

## Original Article

# Impacts of the Pandemic Lockdown on Childhood Home Injuries and Injury Prevention

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### Abstract

**Purpose:** Little is known about the impact of the pandemic curfew and changes in families' daily routines on childhood home injuries. The aim of this study was to determine the frequency of home injuries in children during pandemic and to evaluate the knowledge and attitudes of mothers about injury prevention. **Methods:** The study was conducted between August 2020 and November 2020. Children aged 9 months to 6 years old and their mothers who appealed for child health follow-up were participated the study. Mothers filled a demographic and injury history questionnaire and a scale about safety precautions by face-to-face interviews. **Results:** The mean age of the 300 children was 39.48 months. 20.3% (n=61) before the pandemic and 28% (n=84) during the pandemic had experienced at least one home injury (p=0.033). There was an increase in the number of falls on slippery surfaces, injuries with sharp objects, poisoning and foreign body aspiration in both genders. Children who did not have injuries at home during the pandemic more often lived in large families. The rate of injuries without supervision increased by two times during the pandemic period. Mothers who got information about home injuries took more measures for home injuries. **Conclusions:** Our study is considered the first study for examining the effects of pandemic lockdown on the state of having a home injury in this period. The findings show the existence of a temporal relationship between the pandemic period and injuries at home and emphasize the importance of parental education on home safety.

### Key words

Children; COVID-19 pandemic; Home injuries; Parents; Precautions

### Introduction

Childhood home injuries are considered to be one important problem in the world because of frequent occurrences and high risk of morbidity and mortality.<sup>1,2</sup> It was determined that majority of child injuries happen in the interval of 0-6 years and in the home environment.<sup>3-5</sup> Home injuries are classified in accordance with falling, burning, electric shock, poisoning, foreign body aspiration,

injury with sharp cutting tool, suffocation, corrosive substance intake and gunshot wound.<sup>6,7</sup> Out of the factors that increase the risk of accidental injury are spending most of children' time at home, being active and curious, having not fully developed movement skills, having not yet completed their cognitive and behavioural developments.<sup>3,8</sup>

In recent times, a pandemic has emerged all over the world, causing children to stay at home for long periods of time.<sup>9</sup> In order to prevent the spread of the virus, a series of measures have been implemented to reduce social distancing, such as curfews, restrictions on travel, meetings and outdoor activities, lockdowns and school closures.<sup>10</sup> The first case in Turkey was seen on March 11, 2020, and quarantine measures were initiated as of March 13, 2020, and continued until July 1, 2021. Due to these restrictions, children, adolescents, and the elderly had to stay at home for a long time and change their daily habits.

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Last observations showed the rise in home accidental risks of children as a result of long-lasting home isolation and additional secondary damage of this pandemic caused by restriction measures for prevention the virus spread.<sup>11</sup> There is evidence that social changes occurred in the pandemic has led to changes in types and intensity of paediatric traumatic injuries.<sup>12,13</sup>

It is thought that increased time spent at home leads to changes in injury mechanism models.<sup>3</sup> An increase in the incidence of home injuries in this age group is predicted during the pandemic period due to children spending more time at home, having more children at home at the same time, engaging in risky behaviours at home with their accustomed mobility, limiting their living space with other family members living at home, and increasing child care needs.<sup>14,15</sup> A recent study shows that the number and severity of admissions to paediatric emergency departments for home injuries increased significantly during the curfew period compared to the previous year.<sup>14</sup> In addition, recent studies show an increase in childhood poisonings, gunshot wounds and injuries such as falling out of windows during the pandemic.<sup>16-18</sup>

In order to prevent accidents, it is necessary to organise the physical environment in which the child lives and to ensure that parents and caregivers pay attention to effective supervision.<sup>19,20</sup> Therefore, home safety measures and supervision of children by parents and carers to prevent childhood home injuries were inevitable during the pandemic period, when the risk of home injuries increased. In this sense, no study was found in the literature that examined the family characteristics of children who experienced home injuries during the period of pandemic restrictions and the effects of changes in family routines and home injury prevention measures on the risk of injury. Therefore, the purpose of this study was to determine the home injury status of children aged 9 months to 6 years who applied for routine follow-up during the COVID-19 pandemic, to evaluate the knowledge and attitudes of mothers about injury prevention, and to determine the relationship between daily life of the family during restriction measures and child's status of having home unintentional injury.

## Materials and Methods

The study was conducted in Ankara University Faculty of Medicine, Department of Social Paediatrics between August 2020 and December 2020. Ethical approval was

obtained by Ankara University Faculty of Medicine, Human Research Ethics Committee (date: 13.07.2020 and approval number: 17-421-20).

Children aged between 9 months and 6 years without any complaints, who were routinely followed up for healthy child visits at the Social Paediatrics Polyclinic during the pandemic period, were included in the study. Criteria for a child to get involved in the study was to be born on time, not to have any known chronic or genetic disease, not to be determined any physical and developmental retardation.

In the routine child health follow-up visit, the mother and child couple who met the criteria and agreed to participate in the study were taken to the family interview room of the Department of Social Paediatrics. Firstly, the informed consent form was filled. Afterwards, the information questionnaire and the "Scale for Diagnosing Maternal Safety Precautions in Home Accidents in Children aged 0-6" were filled out by the mother. After the forms were filled, the mother and child were taken to the examination room, and the child's routine child health follow-up examination was performed. After the child examination, the mother was given recommendations about child health follow-up.

## Measurements

### *The Demographic and Injury History Questionnaire*

The questionnaire was developed by the researchers by reviewing the literature on the topic. This form consists of two parts. The form consists of two parts. In part I of the form, questions were listed to determine socio-demographic characteristics such as the parents' age, their education and employment status, their health status, the family's income status, whether they own the house they live in, the number of children, the number of people living at home, the type of family, the child's age and sex, the person responsible for caring for the child at home, and whether there is a person who needs care at home. In part II of the form, questions such as whether the mother has information about home injuries, from which source the information was obtained, the history of home injury of the child before and during the pandemic, the type of injury the child had, the treatment he/she received in hospital related to the injury, under whose supervision during the injury, the child's age at the time of the injury, the mother's opinion of the factors that caused the injury, whether the

mother went to work during the pandemic lockdown period, who cared for the child during this period, and whether there was a history of COVID-19 in family members. This questionnaire was given as a Supplement 1.

### **Scale for Diagnosing Maternal Safety Precautions for Home Accidents in Children Aged 0-6**

The scale defines the attitudes of mothers with children aged 0-6 years with regard to safety measures for home accidents.<sup>21</sup> The scale consists of a total of 40 statements, 34 of which are positive and 6 negative (sample item 1: I take care to keep the bathroom and toilet floor dry, sample item 2: I take care to avoid sharp edges and corners when choosing furniture). In this five-point Likert scale, each item is rated from 1 to 5 points. For items with positive statements, the answer 'always' gets 5 points, 'mostly' gets 4 points, 'sometimes' gets 3 points, 'rarely' gets 2 points and 'never' gets 1 point. For items 6, 9, 23, 26, 30 and 40, which contain negative statements, the scoring is reversed. The scale score is a minimum of 40 and a maximum of 200. Achieving the highest score indicates that the mother takes measures at the highest level to protect her child from injuries at home. The Cronbach alpha internal consistency coefficient of the scale was reported to be 0.82.21 This scale was given as a Supplement 2.

### **Statistical Analysis**

Data were analysed using SPSS version 17 (for Windows SPSS 17.0, SPSS, Inc., Chicago, IL, USA). Basic descriptive statistics (frequencies, ratio, mean/median and standard deviations [SD]) were calculated on the data obtained, and 95% confidence intervals were calculated by standard statistical analytical methods. Continuous variables were presented as mean (standard deviation), while categorical variables were presented as numerical values (percentage). Pearson chi-square test or Fisher test was used for categorical variables. Mann-Whitney U and Kruskal-Wallis tests were used for mean variables. Statistical significance level was defined as  $p < 0.05$  in the analysis of data.

## **Results**

Three-hundred mother and child pairs were involved in the study. The sociodemographic and daily life characteristics of the families were given in Table 1. Mothers' mean age was determined as  $30.99 \pm 5.56$  years (min: 21 max: 45), fathers' mean age as  $34.71 \pm 5.61$  years

(min: 21 max: 52) and children's ones as  $39.48 \pm 19.56$  months (min: 9, max: 72). The highest rate among both mothers and fathers referred to high school graduates (37%, 40%, respectively). It was determined that 23.7% of the mothers and 93% of the fathers were working. 15.3% of mothers and 10% of fathers reported that they had a physical or mental health problem. It was reported that 2% of the families ( $n=6$ ) had a person in need of care in their home.

### **History of Home Injuries Before and During the Pandemic**

Table 2 shows the characteristics of the children's home injuries. It was found that 20.7% ( $n=62$ ) of the 300 children had a home injury during the pre-pandemic period. On the other hand, 28% ( $n=84$ ) of all children had a home injury during the pandemic period when restriction measures were applied. The frequency of home injuries among the children participating in the study was found to be higher during the pandemic period than before the pandemic ( $p=0.033$ ). The total number of injuries that children had during the pre-pandemic was found 71, and 90 during the pandemic period.

From the history, it was observed that the number of accidents such as falls on slippery ground, injuries with sharp cutting tools, poisoning and aspiration of foreign bodies was higher during the pandemic period than before the pandemic. The mean age of the injured children was  $22.43 \pm 16.32$  months at the time of injury during the pre-pandemic period, compared with  $30.88 \pm 19.33$  months during the pandemic period. During the pre-pandemic period, boys (59%) were more likely to be injured at home, whereas during the pandemic period, the proportion of children injured at home was equally divided between the sexes (50%). We also found that 6.5% of children before the pandemic and 12% during the pandemic had a history of injury when not under adult supervision.

### **Maternal Knowledge and Attitude About Home Safety**

It was showed that 74.3% ( $n=223$ ) of the mothers participating in the study did not receive any information on home safety, while 25.7% ( $n=77$ ) received information on this topic. The most common source of information for the mothers was health professionals (31.7%), 28.3% of them obtained information from the internet, but 14.2% of them obtained information by attending a meeting or seminar. Twelve percent of mothers received information from more than one source.

The mean score of the scale for safety precautions scale was  $185.64 \pm 13.70$  (median: 191, min: 117, max: 200) and the Cronbach alpha value was 0.91. It was observed that mothers who involved in the study took safety measures for home injuries at a very high rate.

### **Risk Factors Affecting the Incidence of Home Injury**

Children participating in the study were divided into three groups according to their status of home injury during the pre-pandemic and pandemic periods:

- Group 1: Compared to the pre-pandemic period, children whose home injury status did not change during the pandemic period (children who had an injury or no injury in both periods) (n=192, 64%),
- Group 2: Children who had a home injury in the pre-pandemic period but not in the pandemic period (n=43, 14.3%),
- Group 3: Children who did not have a home injury during the pre-pandemic but had a home injury during the pandemic (n=65, 21.7%).

**Table 1** Sociodemographic and daily life characteristics of the participant families

		Number	%
Age of mother (years)	≤25	59	19.7
	26-34	178	59.3
	≥35	63	21.0
Age of father (years)	≤30	81	27.0
	31-34	100	33.3
	≥35	119	39.7
Mother educational status	Primary school	103	34.3
	High school	111	37.0
	University	86	28.7
Father educational status	Primary school	94	31.3
	High school	120	40.0
	University	86	28.7
Mother employment status	Housewife	229	76.3
	Working	71	23.7
Father employment status	Not working	9	3.0
	Working	291	97.0
Monthly income level	Low	24	8.0
	Moderate	182	60.7
	High	94	31.3
Number of children in the family	1	79	26.3
	2	148	49.4
	≥3	73	24.3
Type of the family	Nuclear family	264	88.0
	Large family	36	12.0
Mother employment status during the pandemic period	Not working	253	84.3
	Working	47	15.7
Person who takes care for the child during the pandemic period	Mother	251	83.7
	Caregiver	6	2.0
	Other	43	14.3
Person diagnosed by COVID-19 in the family or close relatives	No	233	77.7
	Yes	67	22.3
Hospitalisation history due to COVID-19 in the family or close relatives	No	284	94.7
	Yes	16	5.7
Death history due to COVID-19 in the family or close relatives	No	298	99.3
	Yes	2	0.7

**Table 2** Characteristics of home injuries occurred during the pre- and pandemic period

	During the pre-pandemic period		During the pandemic period	
	Number	%	Number	%
Having an injury status				
Not occurred	238	79.3	216	72
Occurred	62	20.7	84	28
Total	300	100	300	100
Number of injuries				
Once	54	86.9	72	85.7
Twice	6	9.8	9	10.7
3 and more	2	3.3	3	3.6
Total	62	100	84	100
Types of home injuries				
Burning	8	11.3	6	6.7
Injury with sharp cutting object	4	5.6	5	5.6
Falling on slippery ground	20	28.2	31	34.4
Falling from a height	37	52.1	30	33.3
Poisoning	1	1.4	9	10.0
Electric shock	0	0	0	0
Drowning in water	0	0	0	0
Foreign body aspiration	1	1.4	9	10.0
An object falling on a child	0	0	0	0
Total	71	100	90	100
Gender of children who had an injury				
Girl	25	41.0	42	50.0
Boy	37	59.0	42	50.0
Total	62	100	84	100
Treatment status of children				
Received treatment at home	24	37.8	28	33.3
Outpatient treatment at hospital	35	57.3	49	58.3
Inpatient treatment at hospital	3	4.9	7	8.4
Total	62	100	84	100
Supervision status of children at the time of injury				
Not accompanied by an adult	4	6.5	10	12
Under mother's supervision	38	60.6	49	58.3
Under father's supervision	6	9.8	4	4.7
Under other ones (grandmother, grandfather, neighbour etc.)	14	23.1	21	25
Total	62	100	84	100
Reason of injury according to mothers' opinions				
Carelessness	53	86.9	77	91.7
Lack of information	2	3.3	1	1.2
Irrelevant home conditions	6	9.8	6	7.1
Total	62	100	84	100

**Table 3** Evaluation of groups in terms of sociodemographic and daily life characteristics of the family

		Group 1	Group 2	Group 3	<i>p</i> *
		Median (min-max)	Median (min-max)	Median (min-max)	
Mother age (year)		30 (21-45)	32 (21-45)	32 (21-43)	0.314
Father age (year)		34 (24-52)	35 (26-49)	33 (21-48)	0.708
Child age (month)		44 (10-72)	37 (12-72)	23 (10-71)	<b>0.000</b>
		Group 1	Group 2	Group 3	<i>p</i> *
		Number (%)	Number (%)	Number (%)	
Mother educational status	Primary school	73 (38.0)	8 (18.6)	22 (33.8)	0.104**
	High school	67 (34.9)	17 (39.5)	27 (41.5)	
	University	52 (27.1)	18 (41.9)	16 (24.6)	
Mother employment status	Housewife	149 (77.6)	28 (65.1)	52 (80.0)	0.161**
	Working	43 (22.4)	15 (34.9)	13 (20.0)	
Health problem of mother	No	171 (89.1)	32 (74.4)	51 (78.5)	<b>0.016**</b>
	Yes	21 (10.9)	11 (25.6)	14 (21.5)	
Father educational status	Primary school	61 (31.8)	10 (23.3)	23 (35.4)	0.627**
	High school	78 (40.6)	17 (39.5)	25 (38.5)	
	University	53 (27.6)	16 (37.2)	17 (26.2)	
Father employment status	Not working	8 (4.2)	0 (0)	1 (1.5)	0.409**
	Working	184 (95.8)	43 (100)	64 (98.5)	
Health problem of father	No	171 (89.1)	38 (88.4)	61 (93.8)	0.501**
	Yes	21 (10.9)	5 (11.6)	4 (6.2)	
Type of the family	Nuclear family	166 (86.5)	37 (86.0)	61 (93.8)	<b>0.044**</b>
	Large family	26 (13.5)	6 (14.0)	4 (6.2)	
Monthly income level	Low	16 (8.3)	3 (7.0)	5 (7.7)	0.304**
	Moderate	117 (60.9)	21 (48.8)	44 (67.7)	
	High	59 (30.7)	19 (44.2)	16 (24.6)	
Number of children in the family	1	49 (25.5)	13 (30.2)	17 (26.2)	0.790**
	2	92 (47.9)	22 (51.2)	34 (52.3)	
	≥3	51 (26.6)	8 (18.6)	14 (21.5)	
Is there any person who needs home care?	No	187 (97.4)	43 (100)	64 (98.5)	0.841**
	Yes	5 (2.6)	0 (0.0)	1 (1.5)	
Child gender	Girl	89 (46.4)	17 (39.5)	34 (52.3)	0.424**
	Boy	103 (53.6)	26 (60.5)	31 (47.7)	
Mother employment status during the pandemic period	Not working	164 (85.4)	31 (72.1)	58 (89.2)	<b>0.044***</b>
	Working	28 (14.6)	12 (27.9)	7 (10.8)	
A person who takes care for a child during the pandemic period	Mother	161 (83.9)	30 (69.8)	60 (92.3)	<b>0.023***</b>
	Caregiver	3 (1.6)	2 (4.7)	1 (1.5)	
	Other	28 (14.6)	11 (25.6)	4 (6.2)	
A person diagnosed by COVID-19 in the family	No	143 (74.5)	32 (74.4)	58 (89.2)	<b>0.041***</b>
	Yes	49 (25.5)	11 (25.6)	7 (10.8)	
Hospitalisation history due to COVID-19	No	178 (92.7)	41 (95.3)	65 (100.0)	0.056***
	Yes	14 (7.3)	2 (4.7)	0 (0.0)	
Death history due to COVID-19	No	191 (99.5)	42 (97.7)	65 (100.0)	0.313***
	Yes	1 (0.5)	1 (2.3)	0 (0.0)	
Total		192 (100.0)	43 (100.0)	65 (100.0)	

\*Kruskal Wallis test

\*\* Mann Whitney U test

\*\*\* Chi-square test

The comparison of the groups in terms of the sociodemographic and daily life characteristics of the participants is shown in Table 3. It was determined that the children in Group 3 were statistically significantly younger than other groups ( $p=0.000$ ). It was found that the mothers of children in Group 1 had fewer health problems than the other groups ( $p=0.016$ ), and children in Group 1 and Group 2 lived in large families at a higher rate ( $p=0.044$ ). It was observed that mothers of children in Group 2 worked at a higher rate than the other groups in this period ( $p=0.044$ ), and children in Group 3 were taken care by mothers at a higher rate compared to the pre-pandemic period ( $p=0.023$ ). It was also found out that the frequency of individuals diagnosed with coronavirus disease was lower in the families of children in Group 3 ( $p=0.041$ ).

There was no statistically significant difference among the study groups in terms of mothers' knowledge about home injuries ( $p>0.05$ ). It was determined that mothers of children injured during the pre- and pandemic period obtained similar information about home injuries (Figure 1).

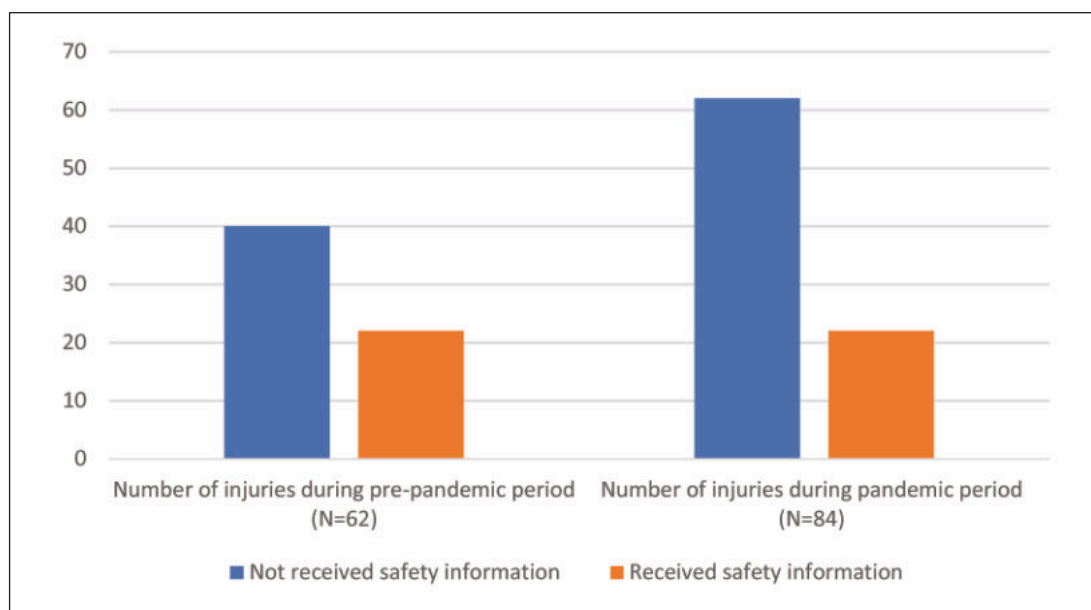
As shown in Table 4, it was determined that mothers who got information about home injuries took more measures for prevention of the injuries ( $p=0.001$ ). When the scores of the mothers related to the diagnosis of measures for home injuries were compared in terms of having a home injury during the pre- and pandemic, and particularly between the groups, no statistical difference was defined in the total scale scores ( $p>0.05$ ).

## Discussion

Our study is the first study, which examines the effects of changes in the routine life of the family during the period when restriction measures were taken due to the COVID-19 pandemic, on the child's home injury and the measures taken at home against injuries. We observed that there was an increase in home injuries during the pandemic period compared to the pre-pandemic period in the history taken from the mother in children aged 9 months to 6 years whose child health follow-up was conducted in the Social Paediatrics policlinic.

It is predicted that the risk of injury in society in general may increase during the pandemic. In one study using an online survey, 26% of adults reported having been injured at least once during the pandemic period.<sup>22</sup> Similar to this frequency, we found that the frequency of home injuries among the children participating in the study was higher during the pandemic period than before the pandemic ( $p=0.033$ ). In addition, 21.7% of the children were not injured during the pre-pandemic period but were injured during the pandemic period. Similar to these findings, previous studies show an increase in the rate of home injuries during the pandemic period.<sup>14,23,24</sup> We can assume that the longer stay of children at home due to the restrictive measures during the pandemic may be an important factor increasing the risk of home injuries.

When the types of injuries before and during the pandemic were evaluated, it was found that the fall type



**Figure 1.** Comparison of number of injuries and mothers' information status about home safety ( $p>0.05$ ).

injuries were the most common in both periods in our study, similar to pre-pandemic studies.<sup>1,2</sup> On the other hand, it was observed that various types of injuries such as sharp object injuries, poisoning with cleaning agents, medicines and disinfectants, and foreign body aspiration were significantly more common during the pandemic period. These data were found to be similar to the results of some recent studies conducted during the pandemic period.<sup>14,24-28</sup>

Our study showed that the mean age of children injured during the pandemic period was 24 months. Similarly, previous studies conducted during the pre-pandemic period reported that home injuries in children were most common between the ages of 24-35 months.<sup>29,30</sup> In a study conducted in our country, the mean age of children admitted to the paediatric emergency department due to home injuries in 2020 was 36 months.<sup>24</sup> These findings suggest that the increase in the duration of staying at home for children aged 24-36 months, who were able to engage in activities outside the home before the pandemic, may increase the risk of injury. On the other hand, previous studies during the pandemic period revealed that high injury risk in boys similar to pre-pandemic studies.<sup>23</sup> However, we found that the incidence of injury was similar in boys and girls during the pandemic period. Similar to our study, Guleryuz et al found that the frequency of home injury was alike in both genders during the pandemic period.<sup>24</sup>

Our study is the first one which examines the effects of family characteristics during the period when restriction measures were taken due to pandemic, changes in the routine life of the family as a result of restriction, and the effects of having coronavirus disease in the family on the child's home injury. As an important finding, we

determined that the number of home injuries which occurred when the child was not supervised by an adult increased during the pandemic period. The best way to prevent injuries is to develop training methods that eliminate the harm of environmental and family-related factors and to contribute to safe environmental regulation. Therefore, it is considered important for healthcare personnel to educate parents about home safety and increase their awareness in order to reduce the possible undesirable consequences of stay-at-home orders during the pandemic period.

The transition to a flexible or remote working system within the framework of the measures taken due to the pandemic affected the working status of individuals during the pandemic period. Parents working from home have reported difficulties with this working system. A recent study found that reduced physical and mental health as a result of working from home was associated with a variety of factors, such as the presence of children at home, the presence of distractions while working, and the presence of indoor environmental factors in the work area.<sup>31</sup> In our study group, it was observed that 24 of the 71 working mothers before the pandemic did not work during the pandemic period due to the closure of the workplace, and it was determined that 83.7% of the children were cared by the mother during this period. An important finding in our study, children who did not have a home injury during the pandemic period or whose frequency of home injuries did not change compared to the pre-pandemic period were found lived in large families at a higher rate. In addition, having a coronavirus disease in the family members or hospitalisation for this reason was not found as a factor that increases the risk of injuries in children. Taking care of children by people such as grandparents or other relatives,

**Table 4** Evaluation of scale scores of mothers regarding the diagnosis of safety measures for home injuries

Characteristics		Number (%)	Mean (min-max)	<i>p</i> *
Information status about home injuries	Not obtained	223 (74.3)	184.17±14.41	<b>0.001*</b>
	Obtained	77 (25.7)	189.35±10.86	
Home injury during the pre-pandemic period	Not occurred	239 (79.7)	190 (117-200)	0.536
	Occurred	61 (20.4)	191 (139-200)	
Home injury during the pandemic period	Not occurred	216 (72)	190 (117-200)	0.914
	Occurred	84 (28)	191 (139-200)	
Groups	Group 1	Group 2	Group 3	<i>p</i> **
Mean (min-max)	190 (117-200)	191 (139-200)	191 (139-200)	0.517

\*Mann Whitney U test

\*\*Kruskal Wallis test



keeping children under control and increased attention to home injuries may explain these findings in our country, in the traditional family structure, in families where the mother does not take care of the child alone, in cases where the mother is away from home due to her work, and in adverse situations such as illness or a bad family case.

In order to protect children from home injuries, parents should be informed about home safety, predict feasible injuries and take the necessary measures.<sup>1,32</sup> There is no other study in the literature which examines the effects of parents' state on getting informed about home safety and taking measures against home injuries on children's injury state during the restriction period due to the pandemic, and our findings are the first data obtained on this topic. We found that the scores related to safety measures were high and were similar during the pre- and pandemic periods. These findings showed that mothers who bring their children to child health follow-ups have knowledge and awareness about safety measures against home injuries, irrespective of the number of injuries their children have.

Some limitations need to be considered. Firstly, there was no control group referring to the pre-pandemic period, and the state of having a home injury was determined according to the history given by the mothers in the pre-pandemic period, as a subjective evaluation. Secondly, the participants were involved from a single centre and the data obtained cannot be generalised to the whole society. Lastly, the study was conducted in a child group aged 9 months to 6 years and the frequency of injury experiences in the pre-pandemic period may vary depending on the age groups. Despite these limitations, the strength of our study was that it was the first study which examines the effects of changes in the routine life of the family during the period when restriction measures were taken due to the COVID-19 pandemic, on the child's home injury and the measures taken at home against injuries.

## Conclusions

Our study is the first study to examine the effects of changes in the routine life of the family and the measures taken against childhood home injuries on the child's having a home accident during the period when restraint measures were taken due to the COVID-19 pandemic. The increase in injuries in both gender in the history taken before the pandemic and during the pandemic period in children who

underwent child health follow-up does not clearly define the relationship but shows the existence of a temporal relationship between the pandemic period and home injuries. In this period, it was determined that much more attention should be paid to home injuries such as falling on a slippery floor, injuries with sharp objects, poisoning and foreign body aspiration. This study highlights the increase in unsupervised injury rates during the pandemic period. In order to prevent injuries at home during the periods when restraint measures are taken, it is important to take both safety measures in the environment where the child lives and the effective supervision of parents and caregivers. Therefore, in order to reduce the possible undesirable consequences of stay-at-home orders during the pandemic period, it is clear that it is important for healthcare personnel to educate parents about home safety during child health monitoring visits and thus increase parents' awareness of home safety. Our findings may help health authorities and scientific communities develop public information programs to prevent home injuries in children and provide support to parents in times of pandemics.

## Declaration of Interest

The authors report there are no competing interests to declare.

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## References

1. Peden M, Oyebite K, Ozanne-Smith J, et al. World Report on Child Injury Prevention. Geneva: World Health Organization, 2008. ISBN 978-92-4-156357-4.
2. Cunningham RM, Walton MA, Carter PM. The major causes of death in children and adolescents in the United States. *N Engl J Med* 2018;379:2468-75.
3. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. National Action Plan for Child Injury Prevention. Atlanta (GA): CDC, NCIPC; 2012.
4. Malta DC, Mascarenhas MD, Neves AC, Silva MA. Treatment of childhood injuries and violence in public emergency services. *Cad Saude Publica* 2015;31:1095-105.

5. Alrimawi I, Watson MC, Hall C, Saifan AR. Preventing unintentional injuries to children under 5 in their homes: Palestinian mothers' perspectives. *Sage Open* 2019;9:1-11.
6. Schneiderman JU, Leslie LK, Hurlburt MS, Zhang J, Horwitz SM. Caregiver reports of serious injuries in children who remain at home after a child protective services investigation. *Matern Child Health J* 2012;16:328-35.
7. Hatamabadi HR, Mahfoozpour S, Alimohammadi, H, Younesian S. Evaluation of factors influencing knowledge and attitudes of mothers with preschool children regarding their adoption of preventive measures for home injuries referred to academic emergency centres, Tehran, Iran. *Int J Inj Contr Saf Promot* 2014;21:252-9.
8. Al Rumhi A, Al Awisi H, Al Buwaiqi M, Al Rabaani S. Home accidents among children: a retrospective study at a tertiary care center in Oman. *Oman Med J* 2020;35:e85.
9. World Health Organization: Coronavirus disease (COVID-19) pandemic [Internet]. WHO, 2021. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
10. Honein MA, Christie A, Rose DA, et al. Summary of guidance for public health strategies to address high levels of community transmission of SARS-CoV-2 and related deaths, December 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1860-7.
11. Viner RM, Russell SJ, Croker H, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child Adolesc Health* 2020;4:397-404.
12. Shi Y, Kvasnovsky C, Khan S, et al. Impact of the COVID-19 pandemic on trauma activations at a pediatric level 1 trauma center in New York. *Pediatr Surg Int* 2021;37:1409-14.
13. Bessoff KE, Han RW, Cho M, et al. Epidemiology of pediatric trauma during the COVID-19 pandemic shelter in place. *Surg Open Sci* 2021;6:5-9.
14. Bressan S, Gallo E, Tirelli F, Gregori D, Da Dalt L. Lockdown: more domestic accidents than COVID-19 in children. *Arch Dis Child* 2021;106:e3.
15. Praticò AD. COVID-19 pandemic for Pediatric Health Care: disadvantages and opportunities. *Pediatr Res* 2021;89:709-10.
16. Le Roux G, Sinno-Tellier S, Descatha A. COVID-19: home poisoning throughout the containment period. *Lancet Public Health* 2020;5:e314.
17. Collings AT, Farazi M, Van Arendonk KJ, et al. The COVID-19 pandemic and associated rise in pediatric firearm injuries: A multi-institutional study. *J Pediatr Surg* 2022;57:1370-6.
18. Theodorou CM, Brown EG, Jackson JE, Castle SL, Chao SD, Beres AL. Unintended Consequences of COVID-19 on Pediatric Falls from Windows: A Multicenter Study. *J Surg Res* 2022;279:187-92.
19. McDonald EM, Mack K, Shields WC, Lee RP, Gielen AC. Primary care opportunities to prevent unintentional home injuries: a focus on children and older adults. *Am J Lifestyle Med* 2018;12:96-106.
20. Kendrick D, Young B, Mason-Jones AJ, et al. Home safety education and provision of safety equipment for injury prevention. *Cochrane Database Syst Rev* 2012;2012:CD005014.
21. Çınar N, Görak G. 0-6 Yaş Çocuklarda Annenin Ev Kazalarına Yönelik Güvenlik Önlemlerini Tanılama Ölçeğinin geliştirilmesi, geçerlik ve güvenilirlik çalışması. *Çocuk Forumu* 2003;6:22-7.
22. Gielen AC, Bachman G, Badaki-Makun O, et al. National survey of home injuries during the time of COVID-19: who is at risk? *Inj Epidemiol* 2020;7:1-4.
23. Wong TW, Hung JW, Leung MW. Paediatric domestic accidents during COVID-19 pandemic in Hong Kong. *Surgical Practice* 2021;25:32-7.
24. Gülyeryüz O, Colak O, Güneysu ST, Fidancı I. The Home Accident Cases Applying to The Pediatric Emergency Department during the COVID-19 Pandemic: What Did the Pandemic Change? *Authorea* Feb 13, 2021.
25. Pizzolo A, Rigazio C, Calvo PL, et al. Foreign-body ingestions in children during COVID-19 pandemic in a pediatric referral center. *JPGN Repo* 2020;1:e018.
26. Chang A, Schnall AH, Law R, et al. Cleaning and disinfectant chemical exposures and temporal associations with COVID-19 — National Poison Data System, United States, January 1, 2020-March 31, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:496-8.
27. Benmassaoud Z, Balde FB, Oudghiri Z, et al. Impact of the COVID-19 lockdown on the epidemiologic and clinic profiles of domestic accidents in children. *Afr J Paediatr Surg* 2022;19:65-7.
28. Chaudhari PP, Anderson M, Ourshalimian S, et al. Epidemiology of pediatric trauma during the coronavirus disease-2019 pandemic. *J Pediatr Surg* 2022;57:284-90.
29. Khan S, Tauheed N, Nawab S, Afzal S, Khaliq N. Domestic accidents among under-5-year children: a study on the modern day epidemic. *Int J Community Med Public Health* 2019;6:1529-35.
30. Kamal NN. Home unintentional non-fatal injury among children under 5 years of age in a rural area, El Minia Governorate, Egypt. *J Community Health* 2013;38:873-9.
31. Xiao Y, Becerik-Gerber B, Lucas G, Roll SC. Impacts of working from home during COVID-19 pandemic on physical and mental well-being of office workstation users. *J Occup Environ Med* 2021;63:181-90.
32. Younesian S, Mahfoozpour S, Shad EG, Kariman H, Hatamabadi HR. Unintentional home injury prevention in preschool children; a study of contributing factors. *Emerg (Tehran)* 2016;4:72-7.

## Supplement 1: Questionnaire form used in the study

<b>I. Family information</b>	<b>Phone no:</b>
1. Age of mother: _____	
2. Age of father: _____	
3. Educational status of mother:	
<input type="checkbox"/> Primary school graduate <input type="checkbox"/> Middle school graduate <input type="checkbox"/> High school graduate <input type="checkbox"/> University graduate	
4. Educational status of father:	
<input type="checkbox"/> Primary school graduate <input type="checkbox"/> Middle school graduate <input type="checkbox"/> High school graduate <input type="checkbox"/> University graduate	
5. Mother's employment status: <input type="checkbox"/> Working (Occupation _____) <input type="checkbox"/> Not working	
6. Father's employment status: <input type="checkbox"/> Working (Occupation _____) <input type="checkbox"/> Not working	
7. Total income of the family: <input type="checkbox"/> <2300 TL <input type="checkbox"/> 2300-5000 TL <input type="checkbox"/> >5000 TL	
8. Do you own the house you live in? <input type="checkbox"/> Yes <input type="checkbox"/> No	
9. Does the mother have any health problems? <input type="checkbox"/> Yes _____ <input type="checkbox"/> No	
10. Does the father have any health problems? <input type="checkbox"/> Yes _____ <input type="checkbox"/> No	
11. How many children do you have? _____	
12. Do you have people living with you in your family other than your spouse and children?	
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No	
13. Is there a person requiring continuous care at home? <input type="checkbox"/> Yes _____ <input type="checkbox"/> No	

<b>II. Information about the child</b>
1. Date of birth of your child: ____/____/____    Age: _____
2. Gender of your child: <input type="checkbox"/> Girl <input type="checkbox"/> Boy
3. Which child is he/she? <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third <input type="checkbox"/> Fourth and later
4. Who is responsible for the care of your child at home? _____

<b>III. Information about home accident</b>
1. Have you ever been informed or received information about child home accident?
<input type="checkbox"/> Yes <input type="checkbox"/> No
2. If you have informed, where did you learn it? ( <i>You can check more than one option</i> )
<input type="checkbox"/> Health personal <input type="checkbox"/> Teacher <input type="checkbox"/> Friend, neighbour etc. <input type="checkbox"/> Internet <input type="checkbox"/> TV <input type="checkbox"/> Brochure <input type="checkbox"/> Meeting, seminar
<input type="checkbox"/> Other _____
3. <b>Did your child have a household accident before the COVID-19 pandemic? If yes, how many times?</b>
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No
<i>If yes, please specify the type(s) below (You can check more than one option)</i>
<input type="checkbox"/> Sharps injury <input type="checkbox"/> Electric shock
<input type="checkbox"/> Falling on slippery surfaces <input type="checkbox"/> Drowning
<input type="checkbox"/> Falling from a height. <input type="checkbox"/> Foreign body aspiration
<input type="checkbox"/> Poisoning <input type="checkbox"/> An object (cabinet/TV, etc) falling on you
<input type="checkbox"/> Burning (wife fire/heat/hot substances/liquid) <input type="checkbox"/> Other _____
<i>If yes, what is the treatment status of your child in relation to the home accident?</i>
<input type="checkbox"/> Observed at home <input type="checkbox"/> Treated as outpatient in hospital <input type="checkbox"/> Inpatient treatment in hospital
<i>If yes, please answer the following questions.</i>
• Under whose supervision did the accident happen? _____
• How old was your child when he/she had a home accident? _____
• What were the factors that caused your child to have an accident at home? ( <i>You can check more than one option</i> )
<input type="checkbox"/> Carelessness, neglect <input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inappropriate home conditions
<input type="checkbox"/> Other: _____
4. <b>Has your child had a household accident during the COVID-19 pandemic? How many times?</b>
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No
<i>If yes, please specify the type(s) below (You can check more than one option)</i>
<input type="checkbox"/> Sharps injury <input type="checkbox"/> Electric shock
<input type="checkbox"/> Falling on slippery surfaces <input type="checkbox"/> Drowning
<input type="checkbox"/> Falling from a height. <input type="checkbox"/> Foreign body aspiration
<input type="checkbox"/> Poisoning <input type="checkbox"/> An object (cabinet/TV, etc) falling on you
<input type="checkbox"/> Burning (wife fire/heat/hot substances/liquid) <input type="checkbox"/> Other _____
<i>If yes, what is the treatment status of your child in relation to the home accident?</i>
<input type="checkbox"/> Observed at home <input type="checkbox"/> Treated as outpatient in hospital <input type="checkbox"/> Inpatient treatment in hospital
<i>If yes, please answer the following questions.</i>
• Under whose supervision did the accident happen? _____
• How old was your child when he/she had a home accident? _____
• What were the factors that caused your child to have an accident at home? ( <i>You can check more than one option</i> )
<input type="checkbox"/> Carelessness, neglect <input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Inappropriate home conditions
<input type="checkbox"/> Other: _____
5. Do you go to work during the pandemic period?
a) Yes (How many days a week? _____)    b) No
6. Who was responsible for the care of the child during COVID-19? _____
7. Has anyone in your family been diagnosed with COVID-19 during the pandemic period? Who?
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No
8. Has anyone in your family been hospitalised with diagnosis of COVID-19 during the pandemic period? Who was hospitalised?
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No
9. Has anyone in your family been passed away with a diagnosis of COVID-19? Who?
<input type="checkbox"/> Yes _____ <input type="checkbox"/> No

**Supplement 2:** Scale for diagnosing maternal safety precautions for home injuries in children aged 0-6

No	After reading each of the following statements, put an X in the box in the column that shows the extent to which this statement describes you. If you find it difficult to answer these statements, tick the option closest to you.	Always	Mostly	Sometimes	Rarely	Never
1	I take care to keep the bathroom and bathtub floor dry					
2	When choosing furniture, I make sure that it does not have sharp edges and pointed ends					
3	I cover unused electrical sockets with plastic protectors or move objects such as seats in front of them					
4	I keep the toilet and bathroom doors closed					
5	I seat the child in an age-appropriate chair					
6	I leave my washing machine plugged in and the door open					
7	I keep substances such as oxygenated water, tincture of iodine at home to be used in emergency accidents					
8	I find it dangerous for children to talk or play with food in their mouths					
9	I put hot food and drinks in places where the child can easily reach them					
10	I make sure to remove the seeds from stone fruits and feed them to my children					
11	I keep items such as matches and lighters out of the reach of my child					
12	I monitor my child's safety in the presence of guests or visitors					
13	I put protective bars around heating devices such as stoves, fireplaces, radiators					
14	I avoid leaving my child alone in the bathtub					
15	I think that peeling, frayed electrical cables pose a danger to children					
16	If I have to leave my child alone in the room, I take care to create environments such as a playground with bars around it					
17	I close medicine bottles tightly so that my child cannot open them.					
18	I take necessary precautions to prevent my child from falling out of bed					
19	I dispose of extension cords by unplugging them after use					
20	I keep cutting tools (such as knives, razor blades, scissors) out of the reach of my child					
21	I do not leave buckets, basins, pots full of water within the reach of my child					
22	I think that poisonous plants (ivy, rubber) in the house or garden pose a danger to children					
23	I attach my child's pacifier or evil eye bead to clothes with safety pins					
24	I keep rubbish out of the reach of my child					
22	I think that poisonous plants (ivy, rubber) in the house or garden pose a danger to children					
23	I attach my child's pacifier or evil eye bead to clothes with safety pins					
24	I keep rubbish out of the reach of my child					
25	I check the temperature of my child's bath water with a degree or elbow					
26	I let my child walk around the kitchen while cooking					
27	I take care to choose my child's toys from materials that do not burn quickly					
28	When using electrical appliances such as irons and toasters, I put them out of the reach of my child					
29	I use a toilet adaptor suitable for my child's height so that he/she does not fall in the toilet					
30	I leave empty, unused boxes and plastic bags lying around					
31	I try to place the handles of pans and pots on the oven and hob out of the reach of my child					
32	I make sure that new crawling babies are not surrounded by objects that they can put in their mouths					
33	I take care to ensure that ropes, belts and nylon strips are not within the reach of my child, considering that they may pose a danger to my child					
34	I take care that there are borders on the balconies and that the borders are not intermittent					
35	When choosing toys for my child, I take care that they should not be stabbing, cutting, piercing and have small parts					
36	When buying toys for my child, I make sure that they are made of paint-resistant material					
37	I keep balcony and garden doors locked even when I am at home					
38	I ensure that iron bars or similar barriers are placed on the windows					
39	I do not leave poisonous substances (such as rat poison, detergent, bleach, gas, petrol) within easy reach of my child					
40	I punish my child when he/she has an accident					