

Knowledge, attitude and practices of childhood injuries and their prevention by primary caregivers in Singapore

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ABSTRACT

Introduction: Childhood injuries are the leading cause of death for children between 5 to 14 years of age in Singapore. There have been no studies done on primary caregivers' knowledge, attitude and practices on childhood injuries and its prevention in Singapore. Thus there is a need to conduct this type of study in order to develop appropriate educational programmes.

Methods: A cross-sectional nationwide study with a two-stage stratified random sampling was conducted to obtain a representative sample of the Singapore population. Families that had children younger than 15 years of age were selected for the study. Parents and caregivers were interviewed at their homes.

Results: The primary caregivers had good knowledge of road safety but poor knowledge on home safety and first aid. The higher the education of the mother, the more likely it is that she would possess the correct knowledge and practice on childhood injuries and its prevention. The media plays an important role on information on child safety of the caregivers. Only 38 percent said they obtained information from doctors and other health personnel.

Conclusion: There is a need to educate parents and caregivers on home safety and first aid. Doctors and nurses should take a more active role in giving advice on child safety.

Keywords: caregiver attitude, caregiver knowledge, childhood injuries, child safety, home safety

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INTRODUCTION

Childhood injuries are the leading cause of death for children in the preschool and school-going age in Singapore^(1,2). Although the epidemiology of childhood injuries has been well studied in many developed countries, there are still only a few studies

done on parental knowledge and attitudes concerning childhood injury. Parents' attitudes to prevention of childhood injuries were conducted at Dunedin between April 1972 and March 1973. The children were subjects of a longitudinal study of child development. The results showed that the majority of parents whose children had injuries as a result of an accident had not taken any preventive action to decrease the likelihood of recurrence of a similar accident. Most mothers in the study viewed accidents as being outside their control and therefore could not be prevented⁽³⁾.

Another study on parental knowledge of injury prevention was done by Halperin et al⁽⁴⁾ in nine Massachusetts towns. The study showed that all communities of urban, suburban and rural needed a wide range of educational counselling on how to prevent injuries. A study by Eichelberger et al⁽⁵⁾ on parental attitudes and knowledge of child safety found that parents worried more about their children being kidnapped and succumbing to drug abuse than about potential childhood injuries. Although they were well informed about potential injuries to automobile occupants, parents knew little about the dangers of pedestrian or bicycle injuries, burns and drowning. The findings of their study showed that many parents held the mistaken belief that being careful was sufficient to protect their children from injuries. In Singapore, no studies have been conducted on parental and caregivers' knowledge, attitude and practices on childhood injuries and their prevention. Thus, there is a need for this type of study in order to develop educational programmes.

METHODS

The knowledge, attitude and practices of primary caregivers' study was part of the cross-sectional nationwide study of childhood injuries in Singapore. A sample of 4,500 addresses by two-stage stratified random sampling was done to obtain a representative sample of the Singapore population. The study unit was a household that had a child or children under 15 years of age. The study population included all

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children younger than 15 years of age in each interviewed household. The parents and primary caregivers were interviewed in their own homes.

The questionnaire consisted of three parts, of which the third part (Part C) on knowledge, attitudes and practices of primary caregivers on childhood injuries and its prevention, is discussed in this paper. The first two parts (Parts A and B) were discussed in another paper⁽⁶⁾. Primary caregivers were persons who looked after the children most of the time during the waking hours of the day. They could be parents, grandparents, relatives, baby-sitters and maids. The interviewers were trained and closely supervised by the author (principal investigator MMT).

RESULTS

Out of the 4,500 addresses selected by the Department of Statistics, there were 1,293 eligible families who have children under 15 years of age and who responded to the study. From each household, the response from only one family was taken: 2,322 children were recruited in the study, of which 1,178 were boys (50.7%) and 1,129 (48.6%) were girls. The study population, housing type and family income of the households interviewed are shown in Table I. The personal and socio-demographic attributes of the mother in the study are shown in Table II.

Mothers were the main caregivers (68.5%) of the children, followed by grandmothers (13.4%) and maids (9.9%). The rest were fathers, grandfathers, baby sitters and relatives. 498 caregivers (38.5%) said the home was the most common place where childhood injuries occurred. More than one-half of the respondents surveyed (51%) thought that the kitchen was the most common area in the home where injuries occurred. When asked what the two most common types of injuries that caused death among children under 15 years were, they mentioned falls from heights and pedestrian injuries. 408 caregivers (31.6%) thought that more children were injured by fire than scalding. When asked "at what age would you allow your child to stay alone at home", 171 (18.8%) said they would leave their children between ages five to nine years alone at home. 520 (40%) would let their children younger than five years old eat peanuts, and 7.5% said they did not know at what age they can give peanuts to their children.

Over 90% of the caregivers were aware of the campaign against drunk driving, legislation of using seat belts for front and back seat passengers and the child restraint law. 912 (70.5%) said holding a young child on an adult's lap will not prevent the

Table I. The study population, housing type and family income.

Attributes	No	%
Children under 15 years	2322	100.0
Sex		
Boys	1178	50.7
Girls	1129	48.6
Families	1293	100.0
Nuclear families	880	68.0
Extended families	368	28.0
Households with maids	183	14.0
Married	1253	97.0
Single, divorced, separated or widowed	40	3.0
Housing type		
HDB	1168	90.3
Private	122	9.4
Level		
Level 2 and below	357	27.6
Above level 2	931	72.0
Total family income		
Less than \$1000	91	7.0
\$1000-1999	421	32.6
\$2000-2999	298	23.0
\$3000-3999	148	11.4
\$4000-4999	254	19.6

NB: Numbers which do add up to 100% are due to missing data.

Table II. Distribution of mothers according to personal and socio-demographic attributes.

Attributes	No	%
Ethnic group of mother		
Chinese	919	71.1
Malay	229	17.7
Indian	103	8.0
Others	37	2.9
Mother's education		
No formal education	70	5.4
Primary education	313	24.2
Secondary education	671	57.9
Tertiary education	223	17.3
Mother's occupation		
Working	567	44
Housewives	712	55
Working mother's occupation		
Professionals	97	17.5
Managers & administrators	66	11.9
Clerical	136	24.5
Sales, service & production operators	101	18.4

Table III. Sources of information on child safety obtained by primary caregivers.

Sources	No	%
1. Common sense	1,079	83.4
2. From caregivers' parents and relatives	862	66.7
3. Listening or watching programmes on child safety	837	64.7
4. From friends	772	59.7
5. Reading books on child safety	634	49.0
6. Doctors & other health personnel	498	38.5
7. From attending a first aid course	377	29.2
8. Attending parenting courses and talks	232	17.9

child from injury in a serious motor accident whereas 25.8% said it will prevent injury. When asked how they will deal with a child who is choking, 714 (55.2%) knew the first aid management of a choking child whereas 45% did not know how to do it. Only 308 (23.8%) knew how to deal with a child who has burns or scalds. The rest did not know the management but 15.5% from this group said they will seek medical help. When asked to name which sources they would get information on child safety from, the advise of parents and relatives of the caregivers topped the list [862 (66.7%)] followed by a close second which was listening or watching programmes on child safety [837 (64.7%)]. Only 498 (38.5%) of the respondents said they obtained information from doctors and other health personnel (Table III).

The results of the proportional hazards regression analysis adopted for cross-sectional data were presented in Tables IV and V in the form of rate ratios and 95% confidence intervals. Educational attainment clearly is a predictor of the mother's correct knowledge and practice on childhood injury prevention. Thus, among mothers of similar background, a mother with secondary education was one and half times more likely (rate ratio 1.5) to possess the correct knowledge than a mother with primary education or no education. A mother with tertiary education was 1.7 times (rate ratio 1.7) more likely to possess the correct knowledge than a mother with primary or no education. A mother with secondary education was 1.9 times more likely to possess the correct practice about injury prevention and first aid management and a mother with tertiary education was 3 times more likely to possess the correct practice compared to a mother with primary education or no education (Tables IV and V).

Table IV. Rate-ratio of high correct knowledge score about injury prevention* in relation to various predictor variables.

Predictor	Rate-ratio	95% CI
Education		
No education [#]	1	–
Primary education	1.1	0.8 - 1.5
Secondary education	1.5	1.1 - 2.1
Tertiary education	1.7	1.2 - 2.5
Ethnicity		
Chinese [#]	1	–
Malays	1.0	0.7 - 1.2
Indians	0.8	0.5 - 1.2
Others	0.8	0.5 - 1.1
Primary caregivers		
Mothers [#]	1	–
Fathers and grandparents	0.7	0.5 - 1.0
Maids	0.7	0.5 - 1.1
Baby-sitters	1.2	0.7 - 1.8
Age of caregivers		
≤25 years [#]	1	–
26 - 35 years	1.2	0.8 - 1.9
36 - 50 years	1.2	0.8 - 1.9
51 - 83 years	0.8	0.5 - 1.3

* Knowledge, the dependent variable, was dichotomised to those who had high correct knowledge scores (score 10 to 13) and those with low correct scores (scores 9 and below).

[#] Reference group for rate-ratio comparisons.

Table V. Rate-ratio of high correct practice score about injury prevention and first aid* in relation to various predictor-variables.

Predictor	Rate-ratio	95% CI
Education		
No education [#]	1	–
Primary education	1.0	0.7 - 1.5
Secondary education	1.9	1.3 - 2.7
Tertiary education	3.1	2.1 - 4.6
Ethnicity		
Chinese [#]	1	–
Malay	1.2	0.9 - 1.6
Indian	1.4	0.5 - 2.0
Others	1.5	1.0 - 2.0
Primary caregivers		
Mothers [#]	1	–
Fathers and grandparents	0.8	0.6 - 1.1
Maids	1.3	0.9 - 1.8
Baby-sitters	1.0	0.6 - 1.8
Age of caregivers		
≤25 years [#]	1	–
26 - 35 years	0.9	0.6 - 1.4
36 - 50 years	1.0	0.6 - 1.5
51 - 83 years	0.6	0.4 - 1.1

* Practice, the dependent variable, was dichotomised to those who had high correct knowledge scores (score 5 to 7) and those with low correct scores (scores 4 and below).

[#] Reference group for rate-ratio comparisons.

DISCUSSION

In general, the majority of the primary caregivers knew that childhood injuries were preventable. They have good knowledge of road safety but had limited knowledge of home injuries and first aid management of choking, scalds and burns. 520 (40%) primary caregivers would give peanuts to children younger than five years old. 243 (18.8%) of the caregivers will leave a child aged five to eight years old alone at home. Only one-half of the caregivers knew how to deal with a child who was choking. Only 23.8% knew how to deal with a child who had burns and scalds. These data indicate that knowledge on home injuries, their prevention and first aid management in the community is lacking and needs to be addressed.

Of the parents and primary caregivers surveyed, 31% believed that most burn and scald injuries were due to fire. They did not know that scalds were more common and mostly from hot liquids or hot water. Of the total caregivers, 80% had not attended a first aid course. When asked whether attending a first aid course would be useful, 85.5% said "yes". Of those who answered "yes", only 53% said that they would attend one. 257 (20%) thought that the likelihood of their children being kidnapped by strangers was greater than that of their children's death in a serious car accident. Eichelberger et al, in a study of 404 parents, showed that one-third of the parents surveyed also thought that the likelihood of their child being kidnapped by strangers was greater than that of their child's death in an accident⁽⁵⁾.

When asked to name the two most frequent causes of deaths due to injuries among children younger than 14 years, primary caregivers mentioned that falls from height (37.7%), pedestrian injuries (22%), and burns and scalds (20%). They were indeed aware that these were the top most common causes of deaths in children in Singapore, as 85% of the population live in high-rise flats; and being an urban and industrialised country, road traffic accidents are also very common and fatal. A study in Washington, USA, showed that parents named motor vehicle crash (occupants) and drug overdose as the two leading types of accidents that caused death among children under 15 years⁽⁷⁾. Falls from heights were not mentioned in that study and in Singapore, drug poisoning is not a leading cause of deaths in children in Singapore.

The majority of caregivers [1,216 (94%)] had heard of the campaign against drunk driving, 1,255 (97%) knew about the legislation of using seat belts for front seat passengers and 91.9% for back seat passengers. 1,200 caregivers (92.8%) were aware of the child restraint seat law. The Singapore Law states that all children under eight years old must be in a

child restraint seat while travelling in a car. More than 70% of the caregivers knew that holding a young child on an adult's lap would not prevent the child from injury when a serious road accident occurs. The primary caregivers were well informed about road safety. In Singapore, the Traffic Police Road Safety Section conducts campaigns and effective health education to the public through the media, and also regularly teaches all primary school students on road safety⁽⁸⁾.

Educational attainment clearly is a predictor of the mother's correct knowledge and practice on childhood injury prevention. From the study, it was seen that the higher the mother's education, the more likely it is that she would possess the correct knowledge and practice on childhood injury prevention. A mother with secondary education was one and half times more likely (rate ratio 1.5) to possess the correct knowledge than a mother of primary education or no education. Similarly, a mother with secondary education was 1.9 times and a mother with tertiary education was three times more likely to possess correct practice of injury prevention and first aid management.

When caregivers were asked where they obtained information on child safety, common sense was the top answer, followed by caregivers' parents and relatives and listening or watching programmes on child safety. It is therefore appropriate that educational programmes through the media would be the most effective means of increasing awareness. Only 38% said they obtained information from doctors and other health personnel. Doctors and nurses should also be involved in providing injury prevention advice as part of the education of parents and caregivers when they bring their children for immunisation or when they go for well baby examinations at the doctors' clinics.

In conclusion, the caregivers of children in the nationwide study in Singapore had good knowledge of road safety for children but had poor knowledge on home safety and first aid. The higher the mother's educational level, the more likely it is that she possesses the correct knowledge and practice on childhood injury prevention. It was found that there is a need for educational programmes on home safety and first aid. Out of the 1,293 caregivers of children, only 498 (38.5%) said they obtained information on child safety from doctors and other health personnel. The majority received the information from their parents, relatives and from the media. Doctors and nurses should be involved in providing injury prevention advice as part of the education of parents when they bring their children for immunisation or when they come for well baby examinations.

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