COMPARISON OF KNOWLEDGE, ATTITUDES AND BEHAVIOUR OF HEALTH PROFESSIONALS AND PARENTS REGARDING CHILD INJURIES

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SUMMARY

Objective: We wanted to primarily examine the knowledge, attitudes and behaviour of parents and health workers (community nurses and paediatricians) regarding child injuries in order to understand the essence of the problem and to find out the most common misconceptions.

Methods: Respondents were tested through an anonymous, self-administered questionnaire and all p values below 0.05 were considered significant.

Results: Of all respondents, paediatricians answered accurately most of the questions considering knowledge than the other groups. More than 90% of respondents, in all groups, identified correct answers to 10 questions about attitudes towards child injury prevention and safety promotion.

Conclusion: This study, which shows the current level of knowledge, attitudes and behaviour patterns of parents and health professionals in Croatia, could help in the preparation of appropriate prevention programmes.

Key words: child injury prevention, knowledge, behaviour, attitude, health professionals, parents

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INTRODUCTION

Unintentional injuries are the leading cause of death and hospitalization in children worldwide (1, 2), and are becoming not just a national but also a public health problem. According to the World Health Organization (WHO), injuries and violence are major "killers" of children, responsible each year for about 950,000 deaths of children and young people under the age of 18. Unintentional injuries account for almost 90% of these cases. Tens of millions of children are hospitalized because of non-fatal injuries, and many of them suffer from lifelong disabilities (3). Most injuries occur at home under parental supervision (4). Some studies have shown that many parents believe that unintentional injuries are a normal part of childhood and they do not see themselves as being capable of preventing those types of injuries (5).

Parents who thought that they have little control over injuries had children with more non-minor injuries, and protective parents who worried more about their child's safety had children with a history of fewer non-minor injuries (6). Many parents agreed that most of the injuries could be avoided (7) and some parents believed that childhood injuries are of developmental function, because according to them, injuries serve the purpose of "teaching children a lesson" to avoid those type of situations which provoked the injuries in the future (5). Very small numbers of studies have explored the knowledge of health professionals and their role in injury prevention (8). Transferring knowledge to and counselling parents by health professionals was considered in some studies (9–13). Most health professionals have a positive attitude towards counselling parents, but a lack of time and materials are mentioned as a main reason for little preventive practice (9, 10, 13). Some health workers pointed out that they do not believe they could effectively prevent and reduce child unintentional injuries (11, 12). Some of them mentioned several reasons for not talking to parents during routine consultation, such as reasons for consultations that do not permit such an approach: "the fact that injuries are not priorities for them"; "the unsuitability of the place where the contact occurs for such discussion, given the time required"; "insufficient information on the subject"; and "the patient's lack of interest" (10). Others expressed some barriers to counselling such as "inadequate time during clinic visits"; "inadequate time to follow up with the parent if a risk is identified"; "didn't think to ask"; and "there are more important things to do" (13). Given that WHO states that each country should investigate the problem of child injuries in their country and prepare appropriate preventive programmes (14), we therefore wanted to primarily examine the knowledge, attitudes and behaviour patterns of parents and health workers in order to understand the essence of the problem and to find out the most common misconceptions. Only by having those results can we properly develop child injury prevention programmes.

As child safety deserves high priority, the goal of the present study was to compare the knowledge, attitudes and behaviour of medical professionals, namely primary paediatricians and community nurses, and parents regarding child injury prevention and safety promotion.

MATERIALS AND METHODS

The participants included 236 paediatricians (100% of those practicing at the primary level of healthcare) and 409 community nurses (51% of those from the whole territory of Croatia) as the representatives of the health care professionals. Addresses for licensed physicians were obtained from the Registry of Health Workers (15). Between May and July 2007, an anonymous, self-administered questionnaire was mailed to the offices of a stratified, random sample of licensed practitioners selected to represent the territory of the Republic of Croatia. The mail included a cover letter that described the study and a pre-addressed, pre-stamped return envelope. Return of the questionnaire was considered consent to participate. The response rates for paediatricians and community nurses were 37% and 46%, respectively, what is also considered the main limitation of this study.

The survey was subdivided into three sets of questions that addressed safety knowledge, attitudes, and behaviour.

First-time mothers filled out the questionnaire during their stay in the maternity ward at the Clinical Hospital Centre Zagreb in Zagreb. The questionnaires for fathers were given to the mothers to take home and fathers returned the completed questionnaires (in a pre-addressed, pre-stamped return envelope) by post. The sample included 285 mothers and 66 fathers with response rates of 77% and 23%, respectively

The collected data are shown in the Tables. Differences in answers regarding knowledge, attitudes and behaviour between parents, community nurses and paediatricians were assessed with the chi square test and were shown in frequencies and percentages. All p values below 0.05 were considered significant. Statistical package IBM SPSS Statistics, version 19.0.0.1 (www.spss.com) has been used in all statistical procedures.

RESULTS

In this study, 99 paediatricians, 188 community nurses and 299 parents completed the questionnaire.

Knowledge Regarding Child Injury Prevention and Safety Promotion

Table 1 shows paticipants' knowledge regarding child injury prevention and safety promotion. More than 80% of health professionals gave the correct answer regarding injuries as the leading cause of child mortality after the 1st year of life in Croatia, while only 65% of parents identified injuries as the leading cause. More than 90% of all participants answered correctly the question about not leaving newborns on elevated surfaces – the question with the highest number of correct responses.

The question with the lowest number of correct responses was about the safest infant sleeping position, to which just 17% of paediatricians, 13% of parents and 1% of community nurses responded correctly.

Table 1. *Health professionals' and parents' knowledge regarding causation, prevention and safety promotion of childhood injuries*

Questions	Correct answers	Community nurse N = 188 n correct (%)	Paediatrician N = 99 n correct (%)	Parent N = 299 n correct (%)	p value
Leading cause of child mortality after 1st year of life in Croatia	Injuries	153 (81.4)	87 (87.9)	196 (65.6)	< 0.001
The leading causes of fatal accidents among children aged 1–4 years in Croatia	Traffic accidents	116 (61.7)	70 (70.7)	171 (57.2)	< 0.001
The most common cause of poisoning among children in Croatia	Household chemicals	153 (81.4)	75 (75.8)	192 (64.2)	< 0.001
The safest infant sleep position	On the back	2 (1.1)	17 (17.2)	41 (13.7)	0.002
Baby walker with wheels	Is dangerous because of possibility of falls	165 (87.8)	92 (92.9)	90 (30.1)	< 0.001
While shopping in the shopping centre the parent of a child under age of 5	Should hold him/her by his/her hand all the time	171 (91.0)	93 (93.9)	256 (85.6)	0.013
Proper storage of household chemicals in households with children under age of 5	Chemicals should be stored in child-proof bottles in locked cupboard	163 (86.7)	91 (91.9)	214 (71.6)	< 0.001
Mother is changing a newborn baby's diaper on an elevated surface. In the case of telephone ringing she should	Cover the baby with the blanket, take the baby into her arms and go to the phone	183 (97.3)	97 (98.0)	281 (94.0)	0.296
Child can poison himself/herself with	Dietary supplements that contain iron	1 (0.5)	8 (8.1)	1 (0.3)	< 0.001
	Medications in childproof bottles	1 (0.5)	0 (0.0)	5 (1.7)	
	Silica gel (globules in shoe boxes or medications that absorb moisture)	14 (7.4)	8 (8.1)	103 (34.4)	
	All mentioned things (a + b + c)	157 (83.5)	71 (71.7)	169 (56.5)	

Chi square test was used, and p values below 0.05 were considered significant.

Of all respondents, paediatricians answered accurately most of the questions compared to other groups, exept on questions regarding poisoning among children in Croatia, which received the most correct answers from community nurses.

Attitudes towards Child Injury Prevention and Safety Promotion

Attitudes among participants were examined in 21 questions. More than 90% of respondents, in all groups, identified correct answers to 10 questions. These question are shown in Table 2 and refer to child safety indoors (bathtub safety) and outdoors (traffic safety, playground safety), parent and child education, and factors such as alcohol and firearms. Participants had less safety-prone attitudes on other questions as shown in Table 2. The biggest difference in attitude between health professionals and parents was shown by the question regarding issues of confidentiality about child abuse, which stated that health care workers should keep a professional secret if a child confessed to him/her that he/she has been abused (which is not the recommended attitude); 73.9% of community nurses and 82.8% of paediatricians disagreed with this question, but just 7.7% of parents disagreed. The proper attitude that it is not recommended to provoke vomiting after ingesting a potentially poisonous substance was answered correctly by 63.6% of paediatricians, 35.6% of community nurses and 18.7% of parents.

Behaviour towards Child Injury Prevention and Safety Promotion

Nine questions were used to find out whether health professionals and parents behave adequately when it comes to safety of children (Table 3).

Some participants showed improper behaviour considering the installation of a CO detector in households and less than 20% of parents demonstrated adequate behaviour about storing chemicals outside of the original packaging. Appropriate behaviour in the lowering of boiler water temperature was noticed more among parents (48.2%) than among health professionals (community nurses 35.5%; paediatricians 25.3%). Among health professionals, the main differences in proper acting involved the questions about recommending protective covers for electric sockets and baby gates on stairways, locking the gates and warning parents of the danger of falls from heights, on which community nurses provided the highest level of proper behaviour responses.

DISCUSSION

The role of health professionals, especially those at the primary healthcare level, in childhood injury prevention could be very important. We will discuss mainly primary level prevention as well as other levels of prevention. In “real life” situations it seems that the potential for intervention is not always used in the best way. Health professionals’ knowledge of childhood injuries is limited in some areas and we confirmed that in our research where we found incorrect answers given by health professionals to some specific questions. For some questions, for example putting protective covers on electric sockets, the lowering of a boiler water temperature, and the installation of a carbon monoxide detector in households at higher risk (gas boilers and stoves, braziers, connection to city gas line), the parents gave a higher percentage of correct answers than the health professionals. In some other questions, parents gave the correct answer more often than community nurses, e.g. regarding the safest infant sleep position on the back, and to another question about locking the front gate or yard gate, parents answered more correctly than paediatricians. That is a sign that the parents got the information from other sources, most likely from the media or non-governmental organizations. To some questions high proportion of health professionals gave the correct answers but the same questions were correctly answered by very low percentage of parents. This shows that the transfer of knowledge to the parents is not always successful.

In the study of Gielen et al., more than three quarters of parents knew that injuries are the leading cause of death for children, showing a level of knowledge similar to our participating parents. In the same study, almost all parents (96%) reported having a working smoke detector, but according to the answers of our parents’ sample only 22.7% would install a carbon monoxide detector in households at higher risk (gas boilers and stoves, braziers, connection to city gas line). 48.2% parents from our study reported that they would lower the boiler water temperature, and in the Gielen et. al study only 3% of each study group reported knowing the temperature of their hot water. Among our participants, health professionals showed sufficent knowledge regarding the danger of baby walkers with wheels, which was known to 88% of community nurses and 93% of paediatricians. However, parents from our study showed a low level of knowledge, as only 30% knew about the possible dangers of baby walkers, which was similar to the results of the Gielen study in which more than 65% of parents were planning to use a baby walker (16). Parents who protected the stairs by using baby gates were mentioned in some studies, e.g. Evans and Kohli (17) and Gielen et al. (16) noted that 48% and 80% of parents, respectively, used that sort of protection. 70.6% of parents from our study use gates as protection for stairs.

In the Cohen and Runyan study almost all paediatric health professionals (94%) knew that injury was the leading cause of death for children aged 1 to 4 (13), showing similar results to our study in which 81.4% of comunnity nurses and 87.9% of paediatricians gave the proper answer. Cohen and Runyan also found that knowledge of injury and poisoning epidemiology, tap water temperature and use of baby walkers was limited, with the average correctly answered at only 62% (8, 13). Our health professionals showed better knowledge regarding these questions with the lowest level of correct answers at 76%, except the question about lowering boiler water temeperature. 68% of paediatric health professionals from the Cohen and Runyan study considered it important to ask parents about safety hazards at home (13).

Most of the studies dealt with knowledge of health professionals and recommended to further improve it, especially through training programmes and noted that health professionlas would like to be involved in injury prevention progammes but mentioned a lack of time as a major issue (8).

Even though deaths by poisioninig are rare, a large number of children suffer non-fatal injuries as a result of poisoning (18). Since this was considered to be an important matter, through several questions (e.g., “What is the most common cause of poisoning among children in Croatia?”; “What is the proper

Table 2. *Health professionals and parents correct attitudes (%) towards child injury prevention and safety promotion*

Questions	Correct attitude	Community nurse N = 188 n correct (%)	Paediatrician N = 99 n correct (%)	Parent N = 299 n correct (%)	p value
Baby that can sit down can be left alone unsupervised for a few minutes in the bathtub containing 10 centimeters of water and plastic toys to play with	Disagree	182 (96.8)	99 (100.0)	294 (98.3)	0.975
Pre-school child can sit in the front seat of a car if mother or some other adult person holds him/her in her/his lap	Disagree	181 (96.3)	99 (100.0)	293 (98.0)	0.591
When he/she learns the meaning of a paedestrian crossing and traffic light signals, a 5 year old child can cross a street alone	Disagree	180 (95.7)	97 (98.0)	275 (92.0)	0.002
On the children's playground nothing dangerous can happen to a child	Disagree	183 (97.3)	98 (99.0)	290 (97.0)	0.113
Small child can stand between the front seats of a car while the car is being driven if he/she holds himself/herself with hands	Disagree	182 (96.8)	99 (100.0)	292 (97.7)	0.587
It is enough to educate only one parent about child safety	Disagree	182 (96.8)	95 (96.0)	281 (94.0)	0.051
If a pre-school child misbehaves during a guest's visit he/she should be locked in another room until the guests have gone away	Disagree	184 (97.9)	95 (96.0)	284 (95.0)	0.467
Some children can be educated only with spanking	Disagree	181 (96.3)	95 (96.0)	275 (92.0)	0.047
Small amounts of alcohol will not harm a pre-school child	Disagree	186 (98.9)	96 (97.0)	286 (95.7)	0.148
Firearms in the home do not represent a threat to a pre-school child because he or she does not know how to use it and he or she cannot handle it	Disagree	185 (98.4)	96 (97.0)	285 (95.3)	0.178
It is good idea for a mother to lie down on a sofa and have a short nap with her baby after breastfeeding during the day	Disagree	153 (81.4)	87 (87.9)	170 (56,9)	< 0.001
One should teach pre-school children to not touch medications, and after that they will not touch them	Disagree	152 (80.9)	81 (81.8)	158 (52.8)	< 0.001
If the child swallows some potentially poisonous substance it is important to instantly provoke vomiting	Disagree	67 (35.6)	63 (63.6)	56 (18.7)	< 0.001
Parent must always be rigorous and authoritative	Disagree	132 (70.2)	67 (67.7)	153 (51.2)	< 0.001
Missing regular vaccinations is a form of child neglect	Agree	169 (89.9)	93 (93.9)	261 (87.3)	0.133
The older children in the family should watch after the younger ones	Disagree	158 (84.0)	76 (76.8)	159 (53.2)	< 0.001
Parent is allowed to slap a child if he/she has no other choice	Disagree	151 (80.3)	73 (73.7)	229 (76.6)	0.252
Governess/teacher (in kindergarten, school) is allowed to spank a child in order to discipline him or her	Disagree	180 (95.7)	89 (89.9)	262 (87.6)	0.061
If an infant does not stop crying, shaking it will help	Disagree	181 (96.3)	95 (96.0)	255 (85.3)	< 0.001
One should not stop children's fighting in a kindergarten because it is the way to prepare them for life	Disagree	176 (93.6)	89 (89.9)	266 (89.0)	0.191
Health care workers should keep a professional secret if a child confesses to him or her that he or she has been abused	Disagree	139 (73.9)	82 (82.8)	23 (7.7)	< 0.001

Chi square test was used, and all p values below 0.05 were considered significant.

way to store household chemicals in households with children under age of 5?"; "What if the child swallows some potentially poisonous substance: is it important to instantly try to provoke vomiting?"; and question about keeping chemicals outside of their original packages with proper labels etc.), we wanted to highlight the importance of the proper handling of toxic chemicals within reach of children. The most incorrect responses by all respondents concerned the question related to the provocation of vomiting, which was answered correctly by just 19% of parents, 36% of community nurses and 64% of paediatricians.

Table 3. *Health professionals and parents answers to questions regarding behaviour towards child injury prevention and safety promotion*

Questions		Community nurse N = 188 n (%)	Paediatrician N = 99 n (%)	Parent N = 299 n (%)	p value
I am aware of the danger of falls from heights	Yes	152 (80.9)	67 (67.7)	216 (72.2)	0.070
	No	35 (18.6)	28 (28.3)	79 (26.4)	
	Missing	1 (0.5)	4 (4.0)	4 (1.3)	
I think it is beneficial to put protective covers on electric sockets	Yes	162 (86.2)	58 (58.6)	280 (93.6)	< 0.001
	No	25 (13.3)	39 (39.4)	14 (4.7)	
	Missing	1 (0.5)	2 (2.0)	5 (1.7)	
I think it is beneficial to use baby gates on a stairway	Yes	172 (91.5)	61 (61.6)	211 (70.6)	< 0.001
	No	16 (8.5)	36 (36.4)	55 (18.4)	
	Missing	0 (0.0)	2 (2.0)	33 (11.0)	
To lower the temperature of the hot water heater	Yes	63 (33.5)	25 (25.3)	144 (48.2)	< 0.001
	No	124 (66.0)	72 (72.7)	138 (46.2)	
	Missing	1 (0.5)	2 (2.0)	17 (5.7)	
I am aware of the danger of small objects	Yes	167 (88.8)	79 (79.8)	201 (67.2)	< 0.001
	No	21 (11.2)	18 (18.2)	94 (31.4)	
	Missing	0 (0.0)	2 (2.0)	4 (1.3)	
I think it is beneficial to lock the front gate or yard gate	Yes	151 (80.3)	55 (55.6)	236 (78.9)	< 0.001
	No	37 (19.7)	42 (42.4)	57 (19.1)	
	Missing	0 (0.0)	2 (2.0)	6 (2.0)	
I have identified where the household chemicals and medications have been stored	Yes	85 (45.2)	33 (33.3)	217 (72.6)	< 0.001
	No	101 (53.7)	60 (60.6)	74 (24.7)	
	Missing	2 (1.1)	6 (6.1)	8 (2.7)	
I think it is beneficial to install a carbon monoxide detector in households at higher risk (gas boilers and stoves, braziers, connection to city gas line)	Yes	28 (14.9)	21 (21.2)	68 (22.7)	0.168
	No	157 (83.5)	74 (74.7)	221 (73.9)	
	Missing	3 (1.6)	4 (4.0)	10 (3.3)	
I am aware of the danger of keeping chemicals outside of their original packages and without proper labels (for example, to not keep chemicals for cleaning in a juice bottle or in the original packages without proper labels)	Yes	135 (71.8)	67 (67.7)	50 (16.7)	< 0.001
	No	53 (28.2)	29 (29.3)	240 (80.3)	
	Missing	0 (0.0)	3 (3.0)	9 (3.0)	

Chi square test was used, and all p values below 0.05 were considered significant.

Keeping household cleaners, medicines and vitamins out of reach of children, was pointed out as the best preventive measure by parents in the study of Vincenten et al. (7). But, it is also very important to point out that only 6% of parents in that study mentioned that the most important preventive measure was the installation of smoke detectors (7). We believe that there is a place for improvement in knowledge among all our participants about prevention with carbon monoxide detectors, especially among health professionals because only 15% of community nurses and 21% of paediatricians would recommend the installation of a carbon monoxide detector. The education of healthcare providers should definitely be improved in this area so they could translate knowledge about this issue into everyday practice.

CONCLUSION

WHO states that each country should investigate the problem of childhood injuries in order to prepare appropriate prevention programmes (14). This study, which shows the current level of knowledge, attitudes and behaviour of parents and health professionals in Croatia by uncovering common areas of misconception and a lack of awareness regarding childhood injury prevention, could help in the effort towards achieving this goal.

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Conflict of Interests

None declared

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