Childhood and adult mortality from unintentional falls in India

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Objective To estimate fall-related mortality by type of fall in India.
Methods The authors analysed unintentional injury data from the ongoing Million Death Study from 2001–2003 using verbal autopsy and coding of all deaths in accordance with the *International statistical classification of diseases and related health problems*, tenth revision, in a nationally representative sample of 1.1 million homes throughout the country.
Findings Falls accounted for 25% (2003/8023) of all deaths from unintentional injury and were the second leading cause of such deaths. An estimated 160 000 fall-related deaths occurred in India in 2005; of these, nearly 20 000 were in children aged 0–14 years. The unintentional-fall-related mortality rate (MR) per 100 000 population was 14.5 (99% confidence interval, CI: 13.7–15.4). Rates were similar for males and females at 14.9 (99% CI: 13.7–16.0) and 14.2 (99% CI: 13.1–15.4) per 100 000 population, respectively. People aged 70 years or older had the highest mortality rate from unintentional falls (MR: 271.2; 99% CI: 249.0–293.5), and the rate was higher among women (MR: 281; 99% CI: 249.7–311.3). Falls on the same level were the most common among older adults, whereas falls from heights were more common in younger age groups.
Conclusion In India, unintentional falls are a major public health problem that disproportionately affects older women and children. The contexts in which these falls occur and the resulting morbidity and disability need to be better understood. In India there is an urgent need to develop, test and implement interventions aimed at preventing falls.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Falls are the second leading cause of unintentional injury mortality and they account for 11% of all unintentional injury deaths worldwide.[1] According to the World Health Organization (WHO), about 424 000 fall-related deaths occurred globally in 2004 and about one fifth of them (95 000 deaths) took place in India.[1]

The National Crime and Records Bureau (NCRB), which is the only agency that collects national injury data in India, reported that in 2005 falls contributed 3.2% of all unintentional injury deaths in the country.[2] This figure reflects the large underreporting well known to exist in police-based reports. Two surveys are additional national sources of cause-specific mortality in India: the Medically Certified Causes of Death (MCCD) survey and the Survey of Cause of Death (SCD), last conducted in 1998. The MCCD survey reports on causes of death based on mortality data from urban hospitals. According to this survey, falls were the cause of 2% of all unintentional injury deaths registered in 2004.[3] In the SCD, the sample units are primary health-care centres in selected rural health facilities and an algorithm is used to determine the causes of death in the population. According to the SCD, fall-related deaths comprised 8% of all unintentional injury deaths in rural areas in India in 1998.[4] The MCCD and SCD are not representative of India's urban and rural populations. Furthermore, these surveys and the NCRB have shortcomings, namely low population coverage, the use of different data sources and a high proportion of deaths that are either misclassified or attributed to ill-defined causes.[5,6]

Small regional studies in India have reported higher rates of deaths from falls than have been reported earlier, even among older age groups.[7–9] However, these studies were relatively small and were conducted in specific geographical areas. Hence, their results are not generalizable at the national level.

To help redress the lack of reliable population-based data on deaths from unintentional falls in India, we have aimed to establish rates of death from unintentional falls in India, by type of fall, using a nationally representative sample.

Methods

Study settings

We reviewed all deaths from unintentional falls in India over a period of 3 years (2001–2003) as recorded by the Million Death Study, a comprehensive study based on verbal autopsy that assigned causes to all deaths in areas of India covered by the Sample Registration System. Verbal autopsy is a method of ascertaining the cause of death by interviewing a family member or caretaker of the deceased to obtain information on the clinical signs, symptoms and general circumstances that preceded the death.[10]

The Sample Registration System monitors a representative sample population of 6.3 million people in over 1 million homes in India. It records deaths, births and other vital events in the country's 28 states and 7 union territories. Based on the 1991 census, the Registrar General of India randomly selected 6671 areas from approximately 1 million having about 1000 inhabitants in each.[11] (India's total population was about 1 billion in 2001).[12] In 1993, the characteristics of households in the sampled areas

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Table 1. **Deaths from unintentional falls by age, sex and place of residence, in the present study and in national estimates, India, 2005**

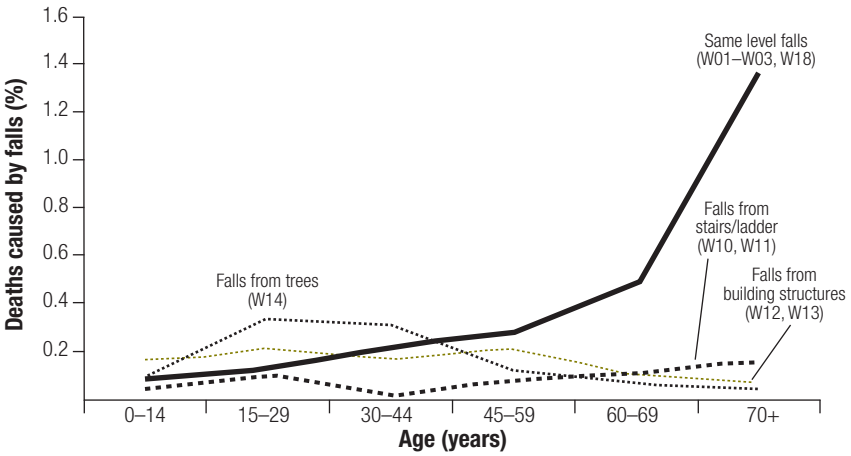
Age (years)	Deaths in study, 2001–2003				National estimates		Deaths (per 100 000) in all India, 2005					
	Males/ Females	Rural/Urban	Total				Males		Females			
			No.	%	No.	99% CI	No.	99% CI	No.	99% CI	No.	99% CI
0–14	109/94	168/35	203	10	20	16.4–23.6	5.7	4.2–7.0	5.0	3.7–6.4	5.4	4.4–6.3
15–29	89/30	105/14	119	6	8	6.4–10.4	3.7	2.7–4.7	1.6	0.8–2.3	2.7	2.1–3.3
30–44	124/32	130/26	156	8	12	9.6–14.6	8.4	6.5–10.4	2.3	1.2–3.3	5.5	4.3–6.6
45–59	154/73	190/37	227	11	18	14.9–21.1	15.4	12.2–18.6	9.8	9.9–12.8	12.7	10.5–14.9
60–69	157/154	252/59	311	16	24	19.9–26.7	49.4	39.3–59.7	47.8	37.9–57.7	48.5	41.4–55.6
70+	437/550	760/227	987	49	78	71.6–84.4	261.7	229.5–294.0	281.0	249.7–311.3	271.2	249.0–293.5
All	1070/933	1605/398	2003	100	160	150.7–169.1	14.9	13.7–16.0	14.2	13.0–15.4	14.5	13.7–15.4

CI, confidence interval.
Note: no deaths were recorded as W15 and W16.

were documented, and from 1993 to 2004 births and deaths were reliably enumerated twice a year through a dual recording system.[10,12] The first surveyor was a part-time enumerator familiar to the population of each area or village (a local school teacher) who visited households every month. The second one was a full-time (non-medical) Registrar General surveyor who visited the households in the sample unit every 6 months. The enumerator and the Registrar General surveyor independently recorded the births and deaths in the household for the period. A third staff member reconciled the two reports and arrived at a final list of births and deaths for each household, thereby completing each half-yearly survey.[10,11]

In 2001 the Registrar General Surveyor introduced an enhanced form of verbal autopsy for assessing the cause of death. This was known as the routine, reliable, representative, re-sampled household investigation of mortality with medical evaluation (RHIME). Nearly 800 Registrar General surveyors who knew the local languages were trained to conduct the RHIME. These trained field workers visited the families to record the events that preceded each death using age-specific questionnaires for neonates (aged 0–28 days), children (aged 29 days to 14 years) and adults (aged ≥ 15 years). For every death a narrative of the events leading to the death was recorded in the local language. In addition, the neonatal and child death questionnaires also included the following direct question: “Did he/she die from an injury or accident? If yes, what was the kind of injury or accident?” Response options included: road traffic accident; fall; falling object; burn; drowning; poisoning; bite/sting; natural disaster; homicide/assault; unknown. The cause of death was determined from the narrative of the respondent, not the direct question. Concurrence between the two physicians on the codes for injuries from falls was 88%. For child deaths, 142 of the 203 (70%) injury deaths finally coded had a “yes” response to the direct question of whether the child had died from an injury or accident. The place of death was recorded based on the following response options: home; health facility (such as a government hospital, private hospital and or registered practitioner’s office), and other (including roadside, public area or transport vehicle). In addition, for deceased persons aged 15 years or older, information was also collected on any history of physician-diagnosed co-morbidity

Fig. 1. **Age-distribution of deaths from unintentional falls for four leading causes of injury, India, 2005**



Note: The leading causes of injury deaths from unintentional falls are presented as a proportion of all unintentional deaths in the sample.

such as hypertension, depression, stroke, diabetes or heart disease.

A random sample of about 5% of the areas was resurveyed independently by Registrar General employees. Results were consistent for broad families in the *International statistical classification of diseases and related health problems*, tenth revision (ICD-10), but lesser agreement was noted on specific codes.[10] Details of the methods, validation and preliminary results for various conditions have been reported elsewhere.[10,11,13,14]

Cause of death assignment

Based on information extracted from the household interview, verbal autopsy reports were sent randomly (based on language) to at least two of a total of 130 physicians trained in ICD-10 coding. The physicians independently assessed the underlying cause of death and assigned a three-digit code to each death.[10,11] Unintentional fall injury deaths were allocated ICD-10 codes from W00 to W19 in chapter XX, for external causes of morbidity and mortality.

In case of disagreement on the ICD-10 codes at the chapter level, reconciliation between reports was conducted, followed by a third senior physician's adjudication. In case of disagreements on the codes at the subchapter level or within chapters (between W00–W19), a member of the research team adjudicated the final code during data analyses.

Included in the analysis were all deaths enumerated between January 2001 and December 2003, a period during which 136 000 interviews were conducted. RHIME reports could not be conducted for 12% of the deaths for reasons such as family migration or change of residence. In addition, 9% of the reports could not be coded because they had incomplete information, the image of the scanned verbal autopsy report was poor, or there were other field problems. Hence, physicians coded a total of 122 848 records, and 2003 deaths among them were coded as being from unintentional falls.

National death estimates and mortality rates

The analysis is based on cause-specific mortality proportions from the Million Death Study. The cause-specific proportion of deaths in each five-year age category from 0 to 79 years and for people aged 80 years and over was weighted by the inverse probability of a household being selected within rural and urban subdivisions of each state to account for the sampling design. National estimates for deaths and mortality rates are based on United Nations 2005 estimates for India,[15] by age, sex and area. The year 2005 was selected for estimation due to the availability of the most accurate, stable demographic estimates, which were comparable to Indian census projections for 2006.[16] Age-specific proportions of deaths from the Million Death Study are compared with the proportions from other available sources.[2,4,5]

Results

Unintentional falls accounted for 25% (2003/8023) of all unintentional injury deaths. Marginally, more males (1070) than females (933) died from falls, and male deaths exceeded female deaths in all age groups except that of people aged 70 years or older. In the sample population, close to one third of all recorded deaths and one fifth of all unintentional injury deaths were observed in the age group 70 years or older. Nearly half of all fall-related deaths occurred in this group. When age-specific percentages were applied to United Nations age-specific death totals for 2005, the national fall-related mortality rate (i.e. the number of deaths per 100 000 people) that year was 14.5 for both sexes, 14.9 for males and 14.2 for females. A total of 160 000 people died from falls in India in 2005. This included more than 100 000 people aged over 60 years and nearly 20 000 people aged 0–14 years. Mortality rates increased progressively after the age of 14 years and were highest among people aged 70 years or older (Table 1 and Fig. 1).

Same-level falls due to slipping, tripping and stumbling accounted for the largest number (32 000) and proportion (20%) of fall-related deaths. Falls from a higher level, such as from furniture or into wells or holes, were the second most common types of fall, followed by same-level falls not caused by slipping, tripping or stumbling, such as bumping into objects and colliding with other people. About 30% of fall-related deaths were coded as attributed to unspecified falls and nearly two thirds of these occurred among people aged 70 years or over. Deaths from falls of all types occurred at higher rates among males than among females except for same-level falls (Table 2). Males fell from trees 6 times more often than females and they fell from building structures twice as often.

Fig. 1 shows the age distribution for the top four types of fall-related deaths. Falls from buildings or structures were a leading cause of death among children aged 0–14 years. Deaths due to falling from trees were highest in people aged 15–44 years. Same-level fall deaths increased with age and rose sharply in people aged 50 years and over.

The rate of death from unintentional falls was 13.9 per 100 000 for rural areas and 15.6 per 100 000 for urban areas. The death rates caused by falls of various types showed little differences by place of residence (rural versus urban) except for significantly higher rates of death from falling from trees in rural areas and from stairs and ladders in urban areas ($P < 0.01$,

Table 2. **Deaths from fall-related unintentional injuries by type of fall, in the present study and in national estimates, India, 2005**

Unintentional injury type (and ICD-10 codes)	Deaths in study, 2001–2003		National estimates (in thousands)		Deaths per 100 000[a] in all India, 2005					
					Males		Females		Total	
	No.	%	No.	99% CI	No.	99% CI	No.	99% CI	No.	99% CI
Fall on same level from slipping, tripping and stumbling (W01)	408	21	32	27-35	2.4	2.0-2.9	3.4	2.8-4.0	2.9	2.5-3.3
Other falls on same level (W02, W03, W18)	227	11	20	16–23	1.8	1.4–2.2	1.9	1.4–2.3	1.8	1.5–2.1
Falls stairs and ladder (W10, W11)	98	5	9	6–11	0.7	0.4–1.0	0.9	0.6–1.3	0.8	0.6–1.0
Falls from building or structure (W12, W13)	157	7	14	11–17	1.6	1.2–2.0	0.9	0.6–1.2	1.3	1.0–1.5
Falls from trees (W14)	162	8	11	8–13	1.7	1.3–2.0	0.3	0.1–0.5	1.0	0.8–1.2
Other falls from one level to another (W04–W09,W17)	318	16	25	21–28	2.1	1.7–2.5	2.4	1.9–2.9	2.3	1.9–2.6
Unspecified falls (W19)	633	32	49	44–54	4.6	4.0–5.3	4.4	3.7–5.0	4.5	4.0–4.9
All (W01–W19)	2003	100	160	152–170	14.9	13.7–16.0	14.2	13.0–15.4	14.5	13.7–15.4

CI, confidence interval; ICD-10, International Classification of Diseases, tenth revision.
[a] Age-standardized mortality rate.

data not shown). Deaths due to falls from trees accounted for 9% of all fall-related deaths in rural areas but for only 3% in urban areas. Conversely, deaths due to falling from stairs and ladders accounted for 8% of all fall-related deaths in urban areas but for only 4% in rural areas. About 68% (1047/1531) of people aged 45 or over who died from falls had one or more co-morbidities such as hypertension (12%), stroke (4%), diabetes (6%), asthma (8%) and heart disease (4%). Most deaths due to falls (72%) occurred at home, 14% occurred in health facilities and 14% occurred in other places.

Discussion

Data from this nationally representative sample of deaths indicates that the number of deaths related to unintentional falls that occurred in India in 2005 is substantially higher than the previous estimate (160 000 versus 95 000, respectively).[1] This is equivalent to a national rate of 14.3 deaths per 100 000 people, which is higher than the worldwide average of 6.6 per 100 000.[1]

Our estimates are higher than those reported by non-representative national sources. For the year 1998, the SCD reported that in rural areas 8% of all injury deaths were attributable to falls,[4] a rate much lower than the 24% found in the present study. Similarly, MCCD reported that in 2003 2% of injury-related deaths in urban areas were related to falls, compared with 28% in the present study.[5] We compared the percentage of fall-related deaths in broad age groups from previous data sources with the results observed in the present study (Table 3). No systematic difference was noted between older and younger age groups in the percentage of deaths from unintentional falls.

The observed discrepancies between data sources in fall-related mortality are due in part to differences in the population sample. The MCCD's sample, unlike our nationally representative sample of deaths, only collects data on people who seek care in an urban hospital after an injury;[3] similarly, the SCD samples injured people seen in primary-health-care centres in villages, where available.[4] Neither sample is representative of either the urban or the rural population, and both have other limitations, one of them being a large proportion (~20%) of ill-defined causes of death, partial coverage and incomplete data.[5,6]

Table 3. **Proportion of deaths from unintentional injuries and falls, by age group, from mortality surveys, the present study and indirect Global Burden of Disease estimates for India**

Data sources	Unintentional injuries (%)			Falls (%)		
	0–14 years	15–59 years	>60 years	0–14 years	15–59 years	>60 years
Rural						
Survey of Cause of Death,1998	16	70	14	26	42	32
Present study, 2001–2003	21	49	30	11	26	63
Urban						
Medically Certified Cause of Death, 2003	7	85[a]	8[a]	10	66[a]	24[a]
Present study, 2001–2003	10	56	34	9	19	72
All India						
National Crime Research Bureau, 2003	5	85	10	11	79	10
Global Burden of Disease, 2004	16	62	22	12	35	53
Present study, 2001–2003	19	51	30	10	25	65

[a] For the Medically Certified Cause of Death survey the age ranges are 15–64 years and 65 years and above, since proportional mortality is reported for 15-year intervals.

To conduct the household survey in this study we used validated verbal autopsy methods, which are less vulnerable to biases affecting the estimated cause-specific mortality rates in earlier studies. WHO's global burden of disease (GBD) estimates rely on the MCCD and the SCD.[1] Hence; GBD figures are probably underestimates of the actual number of deaths from unintentional falls in the population. NCRB reports rely on police registration[2] and may therefore reflect the underreporting by victims and families of falls and other injuries with legal implications.

Women aged 70 years or over had higher rates of death from falls than men. Falls on the same level, such as slipping and tripping, caused most of these deaths. Analytical studies from low- and middle-income countries have shown that the risk factors for fall-related injuries among women are the same as in high-income countries, namely, low bone density; co-morbid conditions such as hypertension and diabetes; low levels of physical activity; poor cognitive function; poor perceived health status; poor vision; and alcohol consumption.[17,18] In our study more than two thirds of the deceased aged 45 years and above had co-morbidities, which constitute significant risk factors for fall-related injury among older adults in India and other settings.[8,18,19]

Studies have also suggested that environmental factors such as building structure and socioeconomic factors such as the availability of electric lighting may contribute to falls to a greater extent in low- and middle- income countries.[19] Some of these contextual factors could be at play in the socially and geographically diverse Indian population, but further exploration of the context of falls is required.

India's population of older adults is rising. In 2001 India had 72 million people aged 60 years and above. The projected number for 2021 is 137 million.[12] The female to male ratio in this age group is projected to be 1031 females to 1000 males in 2016, primarily because men have lower life expectancy and smoke more than women.[14,20] The demographic transition will surely lead to a rise in the number of falls among older adults, especially women, and this will pose a challenge for the health system in the future.

Several high-income countries have succeeded in reducing fall rates through community-based public health programmes.[21–23] To date India has not established any widespread programme for the prevention of falls. Multifaceted programmes focused on strength and balance training, improving vision among the elderly, vitamin D supplementation and home environment modification have been effective in preventing falls in many trials in high-income countries.[21–26] Research has also shown improvements in body balance using Yoga-based exercises,[27] which are culturally well accepted in India. Most programmes based on exercises for improved balance, medication management and home modification have proven cost-effective in high income-settings.[28,29] However, no research has been conducted to date on the effectiveness or cost-effectiveness of such interventions in low-income settings such as India.

Although our results show high rates of death from falls among older adults, fall-related mortality in other age groups is also substantial. In studies in Asia, falls have been among the 10 leading causes of death in people aged 0–17 years.[30,31] In the present study, fall-related injury was one of the five leading causes of death among children aged 0–14 years and accounted for about 20 000 deaths in this group in 2005. Appropriate prevention programmes therefore need to be tailored to different age groups as well as different risk factors. Programmes known to effectively reduce falls from high-rise buildings among children in high-income countries, such as "Children can't fly",[32] may also prove effective in low- and middle-income countries if adapted to the local context.

Mortality from falls was higher among males than females in the group aged 15–49 years. In urban areas, most falls leading to death among males were either from a building or another structure, while in rural areas they were mainly from trees. We did not collect data on the places where the falls had occurred (i.e. whether at home, in the workplace, in school, etc.). Falls from trees in rural areas tend to be context-specific; they most commonly occur among orchard farmers or wood pickers, since wood is used as cooking fuel in over 70% of rural households in India.[33] Detailed data on the environmental risk factors surrounding these falls would be useful in designing preventive interventions.

A strength of the Million Death Study is its nationally-representative sample. However, the study has several limitations. Verbal autopsy helps ascertain causes of death indirectly and can result in biased cause-specific mortality estimates. According to validation studies based on hospital deaths, injuries have a sensitivity of 85% and a specificity better than 95% on verbal autopsy, but such studies have not validated different types of injury.[34] We caution against assuming that hospital-based studies validate causes of death for people who die at home without medical attention.[35] One study has reported a sensitivity of 78% for falls on verbal autopsy because a few falls were misclassified as having occurred from cerebrovascular conditions.[36] In another study, 12% of the deaths caused by falls were misclassified as having been from "natural causes", which are essentially equivalent to ill-defined causes or senility.[37] In the current study, nearly 15% of the deaths among people aged 70 years or over were attributed to senility, and 4% to ill-defined causes. Some of these deaths may have actually been fall-related. Thus, misclassification of the cause of death among older people (> 60 years) resulting from the use of verbal autopsy may have caused an underestimation of the rates of death from falls.

As noted in this study, falls are an emerging and major public health challenge in India. With the anticipated progressive increase in the number and fraction of elderly people, falls are bound to increase dramatically in coming years and will impose a commensurate burden on families and health-care systems. Future research should focus on investigating the circumstances and context in which falls occur and their predisposing factors to guide the planning of preventive interventions. ■

Competing interests: None declared.

ملخص

وفيات الأطفال والبالغين الناجمة عن حوادث السقوط غير المقصودة في الهند

الغرض تقدير معدل الوفيات المرتبط بحوادث السقوط حسب نمط السقوط في الهند.

الطريقة حلل الباحثون معطيات الإصابات غير المقصودة المأخوذة من الدراسة الجارية بعنوان "دراسة المليون وفاة" في الفترة 2001-2003 واستخدموا التشريح السردي وترميز جميع الوفيات وفقاً للنسخة العاشرة من "التصنيف الإحصائي الدولي للأمراض والمشاكل الصحية ذات العلاقة"، في عينة ممثلة على الصعيد الوطني مكوّنة من 1.1 مليون منزل في الهند.

النتائج شكلت حوادث السقوط 25% (8023/2003) من جميع الوفيات الناجمة عن الإصابات غير المقصودة، وكانت السبب الرئيسي الثاني لهذه الوفيات. ويقدر أن 160000 وفاة متعلقة بالسقوط قد وقعت في الهند عام 2005؛ منها حوالي 20000 وفاة وقعت بين الأطفال في عمر 0-14 سنة. وبلغ معدل الوفيات المرتبط بحوادث السقوط غير المقصودة لكل 100000 شخص من السكان 14.5 (فاصلة الثقة 99%: 13.7-15.4). وكانت المعدلات متشابهة بين الذكور والإناث، حيث بلغت في الذكور 14.9 (فاصلة الثقة 99%: 13.7-16.0)، وفي الإناث 14.2 (فاصلة الثقة 99%: 13.1-15.4) لكل 100000 شخص من السكان. كان كبار السن في عمر 70 سنة أو أكبر لديهم أعلى معدل للوفيات الناجمة عن حوادث السقوط غير المقصودة (معدل الوفيات: 271.2؛ فاصلة الثقة 99%: 249.0-293.5)، وكان معدل الوفيات أعلى بين النساء (معدل الوفيات 281؛ فاصلة الثقة 99%: 249.7-311.3). وكان السقوط من على نفس مستوى الأرضية هو الأكثر شيوعاً بين كبار السن، بينما كان السقوط من الأماكن المترفعة هو الأكثر شيوعاً بين الفئات الأصغر عمراً.

الاستنتاج في الهند، تُعَدُّ حوادث السقوط غير المقصودة مشكلةً صحيةً عموميةً كبرى، وهي تصيب على نحو غير متوازن الأطفال والنساء المسنات. وتحتاج المعلومات الأساسية حول حوادث السقوط وما تؤديه من وفاة أو إعاقة إلى تفهم أعمق. وهناك حاجة ملحة في الهند لإعداد، واختبار، وتنفيذ تدخلات تهدف إلى الوقاية من حوادث السقوط.

摘要

意外跌落造成的印度儿童和成人死亡率

目的 旨在估计印度基于跌落类型的跌落相关死亡率。

方法 本文作者以全国范围内110万家庭为代表性样本，运用死因推断对目前正在进行的"百万人死亡研究"所记载的2001-2003年间的意外伤害数据进行分析，并根据《国际疾病与相关健康问题的统计分类》（第十版）对所有死亡进行编码。

结果 跌落占意外伤害死亡的25%（2003/8023），并且是该类死亡的第二大死亡原因。据估计，2005年印度发生了160000例与跌落相关的死亡；其中，近20000例发生在0-14岁的儿童中。每100000人群中与意外跌落相关的死亡率（MR）为14.5（99%置信区间：13.7-15.4）。而男性和女性的比率相似，分别为每100 000人中14.9（99%置信区间：13.7-16.0）和14.2（99%置信区间：13.1-15.4）。70岁及以上人群中因意外跌落导致的死亡率最高（死亡率：271.2；99%置信区间：249.0-293.5），并且女性群体中这一比率较高（死亡率：281；99%置信区间：249.7-311.3）。从相同高度跌落在老年人中最为普遍，而从高处跌落在年轻群体中较为常见。

结论 在印度，意外跌落是一个不同程度影响老年妇女和儿童的重要公众健康问题。我们需要更好地了解跌落事故发生的环境以及由此产生的发病率和致残率。印度急需开发、测试并实施预防跌落的干预措施。

Résumé

Mortalité des enfants et des adultes résultant de chutes involontaires en Inde

Objectif Évaluer la mortalité associée aux chutes par type de chute en Inde.

Méthodes Les auteurs ont analysé les données associées aux chutes involontaires extraites de l'étude en cours sur un million de décès de 2001 à 2003 en utilisant l'autopsie verbale et le codage de tous les décès conformément à la *Classification statistique internationale des maladies et des problèmes de santé connexes,* dixième révision, dans un échantillon représentatif sur le plan national d'1,1 million de foyers dans tout le pays.

Résultats Les chutes représentaient 25% (2003/8023) de tous les décès résultant de blessures involontaires ainsi que la seconde cause majeure de ces décès. On estime que 160 décès dus à une chute se sont produits en Inde en 2005; parmi ceux-ci, presque 20 000 concernaient des enfants âgés de 0 à 14 ans. Le taux de mortalité (TM) associé aux chutes involontaires pour une population de 100 000 personnes était de 14,5 (intervalle de confiance à 99% (IC): de 13,7 à 15,4). Les taux étaient similaires pour les hommes et les femmes à 14,9 (IC à 99%: de 13.7–16.0) et 14,2 (IC à 99%: de 13,1 à 15,4) pour une population de 100 000 personnes respectivement. Les individus âgés de 70 ans ou plus présentaient le taux de mortalité résultant de chutes involontaires le plus élevé (TM: 271,2; IC à 99%: de 249.0 à 293,5) et le taux était plus élevé chez les femmes (TM: 281; IC à 99%: de 249.7–311.3). Les chutes sur le même niveau étaient plus fréquentes parmi les adultes plus âgés alors que les chutes depuis une hauteur étaient plus fréquentes dans les groupes plus jeunes.

Conclusion En Inde, les chutes involontaires représentent un problème de santé publique majeur qui affecte de façon disproportionnée les femmes âgées et les enfants. Il est nécessaire de mieux comprendre le contexte dans lequel ces chutes se produisent, ainsi que la morbidité et l'invalidité qui en résultent. Il y a en Inde un besoin urgent de développer, de tester et de mettre en œuvre des interventions visant à prévenir les chutes.

Резюме

Детская и взрослая смертность от непреднамеренных падений в Индии

Цель Оценить смертность, связанную с падениями, с разбивкой по типам падений, в Индии.

Методы Авторы проанализировали данные продолжающегося «Исследования одного миллиона случаев смерти» за 2001–2003 годы о непреднамеренных травмах с использованием вербальной аутопсии и кодирования всех случаев смерти в соответствии с «Международной статистической классификацией болезней и проблем, связанных со здоровьем» 10-го пересмотра, в рамках национально репрезентативной выборки 1,1 млн домохозяйств в различных районах страны.

Результаты Падения составляли 25% (2003 из 8 023) всех случаев смерти от непреднамеренных травм и являлись второй по значимости причиной таких смертей. По оценкам, в 2005 году в Индии произошло 160 тыс. случаев смерти, связанных с падением; из этого числа почти 20 тыс. погибших составляли дети в возрасте до 14 лет. Коэффициент смертности (КС), связанной с непреднамеренными падениями, на 100 тыс. человек населения составлял 14,5 (99% доверительный интервалl, ДИ: 13,7–15,4). Показатели были практически одинаковыми для мужчин и женщин – 14,9 (99% ДИ: 13,7–16,0) и 14,2 (99% ДИ: 13,1–15,4) на 100 тыс. человек населения, соответственно. У лиц в возрасте 70 лет или старше был отмечен самый высокий коэффициент смертности от непреднамеренных падений (КС: 271,2; 99% ДИ: 249,0–293,5), причем среди женщин этот показатель был выше (КС: 281; 99% ДИ: 249,7–311,3). Падения на горизонтальной поверхности были наиболее распространены среди взрослых старших возрастов, а падения с высоты – среди младших возрастных групп.

Вывод В Индии непреднамеренные падения являются серьезной проблемой для общественного здоровья, от которой сильнее всего страдают дети и пожилые женщины. Необходимо подробнее исследовать условия, в которых происходят эти падения, а также вызываемую ими заболеваемость и инвалидность. В Индии настоятельно необходимо разработать, испытать и внедрить меры вмешательства, направленные на профилактику падений.

Resumen

Mortalidad en niños y adultos por caídas no intencionadas en la India

Objetivo Estimar la mortalidad asociada a caídas por tipo de caída en la India.

Métodos Los autores analizaron los datos sobre lesiones no intencionadas procedentes del *Million Death Study,* el estudio del millón de muertes, (aún en curso) de 2001 a 2003 con autopsias verbales y codificación de todas las muertes de conformidad con la *Clasificación estadística internacional de enfermedades y problemas relacionados con la salud*, décima versión, en una muestra representativa a nivel nacional de 1,1 millones de hogares de todo el país.

Resultados Las caídas representaron el 25% (2003/8023) de todas las muertes por lesiones no intencionadas y fueron la segunda causa más importante de este tipo de muertes. Se estima que en 2005, en la India se produjeron 160 000 fallecimientos asociados a caídas; de estos, casi 20 fueron de niños de entre 0 y 14 años. La tasa de mortalidad (TM) asociada a caídas no intencionadas por cada 100 000 habitantes fue del 14,5 (intervalo de confianza del 99%, IC: 13,7-15,4). Estas tasas fueron similares para hombres y mujeres, 14,9 (IC del 99%: 13,7-16,0) y 14,2 (IC del 99%: 13,1-15,4) por cada 100.000 habitantes, respectivamente. Las personas de 70 años o más presentaron la mortalidad más alta por caídas no intencionadas (TM: 271,2; IC del 99%: 249,0-293,5), y la tasa fue mayor en mujeres (TM: 281; IC del 99%: 249,7-311,3). Las caídas al mismo nivel fueron las más comunes en adultos mayores, mientras que las caídas desde altura fueron más comunes en los grupos de edad más jóvenes.

Conclusión En la India, las caídas no intencionadas constituyen un problema de salud pública importante que afecta de forma desproporcionada a mujeres mayores y niños. Es necesario entender mejor los contextos en los que se producen estas caídas y la morbilidad y discapacidad resultantes. En la India existe una necesidad urgente de preparar, probar e implementar medidas para evitar caídas.

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