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Original Article

Evaluation of the Home Safety and Child-friendly Environment for Children with Bleeding Tendency Disorders

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Abstract

Background: This study aims to assess the safety level of the different home parts for children with a bleeding tendency disorder (especially hemophilia) and identify the elements that affect this safety.

Materials and methods: We conducted a cross-sectional study on the children referred to the Mofid Children's Hospital from the beginning of 2018 to the end of 2020. Information was gathered via a checklist. Inclusion criteria were children between 1 to 5 years old with bleeding tendencies, and exclusion criteria were the presence of other disorders. The safety was measured in five areas at home: 1- physical conditions 2- kitchen 3- bathroom 4- toys 5- first aid equipment and essential phone numbers.

Results: Forty-one children participated in this study which 31 (75.61 %) were boys. Eleven (28.95 %) children experienced zero accidents at home and eight (21.05 %) children experienced more than three accidents at home. The Mean and 95% confidence interval scores were 7.97 (7.37-8.57) for the physical condition section, 8.22 (7.73-8.70) for the kitchen section, 8.15 (7.66-8.65) for the bathroom section, 7.93 (7.15-8.71) for the toys section, and 7.30 (6.60-8.01) for the first aid equipment and essential phone numbers section. The physical condition safety score was significantly higher in families whose fathers had a college education than in fathers with secondary and diploma education (P-value = 0.024). The kitchen section safety score was significantly higher in families where the father has a freelance job than the employee or worker (P-value = 0.040).

Conclusion: The mother's age, father's educational level, and father's job are the factors that affect the level of safety significantly. Providing toys that are age-appropriate and safe (without separable parts or holes) could be an important point for parents with children with bleeding disorders.

Keywords:

Bleeding tendency disorders
Hemophilia
Home safety
Living condition
Blood Coagulation Disorders.

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1. INTRODUCTION

Bleeding tendency disorders are a broad group of diseases, including coagulation factor deficiency, platelet abnormalities, Von Willebrand disease, and so on (1). Hemophilia A and B are the most common causes of severe bleeding among coagulation factor deficiency disorders. With a prevalence higher than previously presumed, it is estimated that there are more than 1 million cases of hemophilia worldwide, and more than 400 hundred of them are considered severe. Hemophilia is an X-linked congenital bleeding disorder resulting from a decrease or absence of either coagulation factor VIII (hemophilia A) or coagulation factor IX (hemophilia B) (2-4). Von Willebrand Disease is another inherited disorder of hemostasis with a prevalence of nearly 1% in the population. It is due to abnormalities in function and concentration of Von Willebrand Factor (VWF) and classifies into three types (5, 6). Other bleeding disorders like Factor VII deficiency, Factor X deficiency, and Glanzmann's thrombocytopenia are not as prevalent as hemophilia and Von Willebrand Disease (1, 7).

Home is a place of curiosity, adventure, and play for growing children. Children with bleeding tendencies, especially hemophilia, are at significant risk for accidents at home (8). Many serious injuries that happen to children are preventable with simple actions. This study aims to identify how safe the living environment is for children with bleeding tendencies and what dangerous elements and conditions exist in different home parts.

2. MATERIALS AND METHODS

2.1. Study setting

This is a cross-sectional study on 41 children between 1 to 5 years old who were referred to Mofid Children's Hospital from the beginning of 2018 to the end of 2020. Inclusion criteria were children between 1 to 5 years old with bleeding tendency disorders. Informed consent was obtained from all participants. Furthermore, the protocol of this study has been reviewed and approved by the Medical Ethics Committee of Shahid Beheshti University of Medical Sciences by approval ID: IR.SBMU.RETECH.REC.1398.073.

2.2. Data collection

Information was collected through a checklist. This questionnaire had two major parts: the demographic section and the safety conditions. The safety conditions section, which is the central part of the questionnaire, has five subsections including:

- physical condition (16 questions): Are there sharp edges and corners in tables and chairs? Are tall items like bookshelves and refrigerators that can fall firmly installed? Is there a protective fence next to the stairs?
- kitchen and its dangerous staff (7 questions): Are the doors of the oven, washing machine, and dishwasher firmly closed and the child cannot open it? Are electrical devices like meat grinder out of the reach of the child? ...
- bathroom (7 questions): Is the bathroom floor slippery? Is the toilet door closed? Are razors and scissors kept in a locked place and out of the child's reach? ...
- toys (10 questions): do toys have detachable and small parts that the child can swallow? Do toys have holes, so the child's finger gets stuck? ...
- first aid equipment and essential phone numbers (12 questions): is there a card containing essential phone numbers like police, fire department, and emergency next to the phone book? Is sterile gauze available to clean the injured surface and cover the wound? Are coagulation factors available? ...

The full version of the checklist can be seen as in **Appendix 1**.

2.3. Scoring system

If the safety condition for each question is fully met, the score will be "10"; if it is not, the score will be "0". If the question is irrelevant according to the age or any other situation, or parents do not know the answer or do not fill in the answer for any reason, the data for that question would be "missing" in SPSS.

2.4. Checklist preparation

First of all, we searched and collected all tools that related to indoor safety in scientific articles and books between 2000 to 2020. We used the Family-based tool to assess home safety for children made by Mohammadinia et al.(9) as the primary tool. We gathered 132 items by searching these tools. Twenty-five items were removed because of repetition. For checking validity, we calculated content validity ratio (CVR) and content validity index (CVI) based on the opinions of 10 experts and specialists (including three specialists in pediatric hematology, two pediatric specialists, three nurse specialists in caregiving of pediatric hematology

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diseases, and two specialists in tool making). Based on the table in Lawshe's study, the cut-off point for CVR is 0.62 for ten specialists (10). Forty-seven items got scores less than 0.62, so they were removed. The cut-off point for CVI was 0.79, and 8 items got scores less than that, so they were removed too. In the end, 52 items in 5 subsections remained.

For checking reliability, we used Cronbach's alpha for each subsection that measures the internal consistency of items. Cronbach's alpha for physical condition, kitchen and its dangerous materials, bathroom, toys, and first aid equipment and essential phone numbers was 0.78, 0.62, 0.75, 0.80, and 0.78, respectively.

2.5. Statistical analysis

We described the data using Mean, standard deviation (SD), frequency, and percentage. Shapiro-Wilk test was used to examine if the variables have normal distributions. Mann-Whitney U test and Kruskal-Wallis were analytical tests that evaluated the relation between variables. P value less than 0.05 was considered statistically significant. All the analysis was done with SPSS Statistics for Windows, version 16.0 (SPSS Inc., Chicago, Ill., USA).

3. RESULT

3.1. Demographic result

Forty-one children participated in this study which 31 (75.61 %) were boys, and 10 (24.39 %) were girls. More than 30 percent of children were between 1 to 2 years old. The most prevalent bleeding disorder in this study was hemophilia A (26, 65.0 %). Hemophilia B, Afibrinogenemia, Von Willebrand type 3, Glanzmann, and Factor 7, 10 deficiencies were other disorders included in this study. Additional demographic information can be seen in **Table 1.**

Of all these children, 11 (28.95 %) experienced zero, 7 (18.42 %) experienced one, 7 (18.42 %) experienced two, and 5 (13.16 %) experienced three accidents. 8 (21.05 %) children experienced accidents frequently. 11 (40.74 %) parents of children who experienced at least one accident, believed that these accidents are related to the living condition of children.

3.2. Physical condition

The Mean and 95% confidence interval score for this section was 7.97 (7.37-8.57). Some aspects that were questioned in this section got less attention from parents. For example, only 26 (63.41 %) were careful about sharp corners in the furniture, and 23 (56.10 %) provided beds in which the distance between the rails was less than 6 cm. On the other hand, some aspects were covered well by parents. For instance, 34 (82.93 %) put fences next to the stairs to prevent children from falling. Mothers aged 30-40 had higher physical condition safety scores than mothers aged 20-30 (7.06 ± 1.62 vs. 8.37 ± 1.68, P-value = 0.012). Also, this score was significantly higher in fathers with a college education than in fathers with secondary and diploma education (8.51 ± 1.63, 7.48 ± 1.94, P-value = 0.024). Other variables like disease type, mother's educational level, mother's presence at home, father's age, father's job, and so on did not significantly affect this section's score. The full result can be seen in **Table 2.**

3.3. Kitchen and its dangerous stuff

The Mean and 95% confidence interval score for this section was 8.22 (7.73-8.70). Most of the questions that were asked in this section were covered well by parents. One of the aspects that did not get enough attention was the fire extinguisher in the house; only 12 (29.27 %) of the homes were equipped with it. The kitchen safety score was significantly higher in families where the father has a freelance job than the employee or worker (9.08 ± 0.76, 7.77 ± 1.16, 7.63 ± 2.01, P-value = 0.040). Other variables like mother's age, mother's job, mother's presence at home, father's educational level, father's age, and so on did not significantly affect this section's score.

3.4. Bathroom

The Mean and 95% confidence interval score for this section was 8.15 (7.66-8.65). The bathroom floor was slippery in 20 (48.78 %) houses. On the other hand, in 40 (97.56 %), razors and sharp scissors were kept in a locked place and out of children's reach. There were no variables that affected the score of the bathroom section significantly.

3.5. Toys

The Mean and 95% confidence interval score for this section was 7.93 (7.15-8.71). 39 (95.12 %) of parents provided toys appropriate for their children's age. 7 (17.07 %) of children played with toys with small and detachable parts that could choke children and 12 (29.27 %) of children played with toys with holes in which the child's finger could get stuck. There was no significant difference between this section score and other variables like gender, children's age, mother's presence at home, mother's educational level, and so on.

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Table 1. Characteristics of included patients.

Characteristics	Frequency	Percent (%)	Characteristics	Frequency	Percent (%)
Gender			**Building floor living on**		
Girl	10	24.39	1st	10	25.64
Boy	31	75.61	2nd	10	25.64
Age			3rd	8	20.51
1-2 years	13	31.71	4th and more	11	28.21
2-3 years	8	19.51	**Elevator**		
3-4 years	8	19.51	Yes	18	46.15
4-5 years	12	29.27	No	21	53.85
Birth rank			**Mother present at home**		
1st	25	60.98	Yes	37	92.5
2nd or 3rd	16	39.02	No	3	7.5
Type of disease			**Babysitter**		
Hemophilia A	26	65	Yes	1	2.5
Hemophilia B	2	5	No	39	97.5
Afibrinogenemia	3	7.5	**Relatives as caregiver**		
Factor VII and X Deficiency	4	10	Yes	18	43.9
Von Willebrand type 3	3	7.5	No	23	56.1
Glanzmann	2	5	**Number of accidents**		
Mother educational level			0	11	28.95
Less than 12 grade	4	9.76	1	7	18.42
Diploma	17	41.46	2	7	18.42
College Education	20	48.78	3	5	13.16
Mother job			frequent	8	21.05
Homemaker	34	82.93	**Accidents related to living conditions**		
Employed	7	17.07	Yes	12	30.77
Mother age			No	27	69.23
20-30 years	10	27.78	**Accident results in hospital admission**		
30-40 years	26	72.22	Yes	14	35
Father educational level			No	26	65
Secondary and diploma	21	51.22	**Route of transportation**		

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College education	20	48.78
Father job		
Unemployed and worker	12	30.77
Employee	14	35.9
Freelance job	13	33.33
Father age		
25-35 years	21	67.74
35-45 years	10	32.26
Area of house		
< 80 square meters	13	54.17
> 80 square meters	11	45.83
Personal car	23	56.1
Motorcycle	3	7.31
Metro and bus	9	21.95
Taxi	6	14.63
Accident during transportation		
Yes	5	12.2
No	36	87.8
Ownership of residence		
Owner	22	56.41
Rent, mortgage	17	43.59
Number of family members		
3	20	50
4	18	45
5	2	5

3.6. First aid equipment and essential telephone numbers

The Mean and 95% confidence interval score for this section was 7.30 (6.60-8.01). The result of some of the questions that were asked in this section showed some level of inattention from parents to this section. There were essential phone numbers in phonebooks in only 22 (53.66 %) houses. There was a normal saline solution for washing the injured area in only 21 (51.22 %) houses. But on the other hand, coagulation factors were available in 40 (97.56 %) houses. Like the bathroom section, no variable significantly affected the score of this section.

Table2.

4. DISCUSSION

As hemophilia is one of the most prevalent bleeding disorders and most of the children who participated in this study were cases of hemophilia, the main focus of this study is on hemophilia (11). Hemophilia is a chronic disease with severe complications. Repeated bleeding in joints can lead to deformity and arthropathy (12). Blood infusions can result in blood-borne diseases and, more importantly, the development of factor inhibitors (13, 14). So, decreasing the accidents that happen to children can lead to lower complications and higher quality of life. Home, where most of the children's time is spent (15), is our target to increase the safety level and decrease accidents. According to the annual global survey published by the World Federation of Hemophilia, there are more than 10 thousand cases of hemophilia, about 1800 cases of VWD, and about 3800 cases of other bleeding disorders in Iran. More than half of the cases of hemophilia are type A, and about 4 % of people with type A hemophilia are 0-4 years old. (16).

The result of this study shows that in some aspects of home safety, parents should pay more attention and be more concerned. The most obvious section is first aid equipment and essential phone numbers. Parents must prioritize home safety by ensuring the availability of first aid equipment and essential phone numbers. These measures can save lives in emergencies. Parents should be encouraged to provide first aid equipment, including burn ointment, bandage, and disinfectant. Furthermore, it is good to advise them to put a card that contains emergency phone numbers like police department, fire station, and emergency department. Ergün et al., in a study conducted to determine the difficulties experienced by parents, showed that mothers did not receive enough education about accidents and first aid (17). A fire extinguisher is another critical subject missing in many houses, which could be vital in life-threatening situations. The bathroom floor is another subject that could be problematic because half of the houses are slippery and cause accidents for children.

Mothers aged 30-40 had significantly higher physical condition scores than mothers aged 20-30. This could be

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Table 2. The score of each section based on the patients' characteristic

Characteristics		Physical condition	Kitchen	Bathroom	Toys	First aid
Gender	Girl	7.64 ± 2.17	7.69 ±2.03	7.96 ± 1.19	8.08 ± 1.88	6.32 ± 2.03
	Boy	8.10 ± 1.76	8.39 ± 1.26	8.21 ± 1.64	7.95 ± 2.60	7.57 ± 2.18
	P-value	0.427	0.376	0.321	0.622	0.99
Age	1-2 years	8.87 ± 1.01	8.28 ± 1.35	7.90 ± 1.29	8.28 ± 2.20	7.58 ± 1.85
	2-3 years	7.95 ± 2.65	8.57 ± 2.02	8.93 ± 1.01	9.31 ± 0.88	6.56 ± 2.38
	3-4 years	7.13 ± 1.98	7.86 ± 1.87	8.27 ± 1.89	8.06 ± 2.65	7.64 ± 2.01
	4-5 years	7.61 ± 1.65	8.16 ± 1.03	7.80 ± 1.84	6.73 ± 2.85	7.15 ± 2.64
	P-value	0.061	0.591	0.227	0.143	0.814
Birth rank	1st	7.92 ± 1.74	8.09 ± 1.40	8.28 ± 1.42	8.47 ± 2.14	7.59 ± 1.88
	2nd or 3rd	8.1 ± 2.05	8.43 ± 1.65	7.97± 1.75	7.23 ± 2.72	6.76 ± 2.59
	P-value	0.5	0.259	0.672	0.125	0.419
Type of disease	Hemophilia A	7.96 ± 1.65	8.36 ± 1.26	8.05 ± 1.72	7.81 ± 2.70	7.74 ± 2.02
	Hemophilia B	7.19 ± 3.98	7.86 ± 1.01	9.29 ± 1.01	9.0 ± 1.41	4.58 ± 1.77
	Afibrinogenemia	8.80 ± 0.96	7.62 ± 0.82	8.30 ± 0.29	6.78 ± 3.02	7.75 ± 2.38
	Factor VII and X Deficiency	8.85 ± 0.26	8.57 ± 1.17	8.37 ± 0.27	8.75 ± 0.96	6.25 ± 5.56
	Von Willebrand type 3	6.14 ± 3.82	6.19 ± 3.30	7.71 ± 2.06	8.67 ± 1.04	5.56 ± 2.55
	Glanzmann	7.93 ± 1.05	9.17 ± 1.18	10 ± 0	10.0 ± 0	7.08 ± 1.77
	P-value	0.663	0.661	0.578	0.579	0.258
Mother educational level	Less than 12 grades	5.64 ± 2.77	6.93 ± 3.07	8.29 ± 2.03	7.56 ± 2.74	5.00 ± 3.60
	Diploma	8.18 ± 1.52	8.56 ± 1.13	8.19 ± 1.80	8.13 ± 2.57	7.61 ± 2.06
	College education	8.29 ± 1.65	8.19 ± 1.29	8.10 ± 1.29	7.95 ± 2.37	7.43 ± 1.82
	P-value	0.073	0.583	0.887	0.787	0.275
Mother job	Home maker	7.77 ± 1.93	8.32 ± 1.51	8.22 ± 1.62	8.07 ± 2.41	7.23 ± 2.30
	Employed	9.04 ± 0.91	7.72 ± 1.37	7.86 ± 1.17	7.55 ± 2.68	7.45 ± 1.73
	P-value	0.074	0.186	0.53	0.599	0.933
Mother age	20-30 years	7.06 ± 1.62	8.01 ± 1.99	8.36 ± 1.66	8.63 ± 1.98	6.85 ± 2.80
	30-40 years	8.37 ± 1.68	8.23 ± 1.33	8.36 ± 1.07	8.12 ± 2.17	7.35 ± 2.08
	P-value	0.012	0.931	0.986	0.433	0.59
Father educational level	Secondary and diploma	7.48 ± 1.94	8.22 ± 1.71	8.20 ± 1.77	8.56 ± 1.96	6.71 ± 2.52
	College education	8.51 ± 1.63	8.21 ± 1.26	8.11 ± 1.32	7.38 ± 2.76	7.85 ± 1.65
	P-value	0.024	0.618	0.512	0.162	0.168
Father job	Unemployed or worker	7.34 ± 2.38	7.63 ± 2.01	8.58 ± 1.53	8.01 ± 2.26	6.10 ± 2.75
	Employee	8.47 ± 1.75	7.77 ± 1.16	7.86 ± 1.31	7.58 ± 2.90	7.50 ± 1.57
	Freelance job	8.27 ± 1.23	9.08 ± 0.76	7.88 ± 1.84	8.35 ± 2.23	7.91 ± 2.06
	P-value	0.308	0.04	0.393	0.76	0.179
Father age	25-35 years	7.81 ± 1.82	8.24 ± 1.36	8.08 ± 1.58	7.95 ± 2.49	7.44 ± 2.10
	35-45 years	7.87 ± 2.33	7.81 ± 1.96	8.20 ± 1.00	8.32 ± 2.16	7.66 ± 2.50
	P-value	0.852	0.633	0.914	0.852	0.663

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Ownership of residence	Owner	8.25 ± 1.66	8.03 ± 1.55	8.11 ± 1.44	7.66 ± 2.64	7.68 ± 1.88
	Rent, mortgage	8.03 ± 1.55	8.68 ± 1.08	8.23 ± 1.79	8.34 ± 2.29	7.00 ± 2.46
	P-value	0.475	0.232	0.651	0.392	0.51
Area of house	< 80 square meters	8.46 ± 1.01	7.91 ± 1.66	7.88 ± 2.45	8.01 ± 2.45	7.10 ± 2.18
	> 80 square meters	8.30 ± 1.72	8.44 ± 1.35	8.32 ± 2.08	8.32 ± 2.08	7.35 ± 2.23
	P-value	0.776	0.424	0.26	0.91	0.691
Building floor living on	1st	7.95 ± 1.41	8.19 ± 1.55	7.81 ± 1.28	8.33 ± 1.72	6.97 ± 2.08
	2nd	8.33 ± 2.00	8.32 ± 1.34	8.52 ± 1.24	7.93 ± 2.71	7.24 ± 2.86
	3rd	8.12 ± 1.06	8.81 ± 1.46	8.83 ± 1.07	8.31 ± 2.40	8.65 ± 1.66
	4th and more	8.24 ± 1.85	7.92 ± 1.17	7.60 ± 2.10	7.21 ± 2.98	6.81 ± 1.61
	P-value	0.612	0.523	0.432	0.84	0.147
Elevator	Yes	7.98 ± 1.88	8.45 ± 1.30	7.95 ± 1.77	7.49 ± 2.46	7.58 ± 2.01
	No	8.41 ± 1.19	8.16 ± 1.46	8.30 ± 1.34	8.56 ± 2.26	7.45 ± 1.93
	P-value	0.856	0.494	0.965	0.073	0.791
Mother present at home	Yes	8.00 ± 1.71	8.30 ± 1.46	8.35 ± 1.45	8.31 ± 2.09	7.15 ± 2.27
	No	9.44 ± 0.96	7.62 ± 2.18	6.91 ± 1.33	5.95 ± 3.37	8.61 ± 0.48
	P-value	0.093	0.557	0.06	0.296	0.32
Babysitter	Yes	10.00 ±0	5.71 ± 0	8.33 ± 0	10.00 ± 0	8.33 ± 0
	No	8.06 ± 1.69	8.31 ± 1.46	8.23 ± 1.50	8.09 ± 2.27	7.23 ± 2.24
	P-value	0.15	0.15	0.769	0.4	0.8
Relatives as caregiver	Yes	7.55 ± 2.30	7.99 ± 1.79	7.79 ± 2.01	7.28 ± 2.88	7.74 ± 1.78
	No	8.33 ± 1.35	8.40 ± 1.21	8.45 ± 0.97	8.53 ± 1.90	6.89 ± 2.44
	P-value	0.252	0.704	0.657	0.133	0.321
Number of accidents	0	7.93 ± 1.21	8.77 ± 1.36	8.49 ± 1.48	8.63 ± 1.43	8.11 ± 1.85
	1	7.88 ± 2.21	8.78 ± 1.29	7.50 ± 1.78	7.27 ± 3.43	7.74 ± 2.14
	2	8.82 ± 0.92	8.33 ± 0.98	8.78 ± 0.86	8.40 ± 2.34	7.44 ± 2.19
	3	7.86 ± 3.55	7.14 ± 2.02	8.52 ± 1.01	9.40 ± 0.89	6.50 ± 2.07
	Frequent	7.59 ± 1.69	7.41 ± 1.48	7.48 ± 2.08	8.00 ± 2.31	6.46 ± 2.17
	P-value	0.443	0.107	0.637	0.708	0.44
Accident related to living condition	Yes	6.91 ± 2.72	7.63 ± 1.81	7.66 ± 2.11	7.67 ± 2.85	6.17 ± 2.80
	No	8.40 ± 1.12	8.47 ± 1.26	8.48 ± 1.19	8.86 ± 1.66	7.67 ± 1.81
	P-value	0.258	0.245	0.283	0.008	0.111
Accident result in hospital admission	Yes	8.04 ± 1.55	8.11 ± 1.74	7.85 ± 1.65	8.04 ± 2.37	7.50 ± 2.19
	No	7.88 ± 2.01	8.21 ± 1.36	8.36 ± 1.49	8.07 ± 2.48	7.10 ± 2.26
	P-value	0.878	0.922	0.308	0.705	0.547
Route of transportation	Motorcycle	6.14 ± 3.77	6.98 ± 2.87	8.49 ± 1.44	9.33 ± 0.58	6.39 ± 3.37
	Personal car	8.38 ± 1.78	8.53 ± 1.19	8.43 ± 1.25	8.14 ± 2.24	7.44 ± 2.19
	Metro and bus	7.40 ± 1.50	8.29 ± 1.74	8.12 ± 1.82	8.01 ± 2.85	7.24 ± 2.63
	Taxi	8.27 ± 0.77	7.54 ± 1.22	6.99 ± 2.06	6.67 ± 2.94	7.08 ± 1.02
	P-value	0.121	0.324	0.418	0.467	0.876
	Yes	8.63 ± 0.84	7.92 ± 0.93	7.85 ± 2.60	7.90 ± 2.84	7.33 ± 1.71

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Accident during transportation	No	7.90 ± 1.94	8.26 ± 1.56	8.20 ± 1.39	8.00 ± 2.41	7.26 ± 2.27
	P-value	0.522	0.426	0.812	0.893	0.985
Number of family members	2	8.05 ± 1.44	8.05 ± 1.54	8.36 ± 1.3	8.64 ± 1.75	7.4 ± 1.91
	3	8.14 ± 2.05	8.43 ± 1.47	8.12 ± 1.77	7.42 ± 2.69	7.07 ± 2.54
	4	5.41 ± 3.23	7.14 ± 1	6.5 ± 2.12	5.5 ± 4.95	6.25 ± 1.77
	P-value	0.219	0.246	0.251	0.227	0.642

explained by older mothers having more experience securing their physical condition at home. In agreement with our study, Olutayo et al.(١٨) showed that the older age of the mother significantly increases home security for children. In families with college-educated fathers, the physical condition score was significantly higher. Fathers who are educated may be more concerned about the safety conditions in the home and access to the sources that collect more information about it. Fakhrunnisak et al.(19) study on the effect of parents' education level on children's mental health and happiness also showed that educated fathers provide a better environment for children's happiness and health and had results consistent with our study. The kitchen section score was significantly higher in families whose fathers have freelance jobs. Because accidents in the kitchen may happen when the children are alone in the kitchen, and nobody is watching them, if the father has a freelance job and has more free time at home, it could prevent some of these accidents and increase safety in this section. In line with our study, Rushing et al.(20) also showed that families where the father stays at home and the mother works outside can positively affect the parent-child relationship and parenting cohesion.

One of the interesting points that came up from the result is that the mother's presence at home does not significantly affect the level of safety in any section. However, it may be explained by the fact that most mothers in this study were homemakers, and only a few mothers worked outside the home and were not always at home. In agreement with our research, it was shown by Kuhlthau et al.'s (21) study that working parents, both father and mother, increase child health status. In our study, a mother's being a housewife did not increase the home's security, although for fathers, having a freelance job had a significant effect. Another variable that, before the study, seemed to be important was the mother's educational level. Still, like the previous variable, this one also had no significant effect on the level of safety at home. Despite this study's results, Mohammadinia et al. (21) and Olutayo et al. (١٨) found the mother's education level to be effective in higher home safety.

We found no significant relationship between the size of the house and the level of safety in all sections. Also, the type of residence (owner, mortgage, and rent), the floor of living, and access to the elevator in the living building did not affect the safety score in any section. In the study conducted by Munford et al.(22), it was shown that being a homeowner has a significant effect in reducing the health problems of members, including heart and respiratory problems. On the other hand, it increases free time for family participation; however, in our study, no significant relationship was found between owning a house or renting a house and higher safety. Families with personal cars for transportation had the highest score in 4 out of 5 sections compared to families transported by motorcycles or buses and metro, which could probably be explained by their higher socioeconomic status, but this difference was insignificant. The study by Black et al.(23) also showed that families who have a personal means of transportation have a better socioeconomic status on average, and this can be a reason for higher home security. However, this relationship was not significant in our study.

4.1. Limitations

One of the most critical limitations of this study was the small sample size. The presence of a few cases of other bleeding disorders than hemophilia is another limitation of this study. Furthermore, to the best of our knowledge, no similar study was conducted on patients with bleeding tendencies. Therefore, it was not possible for us to make a detailed comparison with other articles. Another major limitation of our study was its single-center nature. Iran is a vast country geographically, and the society's culture differs in different places. Therefore, it isn't easy to generalize our study for everyone. Moreover, the population of our study was not from a homogenous group, and it is better to conduct similar studies in homogenous patients. In addition, it was better to categorize patients based on disease severity, which is another suggestion for other studies.

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4.2. Suggestions

One of our major suggestions is paying more attention to utilizing safety mechanisms on sharp objects, supplying protective equipment during activities that have the potential for injury, securing potentially hazardous items away from the reach of children, establishing a secure and comfortable environment for children to engage in play and relaxation, and engaging children in decision-making and planning to the best of their abilities. These could be further factors to ask parents about in future studies. Another suggestion is that other studies use a multi-enteric approach to reduce geographical and cultural bias.

5. CONCLUSION

This study showed that the lowest safety score is in first aid equipment and essential phone numbers and needs more attention from parents. The mother's age, the father's educational level, and the father's job are the factors that affect the level of safety significantly. Providing toys that are age-appropriate and safe (without separable parts or holes)

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Conflict of interest

The authors have no relevant conflict of interest.

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