

ORIGINAL ARTICLE

HOME INJURY IN MALAYSIA : FINDINGS FROM THE 1996 NHMS

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ABSTRACT

Injury (including home injury) is an important contributor to the nations' statistics on mortality and morbidity. However, statistics on injury is still lacking in Malaysia. In 1996, the National Health and Morbidity Survey was conducted nationwide that includes injury as one of the scope studied at the community level. It was found that the prevalence of self-reported home injury in Malaysia was 2.5%. The prevalence was higher among the 0-4 years and more than 80 years groups. There was no difference in the prevalence of injury by urban/rural location, ethnicity, citizenship, religion, marital status, level of education, income group or type of occupation. Females however reported a slightly higher figure than males (2.7% ± 95% CI and 2.3% ± 95% C.I). Recommendations made include planning and designing of preventive intervention strategies and areas for future studies.

Key words: Home injury, Domestic accidents, Home accidents, Domestic injury

INTRODUCTION

Home accidents accounts for 1 percent of all mortality in England and Wales and about one-third of all mortality from other types of injury¹. In New Zealand, home injury represented 41.7% of all deaths and 39.1% of all hospitals admission due to non-transport unintentional injury². Home appears to be an important place of occurrence of unintentional injury. A Swedish community survey found that of all accidents among children and adolescents, 26% were home accidents³. Similarly injury surveillance over a one year period in Norway also found that home injury to be the most common type of all registered accidents⁴.

In Malaysia, injury is one of the three leading causes of death and disability. Injuries (including home injuries) is therefore a major public health concern. Data on home injuries in Malaysia is scarce. It was estimated that about 10% of injuries seen at the Accidents & Emergency Department of Kuala Lumpur Hospital were sustained at home and from this, 80% were amongst women and children below 12 years of age⁵.

There is also less research done on home injury compared to road traffic and occupational injuries⁶. One extensive study done in 1976 found that over a six-month period, 1,542 children were reported to be involved in home accidents and seen at various government hospitals and the University hospital (Nathan, 1985). Literature review of other related studies in Malaysia found that most authors have shown piecemeal interests^{8,9,10,11,12}. Most of

the studies were confined to specific types of injury, mainly in the paediatric age group and focussed on hospital cases only.

In Malaysia, relatively little is known about home injury in the community but in actual fact, the toll of death and suffering they exact is probably large and much of it could be easily prevented¹³. As such it was timely that a community-based survey be done in Malaysia to estimate the extent of the problem in the community, for the purpose of formulations of preventive measures.

METHOD & MATERIALS

Sampling

This study was done as a part of the National Health & Morbidity Survey in 1996; which was a nation wide survey of scopes on health and morbidity of the Malaysian population. It was a cross sectional study from a multistage sampling of households all over Malaysia. Details in the methodology of the survey is available of the survey can be read elsewhere¹⁴.

Instrument

Home injury was part of the module on Injuries that also covered other types of injuries. The questions on home injury were subjected to all eligible respondents in the household in selected living quarters. There were six questions related to home injury. The six questions were

- 1) any history of home injury for the past one year,
- 2) the number of times the person got injured in one year,

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- 3) the total number of days when activities of daily living was disturbed by injury
- 4) the total number of days unable to work/go to school due to the injury
- 5) the place where the injury occurred and
- 6) the objects which were involved in the injury.

Data was collected by means of interview by trained data collectors using structured questionnaires.

Data analysis

Data was recorded in a formatted questionnaire, captured using the Optic mark Reader and analysed using the STATA software.

Definitions for this survey

Home is defined as all residential and non-institutional places of residence, including private driveways, garages, walkways, gardens and swimming pools but excluding homes under construction¹⁵. Injury is defined as any physical, usually acute trauma to an individual¹⁶. This encompasses any injury the spectrum of falls, burns and scalds, poisoning, drowning, laceration/abrasions, electrocution and may even include non-accidental injury as in abuse and neglect¹². Therefore the working definition of home injury would be the combination of the above two.

RESULTS

Out of an estimated population of 17 million in 1996, 59,310 reported experiencing at least one injury in the past one year period. This means that the prevalence of self-reported injury in this survey was 2.5% (95% CI 2.3-2.7%). Negeri Sembilan was

noted to have the highest prevalence among all the states, 8.6% (95% CI 6.6-10.7%).

Socio-demography

There is no statistical difference in the prevalence of home injury in terms of rural/urban location, ethnicity, citizenship, religion, marital status, level of education, income group or type of occupation. Gender differences: females reported a slightly higher figure as compared to males (95% CI, 2.7% vs 2.3%) (Table 1). It was also found that government pensioners (3.0%, 95% CI 1.3-4.8 %) and the housewives (2.9%, 95% CI 2.4-3.4%) reported a higher figure of home injuries. The prevalence was also calculated by age groups as shown in Figure 1. The graph shows that the prevalence was higher among the 0-4 years the 'more than 80' age groups.

Place of injury

Among those who answered "Yes" to the question on any episode of injury in the past one year at home, responses were obtained on the place where the injury occurred and objects involved during the injury. In the order of frequency, in relation to terms of place of injury, 32.4% reported in the compound, followed by the kitchen (26.2%) and living room 13.9% (Figure 2).

Object involved

About 36% of the respondents reported that there was no specific object involved during the injury, whilst 23.9% mentioned objects like knives, scissors or cutlery. The least cited object was poison (0.3%) (Figure 3)

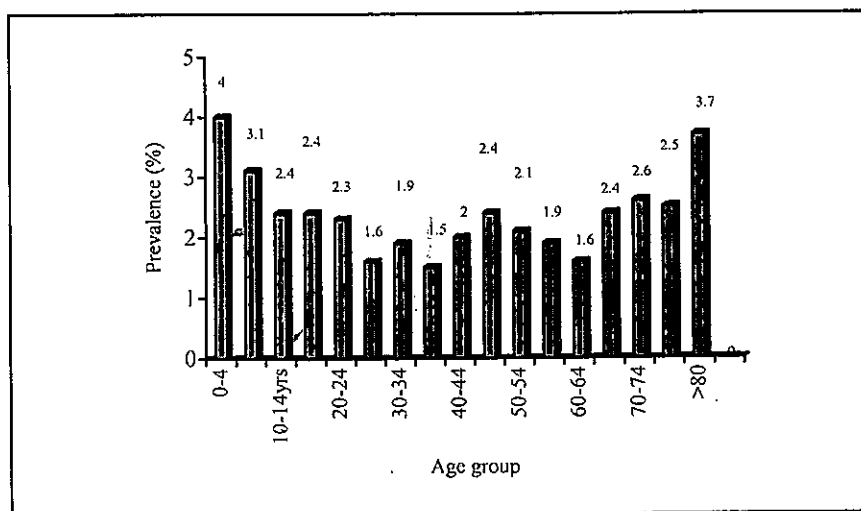


Figure 1: Prevalence of home injury in Malaysia by age group

Table 1: Prevalence rate of home injury in Malaysia by several socio demographic factors

		Total respondents	Estimate population	Prevalence (%)	95% CI		
					Upper	Lower	
States	Johor	4,825	2,023,513	4.3	3.2	5.4	
	Kedah	2,924	1,217,154	1.8	1.2	2.4	
	Kelantan	3,457	1,167,531	1.9	1.3	2.6	
	Melaka	2,481	562,585	4.5	3.3	5.8	
	N Sembilan	2,376	677,212	8.6	6.6	10.7	
	Pahang	2,778	935,712	2.0	1.4	2.7	
	Perak	2,944	916,752	1.5	0.9	2.1	
	Perlis	4,420	1,564,596	1.3	0.9	1.7	
	P.Pinang	2,199	170,080	2.9	1.9	3.8	
	Sabah	6,858	3,177,142	1.8	1.4	2.2	
	Sarawak	9,061	1,352,142	1.3	1.0	1.7	
	Selangor	9,457	1,527,235	3.3	2.8	3.8	
	Terengganu	2,697	730,919	2.0	1.3	2.7	
	WP KL	2,833	993,533	1.0	0.6	1.4	
	Pen.Malaysia	40,792	14,136,729	2.5	2.3	2.8	
	Malaysia	59,310	17,016,106	2.5	2.3	2.7	
	Strata	Urban	31,848	9,070,419	2.3	2.0	2.6
		Rural	27,462	7,945,687	2.7	2.4	3.0
	Ethnic	Malay	28,075	8,991,178	2.8	2.5	3.2
Chinese		13,740	4,022,148	1.7	1.4	2.0	
Indians		3,782	1,448,004	2.5	1.9	3.2	
Sex	Male	28,366	8,177,587	2.3	2.0	2.5	
	Female	30,065	8,592,011	2.7	2.4	3.0	
Household Income Group	<RM400	11,589	2,994,495	2.1	1.7	2.4	
	RM400-RM699	9,521	2,645,160	2.2	1.8	2.6	
	RM700-RM999	7,601	2,143,488	3.1	2.5	3.6	
	RM1000-RM1999	15,903	4,635,183	2.6	2.2	3.0	
	RM2000-RM2999	6,937	2,079,716	2.4	1.9	2.9	
	RM3000-RM3999	3,267	1,024,440	2.3	1.7	2.9	
	RM4000-RM4999	1,772	572,907	3.4	2.1	4.8	
	>RM5000	2,720	920,718	2.6	1.8	3.4	
Marital status	Single	8,979	2,618,533	2.0	1.7	2.4	
	Married	23,253	6,676,604	1.9	1.7	2.2	
	Widow	2,220	642,471	2.7	1.9	3.4	
	Divorced	217	57,186	5.1	1.8	8.4	
	Cohabit	100	24,272	3.9	0.1	7.7	
Educational level	Nil	6,989	1,905,574	2.3	1.9	2.7	
	Primary	16,474	4,774,937	2.3	2.0	2.6	
	Secondary	18,856	5,535,685	2.1	1.8	2.3	
	Tertiary	2,974	932,466	1.9	1.3	2.4	
Occupation	Professional	2,519	729,845	1.9	1.3	2.5	
	Administration	588	183,148	1.3	0.3	2.2	
	Clerical	1,857	565,432	2.2	1.5	2.9	
	Sales	2,628	753,242	1.5	1.0	2.0	
	Services	2,672	761,934	1.3	0.8	1.8	
	Agricultural	3,598	1,027,354	1.6	1.2	2.1	
	Production	5,228	1,615,616	1.6	1.2	2.0	
	Others	1,300	378,180	1.2	0.6	1.9	
	Working Status	Schooling	14,842	4,362,533	2.6	2.3	2.9
		Not schooling	702	168,611	3.0	1.5	4.5
Government		3,541	950,632	2.1	1.5	2.6	
Private		10,489	3,255,137	1.5	1.3	1.8	
Self-Employed		6,583	1,871,075	1.5	1.2	1.8	
Housewife		7,735	2,129,318	2.9	2.4	3.4	
Not working		3,656	1,009,101	2.3	1.8	2.8	
Govt.Pensioner		502	142,744	3.0	1.3	4.8	
Private Pensioner		182	56,940	2.1	-0.8	4.9	

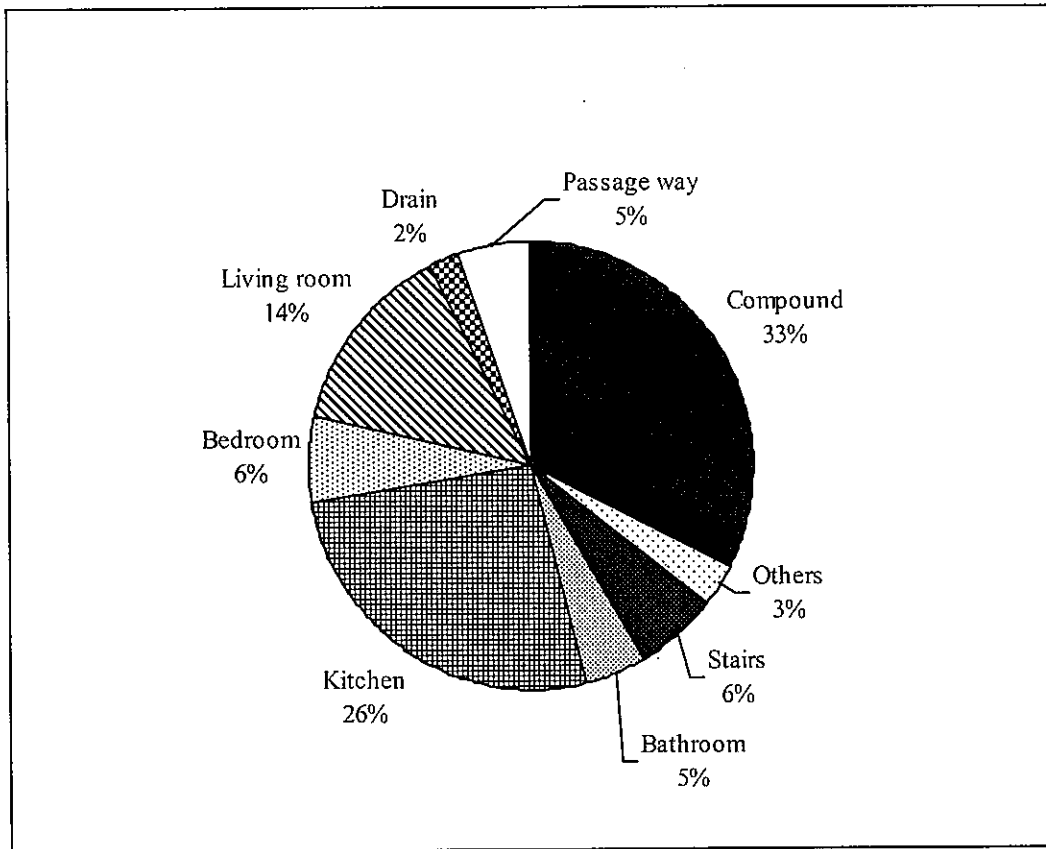


Figure 2: Distribution of place of injury at home

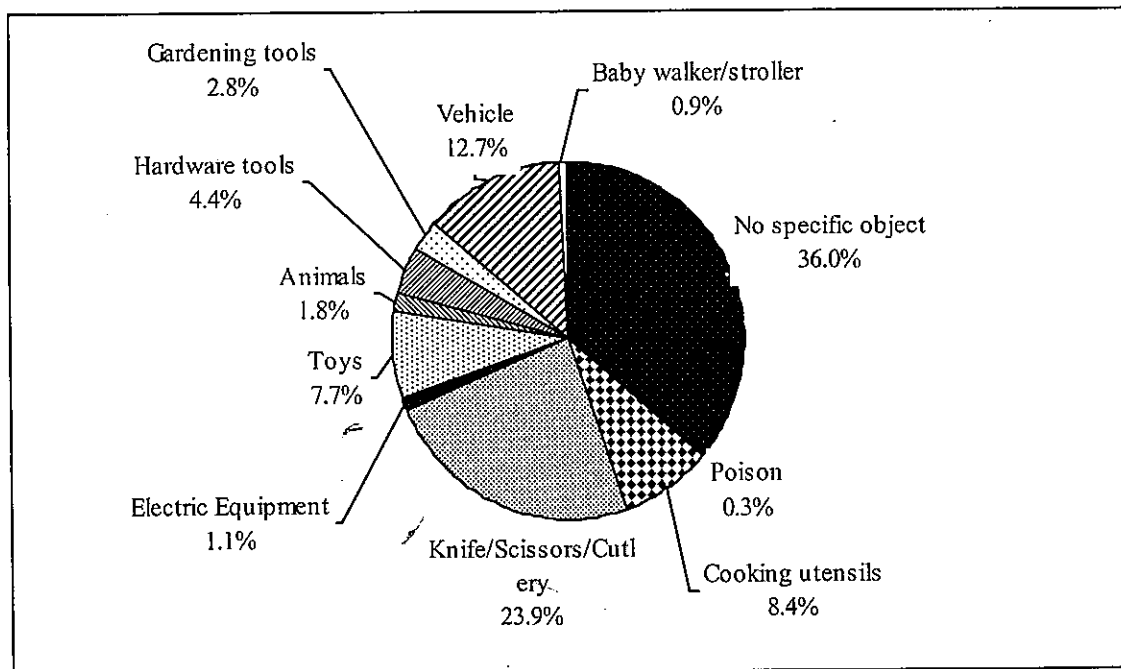


Figure 3: Distribution of objects involved in the injury

DISCUSSION

There are two approaches to the study on the available data on home injury. One is to look at the pattern of prevalence. From this we can calculate the chances of injury in different age and sex groups, assess the extent of casualty, first-aid, ambulance or other medical service probably needed in the delivery of health care. However, it is largely used to arouse national interest and arranging medical needs. The other way is to study the injury "longitudinally" to see its impacts, socially and economically.

Any attempt to measure the extent of any problem, rest upon the definition and criteria used in measurement. This study found that the prevalence of home injury in the Malaysian population is substantially high. We found that for the one-year period, the prevalence of self-reported home injury for all age group was 2.5%. It was difficult to compare this against other available statistics. Most studies for home injury were done in clinic or hospital base (giving incidence rates) and Backett (1965)¹³ in her review of the literature, suggested the occurrence of the "ice-berg" phenomena, where it was estimated that only half of all home injury cases received medical attention. Thus, in order to be of true value, comparisons between countries or regions must use comparable criteria. In summary, she estimated that about 5%-10% of the population is affected by home injury each year. For each fatal home accidents, there are probably 150 "significant" non-fatal ones. One local study conducted by Zaleha (1994)¹⁷ at the community level in Malaysia covering only children 6 years and below found a prevalence rate of 24.7%.

This study did not find any significant differences in the prevalence rates with respect to place of residence either urban/rural, ethnicity, marital status, religion, citizenship, income group, education level or type of occupation. Zaleha's (1994)¹⁷ study found that the Indians reported a significantly higher rate compared to Malays and Chinese. In terms of ethnicity, it was suggested that the racial disparities seen in the rates have more to do with living in impoverished conditions rather than with the ethnicity factor on its own¹⁸.

Backett (1965) in her review found that most able papers reported some associations between home accidents and economic variables¹³. The higher risk tend to be those in the lower socio income group. However, she asserted that the social classifications used are not refined enough to distinguished accurately between the true host factors and the much more dangerous housing /environmental factors associated with poverty¹³.

Excess mortality from all accidents among single people (whether divorced, widowed, separated or unmarried) is striking and was attributed to some fundamental difference in risk-

taking behaviour between these groups and the 'lighter' responsibility, in the same review¹³.

In terms of gender, there was a slight difference in the reported prevalence. Females reported a higher rate. Other studies found that females are higher in the elderly age-group while male are excess in the younger age group. Women in the category of over 75 are nearly twice as at risk to men^{1,13}. This study also found that persons who are expected to habitually 'stay' longer in the house tend to report higher prevalence (females, housewives, pensioners and school-going age but not schooling). In terms of age groups, the finding of this study is consistent with others^{1,13}. The study found that the "principally at risk" from home injuries are those in the extremes of life i.e the very young and the very old.

In the investigation on places where the injury occurred there seems to be incongruity in the literature. We found the commonest location where the incident occurred cited by respondents were the compound (32.4%), kitchen (26.2%) and living room (13.9%). Other study however found that the stairs contribute to 25 percent of all accidents at home¹³. Another study found in descending order of frequency, the areas where most injury occur are, kitchen (most dangerous site, approximately 18%), living room, bedroom, yard and bathroom (Joliet, 1961)¹⁹. Zaleha (1994) identified the living room (59.6%) to be the most frequent site, followed by the kitchen (12.8%) and compound (10.6%)¹⁷. With regards to objects involved, it was found that in about a third of the injury, no specific objects were identified. Among the main object groups mentioned were knives, scissors and cutlery (23.9%), cooking utensils (8.4%) and gardening tools (2.8%).

There were some limitations identified in this study. Firstly it was a study of nonfatal injuries i.e morbidity study and therefore did not cover the more severe and serious spectrum of home injuries which were fatal. Secondly, data was gathered from self-reporting and not verified by any records. As such there could be elements of over or under reporting happening. Thirdly, because this was a period prevalence (one-year recall) some amount of recall bias had to be taken into consideration.

CONCLUSION

Due to the limitations of the study as mentioned earlier on, some degree of caution should be exercised in terms of translating the above findings into programme or policy planning. Home accidents, like any other disease, presents a problem that have an implication on organizations of health, social and other services. There is very little information about home injury in Malaysia. An attempt is made here to study the magnitude of the problem in the country.

In spite of the limitations of the study, and the worry that this may not give the true total or national figure of home injury, it was found that the prevalence in Malaysia was substantially high and merits the formulations of some special policy or programmes. Difficulties were encountered in comparing data with others due to the wide variation in the definition and methodology used by the studies. Subsequent to the high prevalence rate, the burden on our health service resources is inevitable. Yet we also know that many home injury incidences are predictable and potentially preventable. Therefore the challenge now is on home injury control or prevention strategies tailored to our Malaysian context.

In tackling home injury as a health problem, there are two ways to look at it. One is from the level point of view, action can be taken as (1) centrally, in terms of laws and social policy and the organisation of health services or (2) locally, at the level of the family, in terms of education for good risk-taking, or home safety design. The other way of looking at it is through action point of view which can either be (1) active or manual including activities like safety counselling by the health staff, mass media campaigns and the like and (2) passive or automatic include things like regulation and enforcement. Anyhow well designed safety programme should contain both types of intervention.

Future studies in the area of home injury can be focussed on the agents and specific aspects of the environment. For example, while the age and sex of the victim are known, the external 'cause' (agent) gives more meaning. The findings in this study would have been more useful if the combination of the three variables were analysed together. The pattern (mechanism of injury eg. fall, wounds, burns, poisoning) was not covered in this study. It was noted that this information could reflect the culture and ways of living of the people. Exact site/location of the house where is most 'dangerous' is another interesting area to focus on for future in-depth study.

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