

THE KNOWLEDGE, ATTITUDE AND BEHAVIOR OF MOTHERS WITH CHILDREN AGED 0-6 YEARS ON HOME ACCIDENTS AND PREVENTIVE MEASURES

0-6 YAŞ GRUBU ÇOCUĞU OLAN ANNELERİN EV KAZALARI VE KORUNMA YOLLARI KONUSUNDAKİ BİLGİ, TUTUM VE DAVRANIŞLARI

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ABSTRACT

Objective: Accidents have become an increasingly important cause of child deaths in both developed and developing countries. In this study, we aimed to evaluate the knowledge and attitudes of mothers of children in the the 0-6 age group on ways of protecting them accidents at home.

Material and Methods: A prospective, single-center, descriptive-analytical study was conducted between February 2016 and March 2016. The study included 217 people at Şişli Hamidiye Etfal Training and Research Hospital Family Medicine Polyclinic.

Results: The average age of mothers in our study was 33.32±5.64 years. Mothers with higher levels of education and with high incomes were found to have more knowledge about home accidents ($p<0.001$, $p<0.001$). As the number of children and people living in the house increased, the mother's knowledge of home accidents and security precautions decreased. Mothers aged ≥ 35 years with a high educational level who had one child scored more points on the Scale of Recognizing Security Measures ($p=0.005$, $p=0.009$, $p=0.017$).

Conclusion: Social awareness and business cooperation should be raised in the prevention of home accidents. Parents' knowledge of precautions against accidents - especially mothers who spend most of their time with children - and the education they give their children is key for protection against accidents.

Keywords: Home accidents in children, security precautions, primary care

ÖZET

Amaç: Çocuk ölümleri arasında kazalar giderek önemli bir sorun olmaya başlamıştır. Bu çalışmada, 0-6 yaş grubu çocuğu olan annelerin çocukların ev kazalarını bilme ve bu kazalardan korunma yolları konusunda bilgi ve tutumlarının değerlendirilmesini amaçladık.

Gereç ve Yöntem: Prospektif, tek merkezli, tanımlayıcı-analitik olarak yapılan çalışmamıza Şubat-Mart 2016 tarihleri arasında Şişli Hamidiye Etfal Eğitim ve Araştırma Hastanesi Aile Hekimliği Polikliniği'ne başvuran 217 kişi dahil edildi. Tarafımızdan hazırlanan anket formu birebir görüşülerek dolduruldu. SPSS 19,0 programında analizler yapıldı.

Bulgular: Çalışmamıza katılan annelerin yaş ortalaması 33,32±5,64 idi. Eğitim seviyesi yüksek olan ve gelir düzeyi yüksek olan annelerin ev kazaları bilme durumları daha fazlaydı ($p<0,001$, $p<0,001$). Ev içerisinde yaşayan kişi ve çocuk sayısı artıkça annelerin ev kazalarını bilme ve güvenlik önlemi alma durumları azalmaktaydı. Güvenlik önlemleri tanılama ölçeğinden 35 yaş altı, eğitim seviyesi yüksek ve tek çocuğu olan anneler daha fazla puan almıştı ($p=0,005$, $p=0,009$, $p=0,017$).

Sonuç: Ev kazaları kaynaklı ölüm ve sakatlıkların artması nedeniyle bu konuda toplumsal bilinçlenme ve işbirliği şarttır. Ebeveynlerin, özellikle de annelerin, kazalardan korunma konusunda bilgilendirilmesi ve çocuklarına verecekleri eğitim, kazalardan korunma konusunda desteklenmesi büyük önem arz etmektedir.

Anahtar Kelimeler: Çocuklarda ev kazaları, güvenlik önlemleri, birinci basamak

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INTRODUCTION

Accidents are currently the leading preventable health issue across all age groups, particularly in childhood in developed and developing countries, and they are ranked number 1 in causes of death and disabilities (1). Data from the Centers for Disease Control and Prevention (CDC) showed that more than 9000 children die of accidents each year, 225,000 children are hospitalized, and 9 million children are treated in emergency rooms due to injuries (2).

Children are more exposed to accidents than adults because they have different physical, anatomic, and physiologic characteristics, and it is associated with their age, and level of development. Accident frequency varies with age (3)

Researchers reported that 90% of accidents in children under the age of 5 years in the United States of America (USA), and 50% of deaths resulting from these injuries occurred in the home environment (4). Researchers found that 2.6 million people visited emergency rooms in England each year, and approximately 4000 of the patients died (5). Although there is no clear updated available data for home accidents in Turkey, some studies showed that these accidents constituted 18-25% of all accidents (6). The rate of home accidents in children aged 0-6 years (38.4%) was ranked first among other family members (7).

Children aged 0-6 years have a higher risk of home accidents because they spend most of their time at home, have not completed their neurologic development, are not aware of situations and behaviors that may cause accident risk; they are curious about learning, and exploring everything. They require adult supervision to provide a safe environment, and to protect against accidents just as in the fulfillment of their other responsibilities. This adult is generally the mother of the child (6).

In the present study, we aimed to evaluate mothers' knowledge of precautionary measures, and the level of practice in the prevention of home accidents, and to evaluate the effect of other factors in home accidents in children.

METHODS

The present study was a prospective, single-centered study, designed as a descriptive and analytical survey. Ethics committee approval (no. 1180) was obtained local ethic committee.

217 women attending our family medicine polyclinic for whatever reason who had children between the ages of 0-6 years, and who had sufficient cooperation and orientation, agreed to and thus were included in the study.

A questionnaire designed specifically for the study was completed during face-to-face interviews.

The questionnaire comprised 20 questions regarding sociodemographic data, indoor precautionary measures taken for the prevention of accidents, children's previous home accidents, and the Diagnostic Scale for Safety Measures against Home accidents of Mothers of Children aged between 0-6 years was also used.

The mothers' level of education was classified in two groups as low (elementary education or below), and high (high school education and above). The mothers' knowledge of home accidents was probed using open-ended questions, and they were then grouped. The types of home accidents were classified as penetrating stab wounds, falls on slippery surfaces, falls from heights, poisoning, burns due to fire/iron/hot materials/water, electric shock, drowning in water, choking due to foreign body. Mothers were free to specify more than one option in questions that interrogated household safety measures, and safety measures in houses with stairs.

Çınar et al. developed the "Diagnostic Scale for Safety Measures against Home accidents of mothers of children aged between 0-6 years" (8) for the assessment of safety measures taken by mothers for the prevention against the most frequently observed home accidents: falls, burns, poisoning, and drowning. The scale consisted of 40 items including 34 positive, and 6 negative expressions. In the five point Likert-type scale, scores were graded from 1 to 5, and the scores varied according to the responses. The response of 'always' was graded 5, 'most of the time' 4, 'sometimes' 3, 'rarely' 2, and 'never' 1, in items indicating positive expressions; the grading was reversed in negative expressions in items 6, 9, 23, 26, 30, and 40. The minimum score was 40, and the maximum score was 200. The highest score indicated that the mother took the highest level of care to protect their children against home accidents.

The data was analyzed using the Statistical Package for Social Sciences for Windows (SPSS) 19.0. The Chi-square, t-test, and the one-way ANOVA test were used in the comparison of qualitative data in the evaluation of the study data in addition to descriptive statistical methods such as mean, standard deviation, frequency, and percentage. P values ≤ 0.05 were regarded as statistically significant.

RESULTS

217 mothers were interviewed in the scope of the study; however, 17 questionnaires were excluded due to missing data, and inappropriately aged children. The mean age of the mothers was 33.32 ± 5.64 years (min: 22, max: 50 years). Regarding education, 72.5% of mothers had

high school education and above, 107 (53.5%) were working, and 93 (46.5%) were housewives. The distribution of the sociodemographic characteristics of the mothers is summarized in Table 1.

Seventy-eight percent (n=156) of children had their own rooms in their homes. 125 (62.5%) mothers primarily took care of their children by themselves, and the grandmother or a first-degree relative took care of 24.5% (n=49) of children, and babysitters took care of 13% (n=26).

Table 1: Distribution of sociodemographic characteristics

	n	%
Age		
20-24	9	4.5
25-29	48	24
30-34	58	29
35-39	55	27.5
40-44	24	12
≥45	6	3
Education		
Illiterate	7	3.5
Primary school	31	15.5
Elementary school	17	8.5
High school	40	20
University/Higher education	105	52.5
Profession		
White-collar	84	42
Blue-collar	23	11.5
Not working	93	46.5
Monthly income (TL)		
0-1500	32	16
1501-3000	35	17.5
≥3001	133	66.5
Family type		
Nuclear family	164	82
Extended family	31	15.5
Fragmented family	5	2.5
The number of people in the family		
≤3	90	45
≥4	110	55
The number of children in the house		
1	101	50.5
2	66	33
≥3	33	16.5

Eleven percent of mothers (n=22) had a chronic disease that required continuous follow-up. No chronic disease was detected in children of 81% (n=162) of mothers; at least one child of 19% (n=38) of mothers had a chronic disease that required continuous follow-up. Eight (4%) mothers cared for disabled individuals who required continuous care at home.

Some 87.5% (n=175) of mothers reported knowledge of home accidents. The most familiar accidents were falls and bumps, with burns ranking second. The distribution of home accidents that mothers reported awareness of is presented in Diagram 1.

A high percentage (88.5%, n=177) of mothers used commercially-available indoor safety measures for the protection of children against home accidents. However, 11.5% (n=23) used no safety measures. The distribution of safety measures is shown in Diagram 2.

There were stairs in the homes of 38% of mothers (n=76). Slip preventive carpet or carpet flex was installed in 23.7% (n=18) of homes with stairs, hand rails in 55.3% (n=42), and stair safety gates in 31.6% (n=24).

At least one child of 58% (n=116) of mothers had experienced at least one home accident. Falls were the top ranking home accident, burns were second. The distribution of home accident types experienced by children is presented in Table 2.

The 200 mothers had a total of 349 children. 162 (46.4%) children experienced home accidents; 152 experiencing one, 8 children had two, and 1 child had three home accidents. 100 children (61.23%) were male and experienced home accidents; 48.76% of children (n=79) did not attend any health facility following their home ac-

Table 2: Distribution of the types of accidents.

Accident type	n
Falling on slippery surface	85
Falling from height	58
Burn	36
Penetrating stab wounds	26
Poisoning	12
Electric shock	6
Foreign body aspiration	5
Risk of drowning in water	2
Other*	2

*Objects falling on children, and contact with chemical substances were grouped as 'other.'

**One child could have experienced more than one accident, parents may choose more than one option

cidents. Of the children who experienced home accidents, 45.7% (n=74) were aged between 2 and 4 years. 105 (52.5%) of first children of the family experienced some kind of accident, the rate was 45.9% (n=45) in the second child, 29% (n=9) in the third child, and 33.3% (n=3) in the fourth child.

No statistically significant association was detected between mother's age, number of people living in the fam-

ily, children's caregiver, and mothers' level of knowledge of home accidents. The knowledge of working mothers with higher education, and the knowledge of families with a monthly average income above 1500 TL, and families having fewer than 3 children were higher than the other groups ($p<0.001$). It was observed that mothers in nuclear families, and fragmented families were more aware of home accidents ($p=0.040$). The association be-

Table 3: Distribution of mothers in accordance with the awareness of home accidents.

Awareness of mothers about home accidents	Aware of		Unaware of		p
	n	%	n	%	
Mother's age					
< 35	98	85.2	17	14.8	0.287
≥ 35	77	90.6	8	9.4	
Mother's occupational status					
Working	102	95.3	5	4.7	<0.001
Not working	73	78.5	20	21.5	
Level of education					
Low	38	69.1	17	30.9	<0.001
High	137	94.5	8	5.5	
Income (TL)					
0-1500	20	62.5	12	37.5	<0.001
1501-3000	30	85.7	5	14.3	
≥3001	125	94	8	6	
Family type					
Nuclear family	147	89.6	17	10.4	0.040
Extended family	23	74.2	8	25.8	
Fragmented family	5	100	0	0	
Grandmother	46	93.9	3	6.1	
Babysitter (caregiver)	23	88.5	3	11.5	
Number of people living in the family					
≤ 3	83	92.2	7	7.8	0.086
≥ 4	92	83.6	18	16.4	
Number of children living in the family					
1	93	92.1	8	7.9	<0.001
2	60	90.9	6	9.1	
≥3	33	66.7	11	33.3	
Child's room					
Yes	149	95.5	7	4.5	<0.001
No	26	59.1	18	40.9	
Child care					
Mother	106	84.8	19	15.2	0.262
Grandmother	46	93.9	3	6.1	
Babysitter (caregiver)	23	88.5	3	11.5	

tween mothers' level of knowledge home accidents, and experiencing home accidents of at least one child with sociodemographic characteristics is shown in Tables 3 and 4.

The assessment of factors associated with the status of mothers' use of safety measures is presented in Table 5. Accordingly, the level of use of safety measures of working mothers with higher education who had fewer than 3

Table 4: Distribution of children in accordance with the occurrence of home accidents.

Home accident in children	Yes		No		p
	n	%	n	%	
Mother's age (years)					
< 35	59	51.3	56	48.7	0.030
≥ 35	57	67.1	28	32.9	
Mother's occupational status					
Working	65	60.7	42	39.3	0.473
Not working	51	54.8	42	45.2	
Level of education					
Low	30	54.5	25	45.5	0.631
High	86	59.3	59	40.7	
Income (TL)					
0-1500	19	59.4	13	40.6	0.941
1501-3000	21	60	14	40	
≥3001	76	57.1	57	42.9	
Mother's chronic disease					
Yes	19	86.4	3	13.6	0.003
No	97	54.5	81	45.5	
Family type					
Nuclear family	99	60.4	65	39.6	0.098
Extended family	13	41.9	18	58.1	
Fragmented family	4	80	1	20	
Number of people living in the family					
≤ 3	48	53.3	42	46.7	0.251
≥ 4	68	61.8	42	38.2	
Number of children living in the family					
1	49	48.5	52	51.5	0.004
2	49	74.2	17	25.8	
≥3	18	54.5	15	45.5	
Child's room					
Yes	94	60.3	62	39.7	0.232
No	22	50	22	50	
Child care					
Mother	72	57.6	53	42.4	0.818
Grandmother	30	61.2	19	38.8	
Babysitter (caregiver)	14	53.8	12	46.2	
Awareness of home accidents					
Aware of	106	60.6	69	39.4	0.081
Unaware of	10	40	15	60	

children was higher than the other groups ($p < 0.05$). The mean score of mothers in diagnostic scales for safety measures against home accidents was 178.85 ± 18.42 (min: 52, max: 200). The mean score of mothers aged below 35

years with a higher level of education, who knew about home accidents, and used safety measures was higher. The mean scores of mothers who live with 3 or fewer family members were higher than the other groups. The highest

Table 5: Distribution of mothers according to the use of safety precautions

Using safety precaution	Using		Not using		p
	n	%	n	%	
Mother's age (years)					
< 35	105	91.3	10	8.7	0.180
≥ 35	72	84.7	13	15.3	
Mother's occupational status					
Working	103	96.3	4	3.7	<0.001
Not working	74	79.6	19	20.4	
Level of education					
Low	43	78.2	12	21.8	0.011
High	134	92.4	11	7.6	
Income (TL)					
0-1500	26	81.2	6	18.8	0.355
1501-3000	32	91.4	3	8.6	
≥3001	119	89.5	14	10.5	
Family type					
Nuclear family	146	89	18	11	0.510
Extended family	26	83.9	5	16.1	
Fragmented family	5	100	0	0	
Number of people living in the family					
≤ 3	84	93.3	6	6.7	0.074
≥ 4	93	84.5	17	15.5	
Number of children living in the family					
1	95	94.1	6	5.9	0.030
2	56	84.8	10	15.2	
≥3	26	78.8	7	21.2	
Child's room					
Yes	141	90.4	15	9.6	0.177
No	36	81.8	8	18.2	
Child care					
Mother	105	84	20	16	0.028
Grandmother	48	98	1	2	
Babysitter (caregiver)	24	92.3	2	7.7	
Awareness of home accidents					
Aware of	159	90.9	16	9.1	0.013
Unaware of	18	72	7	28	
Home accident of child					
Yes	101	87.1	15	12.9	0.508
No	76	90.5	8	9.5	

score (91.5%) was obtained from items of scale informing that 'I assume that worn-out electric cables are hazardous for children', and 'I tightly close the cap on medicine bottles so that my child cannot open it;' the lowest score (17.5%) was recorded in the response to 'I allow my child to wander around the kitchen while I am cooking'.

DISCUSSION

In the literature no difference was detected between the mother's age and the scale score in the study of Çapık and Gürol, and between the mean age of mothers whose children did and did not experience home accidents in the study of Karatepe and Akış (9,10). Although some studies (Tsoumakas et al.) reported that younger mothers were careful about home accidents, and their children's frequency of experiencing home accidents was lower, some studies suggested no association, or claimed the opposite (Yalaki et al.) (11,12). In our study no association was detected between the mother's age and being aware of home accidents or use of safety precautions against home accidents. The mean age of mothers whose children experienced home accidents was statistically significantly higher. The scale score for the identification of precautionary measures against home accidents was considerably higher in mothers aged under 35 years. The distinction in the present study suggests that socioeconomic and cultural values might be a factor. More comprehensive studies evaluating all socioeconomic characteristics are required.

Education level is a determinant of true knowledge and true practices in the prevention of child accidents. The frequency of home accidents significantly increased as the education level of mothers decreased (13). Çapık and Gürol found that mothers with higher education had more knowledge and attitudes towards home accidents, and of their prevention (9). Similarly, in the present study, we found that mothers with high school education or above were more aware of home accidents, used safety precautions more frequently inside the house, and their scale score of knowledge of precautionary measures against home accidents was higher. King et al. reported that the scale score of their group positively increased after they were given home visit education on the prevention of home accidents in children (14). Similarly, Altundağ and Öztürk found that the level of knowledge of mothers significantly increased after face-to-face education (15). Mothers with higher levels of education who are educated about home accidents and prevention methods have significant importance in the prevention of home accidents.

However, no association was detected between family type and the use of safety measures of mothers and children's experiencing home accidents. In contrast to our study, other studies reported a higher risk of accidents in

extended families (12,16). When considering studies that demonstrated that the caregiver became distracted, it could be suggested that the risk of stress and possibility of accidents increases as the number of children, and number of people living in the family increased (16,17), mothers' awareness of accidents and the rate of taking precautionary measures decreases as the number of children and number of people living in the family increases, and accordingly, the rate of possible home accidents increases in children. Factors such as children paying less attention and being less careful due to having siblings, parents not spending equal time with each child, and children playing with their siblings might cause the higher prevalence of home accidents in children who have siblings.

The socioeconomic status of family is a determinant factor in injuries of children in home accidents. Studies showed that children in families with lower socioeconomic level more frequently experienced home accidents (12,18). However, no difference was detected in the present study between economic condition and experiencing accidents, or between the use of precautionary measures and obtained scores. One could suggest that families with poor socioeconomic conditions may be more exposed to dangers due to having poorer housing and living conditions.

In the present study, 53.6% of mothers were working. However, the awareness of home accidents, and the rate of using precautionary measures were higher in working mothers compared with non-workers; no association was detected between home accidents and the working status of mothers. Similar studies conducted in Turkey reported no statistically significant association between mothers working status and children experiencing home accidents (19). Santo et al. found that children of working mothers experienced home accidents less frequently compared with non-working mothers (20). Boztaş reported that the injury rate of children due to home accidents of working mothers was higher compared with that of children of non-working mothers (21). The results suggest that accidents might be associated with reasons other than working status; working mothers leave their children under other people's supervision, and the attention and ability of caregivers might be a more significant factor.

The presence of chronic disease did not affect the scores obtained from the scale in our study; however, more home accidents were detected in children of mothers with chronic disease. Researchers found that home accidents were less frequent in children of healthier mothers (19). Boztaş found that children of mothers who described their own health as poor experienced 2.4 times more home accidents than those whose mothers described themselves as healthy (21). It may be suggested that due to unhealthy mothers spending excessive time with their

own disease and treatment process and additional burdens of chronic disease, they could not spend enough time with their children, which caused the increased risk of home accidents in children.

In our study, 62.5% of mothers primarily took care of their children by themselves. We detected that the rate of precautionary measures use was lower in mothers who took care of their children by themselves. Similar to the study of Karatepe, we found no association between the caregiver and the status of experiencing home accidents (19). Researchers in another study reported that the risk of being injured due to home accidents in children whose caregivers were not their mothers was 2.1 times higher than in children whose mothers took care of them (21).

A study conducted with children in Brazil reported that 65.7% of accidents occurred at home, 25.4% in the street, and 6.1% occurred at school. In addition, boys were more exposed to accidents than girls, and falling/slipping were the most common accidents (22). Many studies conducted in Turkey and in other countries demonstrated that the most common accidents were falls in children (10,16,19). Consistent with the literature, in the present study, we found the most common accidents were falls and bumps. Falls being the most common accidents (despite mothers knowing the most common accidents were falls, bumps, and burns), suggests that mothers were not well informed about precautionary measures. Investigation of risk factors for falls and bumps, and taking precautionary measures against these accidents may significantly decrease the effects of home accidents in children. Although the frequency of burns, electric shock, drowning in water, and poisoning is lower compared with falls, more focus must be given to preventive measures because they may result in death.

The World Health Organization (WHO) reported that the number of injuries due to accidents in boys aged below 15 years was higher than in girls of the same age group (2). Karatepe and Nakiş found a higher frequency of accidents in boys (10), and Özmen et al. found that 61.2% of children who had home accidents were boys (23). Researchers reported that 60% of children attending hospital due to home accidents were boys (24). Consistent with other studies, we found the rate of home accidents higher among boys. The reason could be that boys are more energetic than girls.

Children's age is a significant factor in home accidents. The frequency of home accidents was found higher in children under the age of 5 years in some studies (25-27). In contrast, we found that 45.7% children who experienced home accidents were aged between 2-4 years. Researchers in a study found more home accidents in children aged between 24-35 months compared with other age groups (16). Karatepe found that the possibility of home accidents increased in children aged 0-4

years as they became older; however, the possibility of home accidents decreased in children aged 5-6 years (19). The reason could be that children of younger ages spend more time at home, they are more interested with their environment, are curious and willing to learn, and their hand skills are under developed.

In our study, we detected that 51.4% of children were taken to health facilities after home accidents. The rate was 60.4% in the study of Yalaki et al.; the rate was between 25% and 47.5% in other studies (10,12,16).

The mean scale scores of mothers in our study was 178.85 ± 18.42 . In literacy the scores were between 76.92 ± 12.45 162.13 ± 22.39 in Turkey (23,28). Mothers with higher scores in our study compared with other studies demonstrated that mothers included in the present study took precautionary measures at high levels. This could be because the socioeconomic and cultural levels of mothers in the present study were higher than those in other studies.

Mothers scored the highest from the expressions 'I assume that worn-out electric cables are hazardous for children', and 'I tightly close the cap on medicine bottles so that my child cannot open it', however the lowest score was recorded for the expression 'I allow my kid to wander around the kitchen while I am cooking.' Özmen et al. found that mothers scored the highest for the expression 'I do not keep poisonous substances (e.g., rat poison, detergent, paint, bleach, gas, gasoline) in reach of children,' and received the lowest score from the expression 'I attach the baby nipple or 'evil eye' amulet on his/her cloth with a safety pin' (23). We assume that the variety in responses to questions might be due to the home environment and sociocultural differences of families.

CONCLUSION

Mothers did not effectively use safety measures. Organising education for parents and caregivers and the development of projects to create knowledge and awareness of safety measures will protect children against home accidents.

Home accidents are prominent and preventable public health care issues. Home accidents may be prevented using simple preventive measures both in the house and in the neighborhood. We must inform families about home accidents, and the prevention of accidents in the framework of 'Preventive Medicine' is one of the most significant divisions of the discipline of primary care physicians.

Ethics Committee Approval: Ethics committee approval was received for this study from the local ethics committee (No. 1180).

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Yazar Katkıları: Çalışma Konsepti/Tasarım- M.Ü., M.Ü.; Veri Toplama- M.Ü., M.Ü.; Veri Analizi/Yorumlama- M.Ü.; Yazı Taslağı- M.Ü.; İçeriğin Eleştirel İncelemesi- M.Ü., M.Ü., D.T.; Son Onay ve Sorumluluk- M.Ü., M.Ü., D.T.; Malzeme ve Teknik Destek- M.Ü., D.T.; Süpervizyon- D.T.

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