 1),^{27,50,65} with a similar trend in England (webfigure 2).⁷ These decreases are probably accurate estimates since they are present across both types of abuse with no preponderance of equivocal cases. No

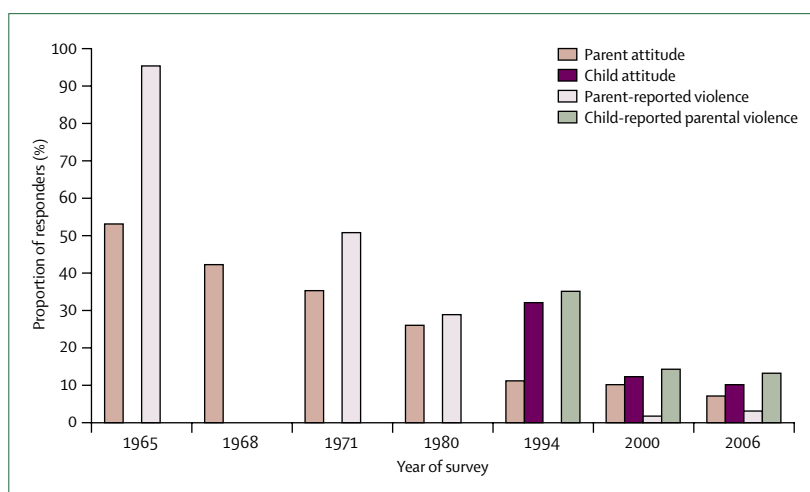


Figure: Time trends in parental violence towards children in Sweden

Parental attitudes are based on nationally representative interview surveys (1965, 1968, 1971, 1980) and questionnaire surveys (1994, 2000, 2006). Child attitudes are based on questionnaire surveys of schoolchildren aged 13 and 16 years in 1994, 2000, and 2006. Responses are to the question "Is it right to punish your child physically (including a box on the ear) if they have made you angry?" (for children "Is it OK for your parents to hit you if you have made them angry?"). Parental violence is based on parent-reported physical punishment in the past year and child reports on parental violence in preschool years.¹⁸

Panel 2: Prevalence of abuse in residential care institutions

About 1.3 million children (aged 0–17 years) are in social-care facilities within 20 countries in eastern Europe and the former Soviet Union.⁷¹ Physical and sexual abuse by caregivers and peers in these institutions seems to be common.⁷² In 2000, an anonymous questionnaire study of 3164 children in residential care aged 7–18 years (8% of all children in residential care in Romania) showed that 38% reported severe physical punishment or beatings, usually by residential care staff (in 77% of cases).⁷³ A fifth of respondents (roughly half were boys) claimed to have been blackmailed or coerced into sexual activity, and a further 4% claimed that they were constrained to have sex. The reported perpetrators of these acts of sexual abuse were older residents of the same sex (50%), older residents of the opposite sex (12%), institutional staff (1.3%) offending inside the institution, as well as relatives (4%), other young people (3%), and adults (1%) offending outside the institution. 29% of respondents would not identify their perpetrator. Public scandals involving the sexual exploitation of children in residential care by their carers occur worldwide, with recent examples in Belgium, Portugal, UK, and Ireland.⁵¹ However, the consistency of the problem across residential care homes in Romania suggests endemic abuse, which, given that 1.9% of children are in residential care at any one time in that country, represents a major public-health problem.⁷³

analysis of trends in Europe has been done, despite clear evidence, at least in Sweden, of a reduction in acceptance and occurrence of parental violence towards children since the 1960s (figure).¹⁸ Further research is needed to confirm these trends that emphasise the

See Online for webfigures 1 and 2

	Prospective studies*	Retrospective studies*
Education and employment		
Low educational achievement	Moderate	Weak
Low skilled employment	Moderate	Lacking
Mental health		
Behaviour problems as child/adolescent	Strong	Strong
Post-traumatic stress disorder	Strong	Strong
Depression	Moderate	Strong
Attempted suicide	Moderate	Strong
Self-injurious behaviour	Weak	Weak
Alcohol problems	Moderate	Strong
Drug misuse/dependence	Weak	Strong
Physical health and sexual behaviour		
Prostitution/sex trading	Moderate	Strong
Teenage pregnancy	Inconsistent	Strong
Promiscuity	No effect	Strong
General adult health	Lacking	Moderate
Chronic pain in adulthood	No effect	Weak
Obesity	Strong	Weak
Health-care use/costs	Lacking	Moderate
Quality of life	Lacking	Lacking
Aggression, violence, criminality		
Criminal behaviour	Strong	Strong

*Refers to ascertainment of maltreatment. The classification indicates consensus about the findings from included studies and are broadly consistent with the following criteria: strong=evidence of a significant effect after adjustment for confounders; moderate=evidence of a significant but small effect, or of a stronger effect that is reduced after adjustment for confounders or highly likely to be confounded; weak=evidence of an effect based on methodologically problematic studies or associations that do not persist after adjustment, but consistently favour a positive effect; inconsistent=effect qualitatively different across studies (ie, positive and negative or no associations); lacking=no studies addressing this question.

Table 2: Summary of review findings on consequences of child maltreatment—evidence for an association in prospective and retrospective studies

predominance and continuing problem of neglect and the rise in recognition of psychological abuse, which is often associated with other forms of family violence (webfigures 1 and 2).

Differences between countries

Comparisons of the prevalence or incidence of maltreatment between different countries need parent-report or self-report studies using similar survey methods. Few such studies have been published. 30 years ago, Gelles and Edfeldt⁶⁶ reported a 5% higher prevalence of physical abuse in the past year in the USA than in Sweden when the same instrument was used. A meta-regression of self-report studies²⁰ indicates higher rates of sexual abuse in the USA than in Europe (22% vs 15%), although differences might be partly due to less sensitive survey methods in the European studies. The agency reports for different countries in panel 1 are difficult to compare since they reflect different systems and thresholds.

Child maltreatment is a particular concern in the newly independent eastern and central European states, where the economic transition in the past 15 years has been

associated with substantial rises in premature adult mortality (panel 1).^{67,68} Although data are scarce, a questionnaire survey of children aged 10–14 years (n=1145) in Macedonia, Latvia, Lithuania, and Moldova recorded the lowest yearly prevalence rates of severe and moderate psychological abuse and physical abuse in Macedonia (18% and 12%, respectively) and the highest in Moldova (43% and 29%, respectively).¹² Abuse was higher in rural areas than in urban areas, and was associated with parental overuse of alcohol.¹² Other studies report similar rates of child sexual abuse to those in western Europe.^{13,69} As in western Europe, by far the greatest problem is neglect. The WHO national prevalence study of child maltreatment in Romanian families showed that physical neglect was reported by 46% of adolescents surveyed, emotional neglect by 44%, and educational neglect by 34%.¹³ These rates are much higher than are those in western Europe.⁴¹ A WHO study in Samara, Russia, reported that the identification of neglect by health and social services is seven times more common than is identification of physical abuse.⁷⁰ In two-thirds of all cases of maltreatment, the parents were recorded as alcoholic. The usual response to such cases in 2002 was to place the child into residential or foster care. However, the chances of physical and sexual abuse in residential care are even higher than in family-based care (panel 2).

Death from child maltreatment

The most tragic manifestation of the burden of child maltreatment is the thousands of child deaths every year due to deliberate killing (homicide) or neglect (manslaughter). WHO estimated that 155 000 deaths in children younger than 15 years occur worldwide every year as a result of abuse or neglect, which is 0·6% of all deaths and 12·7% of deaths due to any injury.⁵¹ Only a third of these deaths are classified as homicide. Furthermore, substantial under-reporting occurs because of insufficient routine investigations and post-mortem examinations of child deaths in most countries.⁷⁴ The biological parents are responsible for four-fifths of cases, and step-parents are to blame for most of the remaining cases (15% of the total).⁷⁴

Child homicide occurs most frequently during infancy—in the UK, 35% of child homicide victims (<16 years) are younger than 1 year.^{74,75} In infancy, homicide is equally likely to be perpetrated by the mother and the father; however, for older children, the perpetrator is usually a man.⁷⁵ Large differences in infant homicide rates exist between high-income countries, with the highest rates recorded in the USA and lowest in Scandinavia and southern Europe.⁷⁶ An analysis of infant homicide rates between 1945 and 1998 in 39 countries confirmed previously reported associations between infant homicide and higher rates of female participation in the workforce and income inequalities.⁷⁷

According to WHO estimates, rates of death in children younger than 15 years due to homicide or manslaughter in central and eastern Europe and the newly independent states of the former Soviet Union are consistently higher than in the western European countries of the EU (webfigure 3). The peak incidence from 1993 to 2003 coincided with the period of economic and political transition when community services were severely disrupted.⁶⁸ Despite improvement over the past 30 years in child protection in western European countries and the USA, there has been very little decrease in the rate of child homicides.^{78,79}

Long-term consequences of child maltreatment

Since groundbreaking work in the early 1970s drew attention to the battered child syndrome, research designed to quantify the long-term consequences of child maltreatment has grown.⁸⁰ Here we summarise the evidence for associations between different types of maltreatment and outcomes related to education, mental health, physical health, and violence or criminal behaviour. Findings from cohort studies that prospectively ascertained whether children were maltreated or not, and which followed up these children over time to identify later outcomes, are contrasted with more diverse work of cohort and cross-sectional studies that measure maltreatment retrospectively, usually on the basis of self-reporting in adolescence or adulthood. Since we are interested in the consequences of child maltreatment, we want to assess causality. Thus, the strengths of prospective studies include the temporal ordering of maltreatment and subsequent outcomes, objective measurement of maltreatment, avoidance of recall bias, minimisation of selective inclusion of participants on the basis of the outcome, and the opportunity to adjust for social and individual confounding factors as they occur.

All these factors are weaknesses of studies using retrospective measurement of maltreatment, especially since the temporal ordering of maltreatment and outcomes cannot be reliably established. Recall bias is also a concern, with ambiguity about whether consequences are due to the actual abuse experience, aftermath of the abuse experience, or a person's cognitive appraisal of the experience. However, studies that use only official cases of child maltreatment might detect only the few maltreated children who come to professional attention, who might differ in some ways from other maltreated children and whose outcomes could also be different. The problem of representativeness, which can distort the prevalence and effect size, is reduced for population-based longitudinal cohort studies. The validity of various methods of assessing and studying maltreatment is a source of ongoing debate.^{81,82} Our analysis endeavours to draw on the strengths of prospective and retrospective studies and, when available, on findings from systematic reviews (table 2).

Education and employment

Child maltreatment is associated with long-term deficits in educational achievement. Prospective longitudinal studies have consistently shown that maltreated children have lower educational achievement than do their peers, and are more likely to receive special education^{83–86} (Jonson-Reid and colleagues⁸³ found that 24% of maltreated children received special education at a mean age of 8 years, compared with 14% of children with no maltreatment record). The differences are substantial—eg, only 42% of the maltreated children completed high school compared with two-thirds of community-matched controls.⁸⁵ Another prospective study showed that decreases in school attendance and school performance were related to the timing of maltreatment, and were cumulative.⁸⁷ Most of these associations persisted after adjustment for family and social characteristics (eg, ethnic origin, age, sex, and socioeconomic status), as seen in some but not all studies. A longitudinal population-based cohort study in New Zealand,⁸⁶ with retrospective ascertainment of child maltreatment, confirmed these reduced levels of educational achievement in adults who had been physically or sexually abused (eg, 6–10% of abused children attained a university degree compared with 28% of those not abused) but such differences were largely explained by social, parental, and individual characteristics. Exposure of children to intimate-partner violence also seems to be linked to low educational achievement, but the extent to which this factor is independent of other forms of child maltreatment is unclear.⁸⁸

Although the risk of underachievement in education is clearly high in children who are maltreated, evidence for a causal link is mixed. Studies are needed from outside the USA to help quantify the extent of this burden in different educational settings.

Maltreatment has longlasting economic consequences for affected individuals.⁸⁹ In a prospective study of court documented cases of childhood maltreatment and community-matched controls, significantly more of the abused and neglected individuals were in menial and semi-skilled occupations than were controls (62% vs 45%) at 29 years of age, and fewer had remained in employment during the past 5 years (41% vs 58%). Further research is needed to examine the effect of child maltreatment on economic productivity throughout life and in different settings.

Mental-health outcomes

Child maltreatment increases the risk of behaviour problems, including internalising (anxiety, depression) and externalising (aggression, acting out) behaviour.^{84,90–95}

Children who witness intimate-partner violence are at increased risk of behaviour problems, but whether this factor is independent of other forms of maltreatment is contentious.^{88,96,97} Behaviour problems in childhood seem to be strongly determined by early timing of maltreatment,

See Online for webfigure 3

although whether early physical or psychological abuse, or neglect, is most damaging at this age is unclear.^{90,98} Behaviour problems that arise later in adolescence might be related most strongly to maltreatment during adolescence.⁹¹ Consistent evidence suggests a cumulative effect of different types of maltreatment on later behaviour problems,^{91,99} with one group concluding “there is no point beyond which services for children are hopeless...every risk factor we can reduce matters”.⁹⁹

Maltreated children have a moderately increased risk of depression in adolescence and adulthood (adjusted odds ratios ranging from 1·3 to 2·4), which only partly reflects the family context in which maltreatment occurs.^{84,91,92,95,100–103} Because depression is common and serious—around a quarter to a third of maltreated children meet criteria for major depression by their late 20s (with use of criteria from the Diagnostic and Statistical Manual of Mental Disorders [DSM])^{92,102,104}—this association represents a substantial burden. For many affected individuals, the onset of depression begins in childhood, reinforcing the need for early intervention in the lives of these abused and neglected children, before symptoms of depression cascade into other spheres of functioning.^{91,102} Depression is associated with neglect and physical and sexual abuse, with no clear evidence for a specific effect of any particular type of maltreatment. Some investigators have shown a dose response, with depression more likely with harsh or severe physical abuse than with less severe forms of maltreatment.^{20,92}

Evidence suggests that child maltreatment increases the risk of post-traumatic stress disorder, which, by definition, develops after a terrifying event or ordeal. Symptoms include recurrent intrusion of frightening thoughts and memories, sleep difficulties, and detached or numb feelings, which can substantially affect a person’s ability to function. Prospective and retrospective studies consistently show associations between physical or sexual abuse or neglect and post-traumatic stress disorder in adolescents and adults, which persist after controlling for family and child characteristics that are correlated with maltreatment.^{20,84,95,105–108} These effects can be longstanding. One prospective study¹⁰⁵ of children who were maltreated before 12 years of age and assessed at 29 years reported that 23% of people who were sexually abused, 19% of those physically abused, and 17% of those neglected, had a present diagnosis of post-traumatic stress disorder (with use of DSM-III criteria) compared with 10% of controls, and lifetime risks of this disorder were much higher in cases than in controls. However, family, individual, and lifestyle variables, such as having a parent who is an alcoholic or has been arrested, also increased the risk of post-traumatic stress disorder. A meta-analysis²⁰ of studies of children who have been sexually abused suggests a dose-response effect, with higher risks associated with penetrative sexual abuse than with contact or non-contact abuse.

Evidence for an association between childhood maltreatment and adult psychosis is inconclusive.^{109–111} No clear link between personality disorder and maltreatment has been noted,⁸⁹ although one prospective study¹⁰¹ showed an increased risk of personality disorder in maltreated children including those exposed to verbal abuse, which was independent of physical or sexual abuse or neglect. These findings emphasise the need for further research into the effects of psychological abuse.

Consistent evidence suggests that both physical abuse and sexual abuse are associated with a doubling of the risk of attempted suicide for young people who are followed up into their late 20s. For physical and sexual abuse, these effects persist after adjustment for confounding family and individual variables,^{89,92} but for neglect, these effects are mainly explained by family context.¹⁰⁰ According to cross-sectional studies, the risk of attempted suicide increases with the accumulation of multiple adversities, including repeated maltreatment and witnessing intimate-partner violence.^{112,113} The risk of attempted suicide can be very high in young people. Widom and colleagues⁸⁹ reported lifetime rates of 19% in 29-year-old adults who were abused or neglected as children compared with 8% of community-matched controls, whereas a population-based cohort in New Zealand reported suicide attempts by 11–21% of young adults or adolescents who were exposed to severe physical abuse or penetrative sexual abuse compared with 1–3% of controls.⁹² Similar rates have been reported in a systematic review of ten studies¹¹⁴ and one prospective study in New York, which showed that 6% of adolescents who were abused made multiple suicide attempts.¹⁰⁰

The hypothesis that children who have been sexually abused use self-injurious behaviour (such as cutting) as a maladaptive coping mechanism is only weakly supported by a systematic review of 45 retrospective studies.¹¹⁵ By contrast, a prospective study reported a strong association with sexual abuse but no association with physical abuse or neglect.¹¹⁶

Converging evidence from prospective and retrospective studies suggests that child maltreatment increases the risk of alcohol problems in adolescence and adulthood. These effects are moderate and persist in some but not all studies after adjustment for family characteristics and parental alcohol use.^{20,22,91,92,102,117–119} On the basis of results from a prospective study with follow up at 29 and 39 years of age,^{102,117} and from a systematic review of 224 studies,¹¹⁹ the association with alcohol problems, at least in adulthood, is confined to girls. These findings emphasise the need for interventions for girls and young women to prevent the development of alcohol problems and the associated health, safety, and social problems that excessive drinking in women can cause. For example, problem drinking in women increases the risk of fetal alcohol syndrome and might affect their ability to look after a child.¹²⁰

The link between child maltreatment and drug dependency is not straightforward.^{22,84,91,92,121} One prospective study¹²² reported that individuals who were maltreated in childhood were no more likely to have a diagnosis of drug dependency by the age of 29 years than were community controls. However, when a different measure of drug use is used, individuals who were abused and neglected were at increased risk for present illicit drug use at roughly 40 years of age.¹²¹ Investigators of this study speculated that although individuals who had experienced neglect or abuse would mature out of drug use, abused and neglected individuals might continue in a problematic drug-use trajectory. Cross-sectional studies indicate that exposure to multiple forms of abuse and other childhood adversities, including witnessing intimate-partner violence, leads to a cumulative increase in the risk of self-reported alcohol or drug misuse in adulthood.^{123,124}

Overall, the burden of mental ill health resulting from child maltreatment is substantial. A New Zealand cohort study⁹² estimated that physical abuse accounted for 5% of mental disorders and sexual abuse for 13%, after taking account of the family context in which maltreatment occurs.

How exposure to maltreatment of different types, at different developmental stages, leads to adverse mental-health outcomes is complex, although early and cumulative maltreatment seem to be particularly harmful to the development of the brain.^{125,126} The webappendix summarises the evidence for biological mechanisms that link child maltreatment and later outcomes.

Physical-health outcomes

Four very different prospective longitudinal studies^{127–130} have reported strong associations between physical abuse, neglect, and sexual abuse and obesity, which persist after accounting for family characteristics and individual risk factors, such as childhood obesity. Large differences in the magnitude of this association between studies (adjusted odds ratios range from 1·3 to 9·8)^{129,130} probably indicate differences in exposure and outcome measures and analyses. Retrospective studies also suggest an association between child sexual abuse and eating disorders (eg, bulimia and anorexia), but there is less information about other forms of maltreatment.¹³¹ Several large cross-sectional studies have reported relations between multiple child adversities, including child maltreatment, and a range of health outcomes in adulthood (eg, ischaemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease), albeit with little adjustment for lifetime confounders.^{132,133}

Abnormally overt or intrusive sexualised behaviour is a common problem in preteen children who are exposed to sexual abuse.¹³⁴ However, sexualised behaviour is not specific to child sexual abuse and has been associated with physical abuse, characteristics of family adversity,

coercive parenting, child behaviour, and modelling of sexual behaviour.¹³⁵

Most studies that have examined the relation between child maltreatment and sexual behaviour in adolescence and adulthood have focused on outcomes for sexual abuse. An exception is a prospective study with follow-up at 29 years of age, which reported a significant association between physical or sexual abuse or neglect and arrest for prostitution or being paid for sex (13% of cases *vs* 4% of controls for girls, $p=0\cdot001$; 15% *vs* 8% for boys, $p=0\cdot17$), but no significant associations with promiscuity or teenage pregnancy.¹³⁶ In two prospective studies,^{91,137} child maltreatment was associated with teenage pregnancy. In one study,¹³⁶ HIV was twice as common in abused and neglected individuals as in controls, although the difference did not reach conventional levels of significance most likely because of weak statistical power.¹³⁶ A systematic review and meta-analysis of various types of study, most with retrospective ascertainment of abuse status, similarly reported the strongest associations between child sexual abuse and sex trading in adolescence or adulthood, and showed greater effects for women than for men.^{112,138–140} Small to moderate effects of child sexual abuse on increased rates of teenage pregnancy have been noted, as well as earlier onset of sexual activity, greater numbers of sexual partners, increased rates of abortion, and increased risks of sexually transmitted disease.^{4,138,140–145} These effects are stronger with more severe^{146,147} or repeated¹⁴⁵ sexual abuse or exposure to multiple childhood adversities.^{148,149} Emerging evidence also suggests that exposure to child sexual abuse might be related to later sexual orientation.¹⁵⁰ Overall, these findings suggest associations between exposure to child sexual abuse and subsequent sexual adjustment.

Controversy about a possible link between childhood maltreatment and chronic pain in adulthood emphasises the differences between prospective and retrospective measures of child maltreatment and the advantages of considering both types of study design. A prospective study based on children with maltreatment documented by courts and community-matched controls showed no association with chronic pain reported in adulthood at 29 years of age.¹⁵¹ However, when groups were compared on the basis of retrospective self-reports of child maltreatment, the association with chronic pain was significant ($p<0\cdot0001$).¹⁵² Similar evidence of a modest association between child sexual or physical abuse (but not neglect), and pain in adulthood has been reported.^{151,153–156}

These findings draw attention to the distinction between how people remember and interpret abusive childhood experiences and exposure to child abuse. They establish an association between memories of childhood abuse and chronic pain in adulthood and further suggest that abused individuals with chronic pain are more likely to seek health care than are non-abused individuals with chronic pain.¹⁵¹ However, we cannot conclude that child abuse or neglect causes chronic pain in adulthood.

See Online for webappendix

Despite the evidence for diverse and serious consequences of child maltreatment, a systematic review¹⁵⁷ found no studies measuring quality of life during childhood after maltreatment, and only four studies in adults. Further research, based on modification of existing methods and development of measures that can be used for younger children, is needed for economic assessments of the burden of child maltreatment and cost-effectiveness of intervention strategies. Studies in North America^{158,159} and Australia¹⁶⁰ have shown increased service use and costs associated with child maltreatment, but research is lacking elsewhere in the world and in other public sectors.

Aggression, crime, and violence

In addition to feeling considerable pain and suffering themselves, abused and neglected children are at increased risk of becoming aggressive and inflicting pain and suffering on others, often perpetrating crime and violence. One paper on the cycle of violence¹⁶¹ reported that being physically abused or neglected as a child increased the likelihood of arrest as a juvenile (31% arrested vs 19% of community-matched controls) and as an adult (48% vs 36%). Since that time, similar effects on criminal behaviour have been reported in the USA despite differences in geographical region, time period, age of adolescent, definition of maltreatment, and assessment technique.^{95,137,162–167} These findings are supported by systematic reviews of retrospective studies, showing that physical and sexual abuse predict delinquency or violence in boys and girls,¹⁶⁸ although physical abuse might be most strongly related to youth violence in girls.¹⁶⁹ A direct comparison of different types of maltreatment found that children who were physically or sexually abused were more likely to carry a weapon in adolescence than were neglected children, because of a perceived need for self protection.¹⁷⁰ Evidence that risks of youth violence cumulate when child abuse persists into adolescence suggests a need for interventions to prevent ongoing abuse.¹⁶⁹

Future research

Child maltreatment is common, and for many it is a chronic condition, with repeated and ongoing maltreatment merging into adverse outcomes throughout childhood and into adulthood. The burden on the children themselves and on society is substantial. At the same time, variation in rates of maltreatment between countries, particularly for infant homicides, and a possible decrease in recent years in sexual and physical abuse in some high-income countries, shows that the present high burden of child maltreatment is not inevitable. International comparative studies are needed, especially in countries outside North America and northern Europe, to help learn lessons from different settings about how to prevent child maltreatment and its consequences. The high burden and serious and longlasting consequences of child maltreatment warrant

increased investment in preventive and therapeutic strategies from early childhood. Research into what works at an individual and policy level is a priority.^{171,172}

More research is needed into characteristics of responses by communities, families, and services that help with healthy development rather than exacerbate the child's problems. This research includes improved understanding of the many ways in which children are victimised at different stages of development.²⁷

More attention needs to be given to neglected children. There is mounting evidence that the consequences of childhood neglect can be as damaging—or perhaps even more damaging—to a child than physical or sexual abuse. More attention also needs to be paid to the potentially different needs of boys and girls who are maltreated. Although classrooms and neighbourhoods are disrupted more by deviant behaviour of boys than of girls, research shows that maltreatment doubles a girl's risk of being arrested for a violent crime and increases risk for subsequent alcohol and drug problems, with implications for her children.

Conflict of interest statement

We declare that we have no conflict of interest.

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