



## Prevalence of Home Accidents among 0-6-Year Old Children Mothers' Levels of Displaying Precaution-Taking Behaviors

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### ABSTRACT

*In this study was aimed at determining the prevalence of home accidents among 0-6-year-old children living in rural area in the city center of Balikesir within the past two weeks, their mothers' levels of displaying precaution-taking behaviors towards home accidents and associated factors. The study conducted between March-May 2015 has the cross-sectional design. A total of 238 0-6-year old children were selected by systematic sampling. The dependent variables of the study were home accidents which occurred in the last two weeks and the mothers' levels of displaying precaution-taking behaviors towards home accidents. The prevalence of home accidents among 0-6-year old children within the past two weeks was 22.3%. According to the logistic regression model, the prevalence of home accidents within the last two weeks was 2.68 times higher among the children whose mothers perceived their income as bad, 2.93 times higher among the 0-3-year-old children, 2.53 times higher among the children with a chronic disease, 3.18 times higher among the children whose mothers did not have training on home accidents. The mean score obtained from the Scale for the Identification of the Safety Measures Taken by Mothers was 67.73 ± 8.53. The mothers who perceived their income as good, whose children were 0-3 years old or whose children suffered temporary disability after the home accident obtained statistically significantly higher mean scores from the scale.*

**Key words:** Home Accident, Safety, Prevention, 0-6 year old, Turkey

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### INTRODUCTION

Accidents occurring in and around homes are one of the major public health problems, because they are frequent, can lead to disability or death and can be prevented [1]. The World Health Organization (WHO) has indicated that about 95% of the injuries resulting in death take place in countries with low or moderate income levels and that injuries are responsible for about 40% of the child and adolescent deaths in these countries [2]. It is also reported that falls, burns and poisoning most of which occur in the home account for approximately 25% of all the injuries in the world, and that these injuries were among the first 20 causes of death in the 0-14 age group in 2012 [3]. According to data

released by the Centers for Disease Control and Prevention more than 12% of injury-related deaths in the 0-19 age group in the US result from falls, burns and poisoning occurring at home [4]. Home accidents which occur in all age groups pose a serious health problem especially for children by affecting the physical, psychological and social aspects of life, and they lead to disability and even to death [5, 6]. Children in the 0-6 age group constitute the most important risk group in terms of home accidents, because they spend most of their time at home, they are curious to explore their surroundings, they are more susceptible to environmental risks, their needs and characteristics are not taken into account when the living area is designed and they do not have developmental skills to protect themselves from accidents [5, 7, 8]. Therefore, it can be said that it is the adults' responsibility to determine the risks of accidents in the living area of children in this age

group and to protect them against accidents and that in the Turkish society, mothers who spent more time with the child take a more active role in the fulfillment of this responsibility [5, 6, 9].

This present study was aimed at determining the prevalence of home accidents among 0-6-year-old children living in rural area in the city center of Balikesir within the past two weeks, their mothers' levels of displaying precaution-taking behaviors towards home accidents, and associated factors.

## MATERIAL AND METHODS

The study conducted between March-May 2015 has the cross-sectional design. The population of the study included 693 0-6-year-old children registered in the district Family Health Center. Sample size was calculated with Epi info programme prevalence rate of 25.0%, deviation of 5.0% and the confidence level of 95.0%. A total of 238 0-6-year old children were selected by systematic sampling. Data were collected using the personal information form and the Scale for the Identification of the Safety Measures taken by mothers of 0-6-year-old children through face-to-face interviews. The Scale for the Identification of

the Safety Measures taken by mothers of 0-6-year-old children: The minimum and maximum possible scores to be obtained from the scale were 40 and 200 respectively. The higher the scores obtained from the scale are, the more efficient the measures taken by the mother to protect the child from home accidents are [10]. The study data were analyzed using the SPSS 22.0 statistical software package. To perform the analysis, descriptive statistics, chi-square test, t test, ANOVA and logistic regression analysis were used. Ethical Committee approval was given by Balikesir University Ethical Committee for noninvasive clinical research (study number 2015/4).

## RESULTS

The mothers' mean age was 32.08±4.29. Of the mothers, 46.2% had education at a primary school level or lower, 65.5% had a paid job, 67.2% perceived their income level as good. Of the families, 67.2% had only one child. Of the children, 51.3% were male, 26.9% were 6 years old, 4.2% had a chronic disease. During the mothers' working hours, 73.2% of the children were looked after in day-care centers like a nursery school or kindergarten (Table 1).

**Table 1: Distribution of some of the socio-demographic characteristics of the mothers and children**

Some of the socio-demographic characteristics (n=238)	n (%)	
The mother's age	23-28	56(23.5)
	29-34	102(42.9)
	35-41	80(33.6)
The mother's education level	Primary school or less	110(46.2)
	Junior high school	18(7.6)
	Senior high school	30(12.6)
	University	80(33.6)
The mother's employment status	Employed	156(65.5)
	Unemployed	82(34.5)
Perception of income	Good	160(67.2)
	Moderate	70(29.4)
	Bad	8(3.4)
The number of the children in the family	1	160(67.2)
	≥2	78(32.8)
The child's gender	Female	116(48.7)
	Male	122(51.3)
The child's age	0-3 years	91(38.2)
	4-6 years	147(61.8)
Presence of a chronic disease	Yes	10(4.2)
	No	228(95.8)
The person / institution undertaking the care of the child during the mother's working hours	Nursery school, kindergarten etc.	115(73.7)
	Nany (babysitter)	27(17.3)
	First-degree relative	14(9.0)
The mother's education on home accidents	Yes	29(12.2)
	No	209(87.8)
TOTAL	238(100.0)	

**Table 2: Distribution of variables related to home accidents in the study group**

Variables related to home accidents		n(%)
Has a home accident occurred in the last two weeks?	Yes	53(22.3)
	No	185(78.7)
The type of the home accident	Sharp object injuries	11(20.8)
	Falls	36(67.9)
	Poisoning	2(3.8)
	Burns	4(7.5)
The place where the home accident took place	Balcony	12(22.6)
	Yard	10(18.9)
	Kitchen	9(17.0)
	Others*	22(41.5)
The person(s) accompanying the child when the accident occurred	Sibling	8(15.1)
	Mother / father	37(69.8)
	Nany (babysitter)	8(15.1)
The organ(s) affected by accidents mostly	Head and face	18(34.0)
	Hands and arms	24(45.3)
	Feet and legs	11(20.7)
Admission to a health institution after the accident	Yes	18(34.0)
	No	35(66.0)
The result of the home accident	No injury	9(17.0)
	Full recovery	38(71.7)
	Temporary disability	6(11.3)
TOTAL		53(100.0)

\* Living room, bathroom, stairs, bedroom, children's bedroom.

**Table 3: Prevalence of home accidents in the last two weeks in the study group in terms of some of their socio-demographic characteristics**

Some of the socio-demographic characteristics (n=238)	Whether the children had home accidents in the last two weeks		p
	Yes n(%)	No n(%)	
The mother's age	23-28 years	18(32.1)	0.042
	≥29 years	35(19.2)	
Perception of income	Good	30(18.8)	0.011
	Moderate	18(25.7)	
	Bad	5(62.5)	
The number of the children in the family	1	29(18.1)	0.028
	≥2	24(30.8)	
The child's gender	Male	34(27.9)	0.033
	Female	19(16.4)	
The child's age	0-3 years	10(11.0)	0.001
	4-6 years	43(29.3)	
Presence of a chronic disease in the child <sup>1</sup>	Yes	7(70.0)	0.001
	No	46(20.2)	
The mother's education on home accidents	Yes	2(6.9)	0.034
	No	51(24.4)	

<sup>1</sup>Fisher's exact test

The prevalence of home accidents in the study group in the last two weeks was 22.3%. Of these home accidents, 67.9% were falls. The children mostly fell off the balcony (22.6%). 69.8% of the accidents occurred when the children were together with their parents. The organs affected by accidents mostly were hands and arms (45.3%). According to the mothers' statements, 34.0% of the children were admitted to a health institution and 11.3% of them suffered a temporary disability after the accident (Table 2).

In the study, the prevalence of home accidents in the last two weeks was significantly higher among the male children, 4-6-year old children, children

with a chronic disease and children whose mothers were younger than 29 years of old, were workers, perceived their income as bad, had two or more children ( $p < 0.05$ ) (Table 3).

The prevalence of home accidents in the last two weeks calculated with the logistic regression model developed using the backward elimination method was 2.21 times higher in the children whose mothers were in the 23-28 age group than in the children whose mothers were 29 years old or above (95.00% CI:1.08-4.55), 2.68 times in the children whose mothers perceived their income as bad than in the children whose mothers perceived their income as good (% 95.00 CI:1.06-5.08), 2.93

**Table 4: Multivariate analysis of factors related to home accidents within the last two weeks**

Variable (n=238)		$\beta$	SE	p	OR (%95 CI)
The mother's age	$\geq 29$ years				1.00
	23-28 years	0.794	0.367	0.031	2.21(1.08-4.55)
The mother's employment status	Unemployed				1.00
	Employed	0.598	0.194	0.122	1.13(0.78-1.96)
Perception of income	Good				1.00
	Moderate	0.322	0.401	0.423	1.38(0.62-3.03)
	Bad	0.738	0.959	0.043	2.68(1.06-5.08)
The child's gender	Female				1.00
	Male	0.691	0.364	0.057	1.99(0.97-4.07)
The child's age	0-3 years				1.00
	4-6 years	1.073	0.437	0.014	2.93(1.24-5.88)
Presence of a chronic disease in the child	No				1.00
	Yes	1.020	0.780	0.010	2.53(1.63-3.07)

\*  $\beta$ : Beta, SE: Standart Error, OR: Odds Ratio, CI: Confidence Interval. Hosmer and Lemeshow test: 0.876. Nagelkerke R square: 0.187.

**Table 5: Distribution of mean scores obtained from the scale for the identification of the safety measures taken by mothers in terms of some of their characteristics**

Some of the characteristics	n	Mean $\pm$ Sd	p
Perception of income <sup>2</sup>	Bad	8	65.52 $\pm$ 9.35
	Moderate	70	68.55 $\pm$ 8.00
	Good	160	70.50 $\pm$ 8.61
The child's age <sup>1</sup>	0-3 years	91	65.42 $\pm$ 7.89
	4-6 years	147	69.15 $\pm$ 8.63
The result of the home accident <sup>2</sup>	No injury	9	66.33 $\pm$ 11.11
	Full recovery	38	67.50 $\pm$ 7.88
	Temporary disability	6	72.44 $\pm$ 2.74

<sup>1</sup>Student t test, <sup>2</sup>ANOVA

times higher in the 0-3-year-old children than in the 4-6-year-old children (95.00% CI: 1.24-5.88), 2.53 times higher in the children with a chronic disease than in the children without a chronic disease (95.00% CI:1.63-3.07) (95.00% CI:1.32-4.66) (Table 4).

The mean score obtained from the Scale for the Identification of the Safety Measures Taken by Mothers was 67.73 $\pm$ 8.53. The mean scores obtained from the scale by the mothers who perceived their financial situation as good, whose children were 4-6 years old and whose children suffered temporary disability due to home accidents were statistically significantly higher than were the mean scores obtained by the other mothers in the other categories of given (p<0.05) (Table 5).

## DISCUSSION

In the present study was determined that approximately one out of every five 0-6-year-old children participating in the study had home accidents in the last two weeks. In Turkey, there are a large number of studies investigating the prevalence of home accidents in children of different age groups within different periods such as the last two weeks, the last one month, the last

three months and the last one year. In this study, to minimize the number of the errors likely to result from disremembering or misremembering, the accidents which occurred within the last two weeks were investigated, and it was found that approximately 22% of the 0-6-year-old children had home accidents in the last two weeks. Considering the fact that the home accidents occurred within a very short time, such as two weeks, and that nearly 75% of these accidents could be prevented according to studies conducted on this issue, this high prevalence rate is quite noteworthy [11].

In Pakistan, the prevalence of home accidents including mostly falls, poisoning and burns among children of 1-5 years of age within the last three months was reported to be approximately 18% [12]. That the prevalence of home accidents in the aforementioned Pakistani study was lower than the rate in the present study, although it covered a three-month period, might be due to fact that the study was conducted in an area with a low socioeconomic level and with children in a different age group. In a study conducted with 0-14-year-old children in a rural area in the south of India, nearly 70% of the injuries occurred at home and the prevalence of the injuries in the last one year was reported to be approximately 25% [13].

In a study carried out with 0-6-year-old children in China, the annual incidence rate of non-fatal unintentional injuries including home accidents was reported to be approximately 12% [14].

In Turkey studies 0-6-year-old children were reported to have home accidents in the last two weeks between 18.2%-20% [5, 6, 8, 15-17]. This difference may have resulted from the fact that while this present study included the accidents which occurred in the last two weeks, other studies included the accidents which occurred in different periods and in different age groups. In this present study, the prevalence of home accidents in the last two weeks was higher in the children whose mothers were in the younger age groups, perceived their income bad or had no education on home accidents. It is known that the risk of childhood accidents increases as the maternal age decreases because younger mothers are inexperienced. This finding supports the findings of studies in the literature [18-20]. Another factor affecting the prevalence of home injuries among children is the socio-economic status of the family. It is reported that risk of childhood injuries and injury-related deaths in the World and Europe are higher in countries with low and middle-income, and that socioeconomic inequality has manifested itself in this field for more than about 20 years [2, 11]. Investigation of the relationship between the socio-economic level and the risk of having accidents has revealed that children of families whose socioeconomic level is low are exposed to dangers more due to poor housing conditions. It has also been reported that since the awareness of prevention of accidents is not sufficiently developed in families with a low level of socioeconomic status, the risk of injury is high in those families [19]. A child's chronic disease may hinder his/her physiological development, which in turn may increase his/her vulnerability and risk of home accident-related injury [21, 22]. In the present study, the prevalence of home accidents in the last two weeks was found to be higher in children with a chronic disease, which is consistent with the findings of other studies in the literature [16, 21, 23].

The World Health Organization has reported that injuries and injury-related deaths are associated with gender and that accidental injuries are more common among boys under the age of 15 than among girls in the same age group [2]. Similarly, studies conducted in the United States report that males are more vulnerable to unintentional

injuries, which are responsible for approximately 40% of childhood deaths [22]. In this present study, compatible with the literature, the frequency of home accidents, although not significant, was higher in boys [16, 19, 21, 22, 24].

In the present study aimed at determining the mothers' levels of taking precautions against home accidents, their levels were determined to be low, below the average. In studies in the literature in which the Scale for the Identification of the Safety Measures taken by mothers of 0-6-year-old children was used, total scores obtained from the scale were reported to be higher than the average [8, 9, 16, 21, 24]. In the present study, the mothers' levels of taking precautions against home accidents were determined to be lower than the levels determined in the relevant studies in the literature. In the present study, mothers' education status was determined to affect their levels of displaying precaution-taking behaviors towards home accidents. Although the percentage of the mothers who received education on this issue was low, the vast majority of the children were not seriously injured after the accident, which may have been the cause of the low levels of safety measures taken against home accidents by the mothers. In this present study, it was determined that the mothers who perceived their family's income as good took precautions against home accidents at a higher level. This finding which is consistent with the findings of other studies in the literature investigating mothers' levels of displaying precaution-taking behaviors towards home accidents by using similar or different scales can be explained by the better housing conditions of families with higher incomes [24]. In this present study, it was found that the mothers whose children were 4-6 years old and the mothers whose children suffered temporary disability due to home accidents took precautions against home accidents at a higher level. In addition, although the difference was not significant, the mothers whose children had a home accident in the last two weeks took precautions against home accidents at a higher level. This is probably because the mothers of 4-6-year-old children had more experience about home accidents since their children were exposed to home accidents more often and the children's health was temporarily disrupted due to accidents. Relevant studies in the literature reported that mothers whose children had accidents took precautions against home accidents at a higher level than mothers whose children did not have accidents. This finding is said to be

compatible with those in the literature [9, 16, 21, 24].

### Study limitations

Important limitations of the study are that the study was conducted with a relatively small group of participants in one neighborhood because of financial difficulties, and thus the results can only be generalized to the study population.

### CONCLUSION

In the present study, approximately one out of every five 0-6-year-old children participating in the study had home accidents in the last two weeks and most of the accidents were falls. In the present study, mother's age, family's financial situation, the child's age, presence of a chronic disease in the child and mothers' education on home accidents were determined to be risk factors for home accidents. In the present study mothers' levels of displaying precaution-taking behaviors towards home accidents were low, and these levels were affected by such variables as the financial situation of the family, the child's age and the result of the accident. In this regard, national or regional programs aiming to prevent home accidents which play a significant role in childhood deaths should be organized and steps ensuring that health care professional in primary health care take an active role in these programs should be taken. Considering that not receiving training on home accidents is a modifiable risk factor, health care professional working in primary health care should be encouraged to determine home accident risks during home visits and to provide families with health education to prevent or reduce home accidents.

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