

## Preschool children's knowledge about health and safety in Turkey

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### Abstract

**Objective:** To evaluate the health and safety knowledge of preschool children.

**Methods:** The descriptive study was conducted in the Aegean Region of Western Turkey from November 2009 to February 2010, and comprised children aged 4-6 years attending five nursery schools. The data-collection period lasted 3 months and the subjects were enrolled from class lists using random sampling technique. Preschool Child Health and Safety Knowledge Assessment Form and a sociodemographic data form were used for data collection.

**Results:** Of the 298 children, 146(49%) were girls and 152(51%) were boys. Overall mean age was 5.20±0.75 years. Less than 75% correct answers were given to 5 items on the safety subsection, and 1 item on the health promotion subsection. As the age of the children increased, the level of knowledge also increased ( $p<0.05$ ).

**Conclusion:** Healthcare professionals have the responsibility to keep any eye on preschool children's health and safety knowledge for devising effective ways to make them knowledgeable adults.

**Keywords:** Health promotion, Safety, Preschool child, Healthcare professionals, Prevention. (JPMA 68: 1792; 2018)

### Introduction

The Healthy People 2010 goals target preschool children for health promotion, physical activity and improving nutrition, prevention of accidents and infectious diseases.<sup>1</sup> The preschool period is critical for psychosocial, intellectual and language development.<sup>2</sup>

Early childhood education has positive impact on children's cognitive, social, emotional development and contributes to a healthy adult. Schools are the most suitable place for children's health promotion and health education. All over the world, they are focussing on early childhood education, but the quality of education must be improved.<sup>3</sup> It is important for the preschool child to continue to learn and build upon healthy eating habits. These habits will last throughout the child's life.<sup>4</sup>

Childhood obesity has been increasing since 1990. It was noted that in 2010, 43 million children had obesity problems, and 35 million of these were in the developing countries.<sup>5</sup> In Turkey, nearly 11% of children under age 5 are overweight or obese.<sup>6</sup>

Obesity causes diseases like cardiovascular illness, hypertension and diabetes to occur in childhood.<sup>7</sup> The increase in obesity rates among preschool children is a risk in terms of these children becoming

obese adults.<sup>8</sup> Education of children in the preschool period helps to increase their knowledge about proper nutrition.<sup>9</sup>

Overall, 4% of child deaths in Turkey are the result of accidents.<sup>6</sup> Among the causes of death of 1-9 year-old children in 2008 were: 78 traffic accidents, 12 accidental poisonings, 25 accidental fall, 6 deaths as a result of fire, 8 accidental drownings, 8 deaths as a result of firearms accidents, and 98 as a result of unspecified accidents.<sup>10</sup> According to the 2014 data from the Centers for Disease and Control and Prevention (CDC), 85,227 motor vehicle-related injuries were reported in preschool/earlschool age children.<sup>11</sup>

According to the World Health Organisation (WHO) 2008 data, road traffic injuries were 9th on the list of causes of death among 1-4 year olds. Among 5-9 year olds, road traffic injuries were 2nd on the list.<sup>12</sup>

By the end of toddlerhood, they have mastered most of the large motor physical abilities they will have. However they have not yet achieved the coordination and agility that will be evident by the end of the preschool period.<sup>13</sup>

According to Jean Piaget's theory the preschool-age child continues in the preoperational stage. Magical thinking is a normal part of preschool development.<sup>4</sup> For example, a 4-year-old child who runs out in front of a car will believe that the car would stop because it would not want to hurt someone. Magical thinking characteristics put preschoolers at risk of injury.<sup>14</sup>

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Preschool children learning to ride a bicycle without a helmet on roads constitutes an accident risk. Thought and taste discrimination are continuing to develop, but preschoolers still have unrefined taste discrimination, placing them at risk of accidental ingestion. The age of 5 years is a suitable age for learning to swim. Preschoolers should never be allowed to swim in a canal or any fast-flowing water.<sup>4</sup>

Healthcare professionals who provide healthcare education should first determine what the child knows about the subject in order to prepare appropriate training programmes. To effectively evaluate health and safety education knowledge of young children, an instrument is needed that is appropriate to preschoolers' cognitive and linguistic levels and that can hold their attention.<sup>15</sup>

The current study was planned to evaluate the health and safety knowledge of preschool children.

### Subjects and Methods

The descriptive study was conducted in the Aegean Region of Western Turkey from November 2009 to February 2010, and comprised children aged 4-6 year attending five nursery schools.

Schools were selected through stratified sampling method and the children were chosen from class lists using random sampling technique. Permission to conduct the study in the five nursery schools was obtained from the Regional Directorate for National Education, and Medical Ethics Committee of the relevant university granted approval. Written informed consent was obtained from the parents of all the participating children.

Preschool Child Health and Safety Knowledge Assessment (PHASKA) Form and a sociodemographic data form were used for the collection of data. Permission for PHASKA to be used was obtained through email from the authors.<sup>15</sup>

PHASKA was developed in 2000 with the objective of determining the health and safety knowledge of preschool children, and contains questions on the topics of safety, nutrition, hygiene and health promotion. The form can be applied to children in the 3-6 year age group. The scale contains 53 picture cards. The first 3 cards are used to explain to the children how they should indicate their answers. The other 50 cards reveal the preschool child's safe/unsafe and healthy/unhealthy behaviour. Each card contains two or three pictures and the child chooses from them. For each card, the situation was explained and the child

was asked to indicate the picture showing healthy and safe behaviour. The maximum number of points that could be scored was 50. A rate of 90% correct answers was accepted as indicating that the child had mastered the content.<sup>15</sup>

A suitable room in the nursery schools was provided for the study. The selected children were first given an explanation by their teachers and researchers was introduced by the teachers. The children were taken one by one into the room and, after being introduced to the researchers, had the procedure explained to them. Each child was shown the pictures and the researchers recorded their answers on an answer sheet.

About the validity and reliability study of the PHASKA, it was first translated from English to Turkish by two nursing academics and one English language expert. The translation was back-translated into English by a language expert who had not previously seen the form. The English statements in the form translated from Turkish to English were compared with the statements in the original form and necessary adjustments were made.

The Turkish version of the form was submitted for opinions to 8 experts: 4 from the field of paediatric nursing and 4 from the field of preschool education. The experts evaluated each item by indicating whether the item was necessary, useful/insufficient, or unnecessary. With this expert advice, the final version of the form was completed and the content validity index (CVI) was calculated which was 0.83 and was found to be of a sufficient level.

For reliability analysis, split-half technique and the cronbach alpha coefficient were examined. The variance of the two sections of the scale were found to be very similar. The variance of the first section was established to be 5.05 and the variance of the second section to be 5.29. The alpha value of the first section of the scale (25 items) was 0.61 and that of the second section (25 items) 0.55. The Spearman-Brown coefficient for the whole of the scale was 0.70.

Data was entered into Predictive Analytics Software (PASW) 18 and was analyzed using descriptive statistics, and one-way analysis of variance (ANOVA) followed by Bonferroni post-hoc testing.

### Results

Of the 298 children, 146(49%) were girls and 152(51%) were boys. Overall mean age was 5.20±0.75 years. There were 61(20.5%) children aged 4, 116(38.9) aged 5, and

**Table-2:** Distribution of pre-schooler answering correctly according to age group.

Items	4 Years		5 Years		6 Years	
	n	%	n	%	n	%
<b>Safety</b>						
Wearing seatbelt	50	82.0	110	94.8	112	92.6
Sitting vs standing on swing	53	86.9	103	88.8	111	91.7
Playing ball in street vs driveway	49	80.3	105	90.5	116	95.9
Walking on fence vs jumping on sidewalk	54	88.5	108	93.1	116	95.9
Playing with outlet vs pretending to cook	57	93.4	112	96.6	113	93.4
Playing with fan vs reading book	59	96.7	114	98.3	119	98.3
Crossing street alone vs with mother	56	91.8	112	96.6	121	100.0
Holding handlebars when riding bike	55	90.2	114	98.3	120	99.2
Crossing street on green vs red light	40	65.6	74	63.8	81	66.9
Swimming alone vs with friend	59	96.7	114	98.3	113	93.4
Riding bike on side vs middle of road	48	78.7	99	85.3	116	95.9
Riding in cab vs back of truck	52	85.2	101	87.1	113	93.4
Lighting match vs giving matches to adult	57	93.4	114	98.3	121	100.0
Touching pot on stove	58	95.1	113	97.4	120	99.2
Taking candy from a stranger	44	72.1	95	81.9	110	90.9
Sitting in seat belt in car	54	88.5	109	94.0	120	99.2
Identifying private parts of body	13	21.3	19	16.4	11	9.1
Petting a strange dog	36	59.0	93	80.2	103	85.1
Getting in car with stranger	53	86.9	104	89.7	118	97.5
Handing scissors to friend	33	54.1	68	58.6	87	71.9
Running vs walking around pool	48	78.7	108	93.1	116	95.9
Wearing helmet vs cap when riding bike	42	68.9	99	85.3	110	90.9
Answering door when home alone	38	62.3	88	75.9	101	83.5
Running for help vs stop-drop-roll	43	70.5	58	50.0	51	42.1
Playing with space heater vs toy	58	95.1	116	100.0	119	98.3
Confiding in friend vs trusted adult	56	91.8	108	93.1	116	95.9
Playing with ball vs poison	57	93.4	116	100.0	118	97.5
Stopping bleeding vs getting help	40	65.6	96	82.8	107	88.4
Playing with pills vs leaving untouched	58	95.1	113	97.4	120	99.2
Answering phone when home alone	35	57.4	70	60.3	66	54.5
Handling gun	57	93.4	113	97.4	120	99.2
<b>Nutrition</b>						
Soda vs milk	55	90.2	112	96.6	117	96.7
Eating food vs dog food	53	86.9	110	94.8	112	92.6
Chocolate bar vs raisins	39	63.9	96	82.8	114	94.2
Sandwich and apple vs cupcake and chips	44	72.1	105	90.5	114	94.2
Apple vs piece of cake	50	82.0	108	93.1	117	96.7
Chicken diner vs pizza dinner	46	75.4	100	86.2	111	91.7
<b>Hygiene</b>						
Brushing teeth after meal vs playing	52	85.2	105	90.5	115	95.0
Bathing vs going to bed dirty	59	96.7	113	97.4	119	98.3
Washing hands vs playing after using toilet	55	90.2	112	96.6	120	99.2
Sneezing into handkerchief vs hand	46	75.4	103	88.8	111	91.7
Brushing teeth after snack	51	83.6	110	94.8	118	97.5
<b>Health Promotion</b>						
Point to child who feels sick	59	96.7	115	99.1	121	100.0
Staying up late vs sleeping	41	67.2	93	80.2	99	81.8
Wearing proper clothes on a cool day	58	95.1	109	94.0	121	100.0
Good posture when sitting	38	62.3	97	83.6	108	89.3
Watching TV vs exercising	32	52.5	59	50.9	80	66.1
Eating vs not eating meal	59	96.7	114	98.3	121	100.0
Standing upright vs holding abdomen	54	88.5	108	93.1	118	97.5
Adults smoking vs not smoking	56	91.8	114	98.3	116	95.9

**Table-1:** Distribution of preschooler' sociodemographic characteristics (n=298).

Characteristics	N	%
<b>Age (Years)</b>		
4	61	20.5
5	116	38.9
6	121	40.6
<b>Gender</b>		
Girls	146	49.0
Boys	152	51
<b>Education level of mothers</b>		
Elementary School	48	16.1
High School	130	43.6
University	120	40.3
<b>Employee Status of mothers</b>		
Employee	172	57.7
Non-employee	126	42.3
<b>Education level of fathers</b>		
Elementary School	36	12.1
High School	115	38.6
University	147	49.3
<b>Employee Status of fathers</b>		
Employee	292	98
Non-employee	6	2

121(40.6%) aged 6 year. Overall, 118(39.6%) were from the first nursery school, 86(29%) from the second, 52(17.4%) from the third, 26(9%) from the fourth, and 16(5%) from the fifth school. Among the mothers, 120(40.3%) had received university education and 130(43.6%) had been educated to high school level. Among the fathers, 147(49.3%) had received university education (Table-1).

Across all the three age groups, less than 75% correct answers were given to 5 items on the safety subsection, and 1 item on the health promotion subsection (Table-2).

A statistically significant difference was found between age group of the subjects and total scores ( $p < 0.001$ ) (Table-3), indicating that as the age group increased, the level of knowledge increased. Bonferroni multiple comparison test showed a significant difference among all age groups in the mean of total scale scores ( $p < 0.05$  each).

**Table-3:** Distribution of total points by preschoolers' age group.

Age	n	Mean	SD	
4 years	61	40.32	4.98	
5 years	116	43.52	3.86	$P < 0.005^a$
6 years	121	44.93	2.32	

<sup>a</sup>Age groups differed at the 0.05 significance level. Age group 5 with 6, 4 with 6, 4 with 5. ANOVA followed by Bonferroni post hoc testing.

## Discussion

Preschool children are at an important stage in terms of the development of their behaviour and attitudes which include healthy and safe practices, and these practices include safety, nutrition, hygiene and health improvement. When the items in the safety subsection were examined, it was determined that for all age groups there was a low rate of correct answers to the item concerning 'crossing street on green vs red light'. Children in the 5-9 year age group had the highest rate of pedestrian injury.<sup>16</sup> Accident analyses indicated that the inappropriate behaviour of children, in particular failing to stop and look before crossing, is an important factor in accident causation. Hence, many road safety education programmes have been developed in an attempt to reduce the accident involvement of young pedestrians.<sup>17</sup>

Many school-based training programmes have been implemented in the hope of decreasing children's risk of accidents.<sup>17-19</sup>

The items 'identifying private parts of body' and 'answering phone when home alone', which occur in the safety subsection, received a low rate of correct responses from all age groups of preschool children. These items are considered to be of considerable importance. Children's unawareness of safety precautions in this area raises the risk of them being unable to protect themselves and of them experiencing physical or sexual abuse.

Each year millions of children around the world are victims and witnesses of physical, sexual and emotional violence. In the campaign against violence towards children, the education of children is of great importance and various education programmes have been developed for this purpose.

Programmes of this type are designed to teach children how to recognise threatening situations and to provide them with skills to protect themselves. Children can develop knowledge and acquire skills to protect themselves against abuse. The concepts underlying the programmes are that children own and can control access to their bodies, and that there are different types of

physical contact. Children are taught how to tell an adult if they are asked to do something they find uncomfortable.<sup>20</sup> School-based training is essential to help children recognise and avoid potentially sexually abusive situations.<sup>21</sup>

The National Association of School Nurses defines school nursing as a specialised practice of professional nursing that advances the well-being, academic success and life-long achievement and health of students. To that end, school nurses facilitate positive student responses to normal development; promote health and safety, including a healthy environment; intervene with actual and potential health problems; provide case management services; and actively collaborate with others to build student and family capacity for adaptation, self-management, self advocacy, and learning.<sup>22</sup>

An important role for nurses in all settings is health education. Therefore school nurses/paediatric nurses working with preschool children should educate children about protection against violence in an appropriate way for that age group and should evaluate the effectiveness of this education. School health services in Turkey, under the Ministry of Health, are carried out by the Ministry of National Education and other government agencies. Services are provided by programmes and projects. Doctors and nurses can visit the schools within several programmes and projects.

The item 'running for help vs stop-drop-roll' in the safety subsection received a low rate of correct responses from all age groups of preschool children.

Children are naturally curious. As soon as they are mobile, they begin to explore their surroundings and play with new objects. In this way, they acquire the skills they need to survive in the world. At the same time, though, they come into contact with objects that can cause severe injuries. Playing with fire or touching hot objects can result in burns.

The overwhelming majority of childhood burns occur in the home, and in particular in the kitchen. Flammable substances and fireworks can cause burns too. In first aid for burn injuries, the burning process must first be stopped. In flame injuries, extinguish the flames by allowing the patient to roll on the ground, or by applying a blanket, or using water or other fire-extinguishing liquids. Increased knowledge about burns among young children has been shown to result from educational programmes in schools and communities.<sup>23</sup>

The item 'handing scissors to friend' in the safety

subsection received a low rate of correct responses from all age groups of preschool children.

Among minor injuries incurred by children, cuts and bruises are those seen most frequently.<sup>12</sup> The highest rate of all injuries among girls and boys in a study was observed to be cuts, scrapes and punctures.<sup>24</sup> It is important to teach children rules for the prevention of accidents involving sharp instruments such as scissors and knives.<sup>25</sup>

The item 'watching TV vs exercising' in the health promotion subsection received a low rate of correct responses from all age groups of preschool children. Spending too much time in front of the television or the computer can be a cause of obesity.<sup>7</sup> It was shown in a study that children who watched more television experienced a greater prevalence of obesity than those watching less television. Television viewing by children may affect both energy intake and expenditure. Energy expenditure may be reduced because less energy is required to watch television than is required for more energy intensive activities such as bicycle riding or playing tag.<sup>26</sup> Physical activity is important for a healthy body.<sup>27</sup>

For the prevention of obesity, it is therefore important for the amount of time spent by preschool children in front of the TV to be limited and for exercise programmes suitable for the age group to be implemented in nursery schools. Teachers and parents should be trained in this regard.

We found that as the age of the children increased, the level of knowledge increased as well. Similar results for pre-schoolers have been reported.<sup>28</sup>

For effective education of children in nursery schools, the education material should be chosen according to the age of the children and techniques should be based on demonstration.<sup>17</sup>

In terms of study's limitations, results are not generalisable to all regions of the country, and the data collection was based on only children's self-report. The influences of parental practices were not determined.

## Conclusions

Children in the pre-school period were found to have insufficient information on safety area and health promotion. Learning/practical measures for children need to be provided to them. In this way, areas of deficiency can be highlighted and education programmes for children/parents can be set up for healthily growth of children.

**Disclaimer:** None.

**Conflict of Interest:** None.

**Source of Funding:** None.

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