

# The Knowledge Level of Child Caregivers about A Healthy Home Environment

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## Keywords:

healthy environment; education;  
health promotion; caregivers

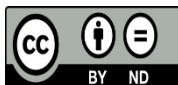
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## ABSTRACT

To know the effectiveness of online health education for improving caregivers' knowledge about a healthy home environment for children. This study used a pre-experimental design with online health education as an intervention. The data was collected on 11-12 November 2020 in Universitas Indonesia hospital in collaboration with the Directorate of Community Service and Empowerment, also Faculty of Medicine, Universitas Indonesia. The level of knowledge was measured using structured pretest and posttest questionnaires. The data were analyzed with SPSS ver. 20.0 and used paired t-test to compare pretest and post-test knowledge with a significant level of  $p < 0.01$ . The total subjects are 174 participants consisting of parents and daycare caregivers in the Java area, Indonesia. Most of the participants were female (73.6%) with an average age of 31 years and working in the formal sector (89.9%). Before intervention 23 participants (13.2%) have good knowledge, 93 (53.4%) have fair and 58 (33.3%) had poor knowledge. After the intervention, 51 (29.3%) have good knowledge, 85 (48.9%) have fair and 38 (21.8%) have poor knowledge. There was a significant difference ( $p < 0.001$ ) in the mean scores of participants between the pre-test and post-test. In almost all aspects of the questions, there was an increased score between before and after education. Online education is effective for improving caregivers' knowledge about a healthy home environment for children. Continuous education followed by face-to-face training of the caregivers and parents is needed to maintain and increase knowledge about a healthy home environment.

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## 1. Introduction

The COVID-19 pandemic has changed lives and become a challenge for many people. One of the impacts on children is that children must spend most of the time indoors in their home with family. Even children might be less likely to become infected or if so, may show milder symptoms or even asymptomatic infection [1]. Nevertheless, most governments decided to temporarily close educational institutions, daycares and children's playgrounds to reduce the spread of COVID-19. Under pandemic conditions, most

people have to work, study and worship at home [2]. The main environment for children during the COVID-19 pandemic is home, so parents or caregivers have an important role to provide a child-friendly home environment for their children. House as an environment for children consists of humans such as parents and the physicality of the house itself. Optimal physical conditions include a safe and well-organized physical environment and opportunities for children to play, explore and discover appropriate objects [3]. Children need a proper place for living with safe infrastructure, comfort, and health. According to WHO every child has the right to grow up, live, learn and play in a healthy environment [4].

The COVID-19 pandemic has the potential to affect the availability, regulation, and selection of food in families so that children are at risk of malnutrition that will increase the risk of stunting or even excess nutrients that cause obesity [5]. During the COVID-19 outbreak, children as patients were advised to avoid going to hospitals unless very necessary. Therefore, monitoring growth and development needs to be done independently by parents.

Another problem is when children do online learning, they must access school materials through gadgets or children are left by their parents to watch television to replace outdoor activities. [6] reported greater screen exposure and less caregiver-child play early in life to be associated with autism spectrum disorder (ASD). Another study shows that excessive screen time is associated with cardiovascular disease risk factors such as obesity, high blood pressure, and insulin resistance because it increases sedentary time and is associated with snacking [7].

Another impact of the COVID-19 pandemic in the world of education and training occurred in the transformation of learning methods from conventional learning methods to electronic learning methods. This has accelerated and become a necessity since the COVID-19 pandemic. Pandemic conditions require restrictions on distance (physical distancing) and gathering activities so that the application of e-learning in the learning and training process becomes one of the options. In the process of e-learning, one way of delivering material is through the internet media using a synchronous application such as zoom meetings, Microsoft teams or WhatsApp groups [8].

There have not been many studies conducted on parents or caregivers about the healthy environment in Indonesia. Based on the facts above, the intervention by hospital health promotion units in collaboration with universities through community empowerment can be used to intervene with parents and caregivers to get significant changes in the level of knowledge. The objective of this study is to know the level of knowledge of caregivers about a healthy home environment for children.

## **2. METHODS**

### ***2.1 Study Design***

The study used a pre-experimental design with pretest and posttest as tools and health education in a structured teaching program as an intervention. Pre-experiments are the simplest form of research design. In a pre-experiment, either a single group or multiple groups are observed after some agent or treatment is presumed to cause change [9]. This study was carried out at Universitas Indonesia Hospital, Depok, Indonesia on 11 and 12 November 2020.

### ***2.2 Population and Study Setting***

The target population of this study was caregivers, owners and community of parents who joined the seminar via zoom webinar and fulfilled the inclusion criteria, who attended the seminar and filled the

questionnaires before and after the lecture. The exclusion criteria were participants who registered for the seminar but did not fill the pre-test or post-test. The drop-out criteria were caregivers who did not fill both questionnaires correctly and completely.

The total sample of this study was 174 participants who joined the seminar on 11-12 November 2020. In the beginning, 196 participants registered to join the seminar. From 196 participants, only 174 participants who met the inclusion criteria attended at least one seminar between seminars on 11-12 November and filled the pretest and the post-test on the day which they were joined.

### ***2.3 Variables***

Demographic variables, which include age, gender, education, occupation, and residential were collected using Google Forms. The independent variable of this study is the structured lecture about a healthy home environment, while the independent variable is the level of knowledge of caregivers or parents.

### ***2.4 Instruments***

The structure teaching program was given by 6 resource persons with the themes which covered major areas related to a healthy home environment such as protecting children from infectious diseases, the role of family members in creating a child-friendly home, child protection during daily activities, how to be physically active while social distancing, processed food and food processing for children, medication safety for children.

The level of knowledge was measured using structured pretest and posttest questionnaires. The questionnaire consisted of 10 questions each day regarding the lecture topics. The total test scores were divided into three categories: good (minimal 80%), fair (60-79%) and poor (0-59%).

### ***2.5 Data Collection***

Informed consent from the participants was first obtained as they have the right to refuse to take part in this study. Those who agreed to undergo study would join the Whatsapp group and get the link to join the online lecture and also get all material related to the lectures. The pretest was filled by participants when they join the WhatsApp group and the post-test was filled on the last day of the health education. There were ten questions on the first day and ten questions on the second day. The pre-test and post-test were conducted online using Google Forms.

### ***2.6 Data Analysis***

Data that were collected were processed and entered using SPSS version 20.0. Paired t-test was used to compare pretest and post-test knowledge. Analysis and interpretation were conducted using a marginal homogeneity test with significance ( $p < 0.01$ ).

## **3. RESULTS**

A total of 196 participants agreed to become the research subject of this study. However, 22 participants did not complete the post-test therefore they dropped out of this study. Hence, a total of 174 people were used for data analyses. Table 1 shows the participants based on gender, job, and formal education. Most participants were female (73.6%) with an average age of 31 years and working in the formal sector which was civil servant, private sector worker, student, health worker, and other worker (89.9%). Only a few of the participants got a lower degree of formal education (9.2%). Participants who lived at residences from urban (Jakarta and its surroundings called Jabodetabek) and non-urban (outside Jabodetabek) were almost the same, 52.9 and 47.1 per cent.

**Table 1.** Demographic Description of Participants

Variables	Number (n)	Per cent (%)
<b>Age (mean)</b>	31 years old (range 17-31)	
<b>Gender</b>		
Male	46	26.4
Female	128	73.6
<b>Occupation</b>		
Civil servant	31	17.8
Private sector worker	15	8.6
Student	21	12.1
Housewife	19	10.9
Health worker	62	35.6
Other (teacher, caregivers, etc)	26	14.9
<b>Formal education</b>		
High school	16	9.2
Diploma	41	23.6
Undergraduate	70	40.2
Magister	45	25.9
Doctorate	2	1.1
<b>Residential</b>		
Urban area (Jabodetabek)	92	52.9
Non-urban area (non-Jabodetabek)	82	47.1
<b>Total</b>	174	100

Table 2 shows that before intervention 23 participants (13.2%) had good knowledge, 93 (53.4%) had fair and 58 (33.3%) had poor knowledge. After the intervention, there was an increasing number of participants who become good knowledge (29.3%) and decreasing number of participants with fair and poor knowledge. There was a significant difference ( $p < 0.001$ ) in the mean scores of participants between the pre-test and post-test analyzed with paired-compare-means analysis.

**Tables 2.** Level of knowledge about the healthy home environment for children before and after intervention

Variables	Level of knowledge			Mean	SD	p-value
	Poor	Fair	Good			
Pre-Test	58 (33,3%)	93 (53.4%)	23 (13.2%)	5.32	1.8	0.001
Post-test	38 (21.8%)	85 (48.9%)	51 (29.3%)	6.29	1.9	

Tables 3. Shows the distribution of the participant's answers to each question pre-test and post-test. The overall right answers were increased after the post-test. The question that most of the participants answered correctly in the pre-test was question number six about the condition of maximizing a healthy and child-friendly home (97%). In the pre-test, the question with the least number of participants who answered correctly was question number 13 about canned food safety. After health education, the percentage of participants who answered these questions correctly only increased to 26%.

**Table 3.** pre-test and post-test frequencies according to the right answer of all participants

No	Questions	Percentage of right answers	
		Pretest	Post Test
1.	Growth and development of children aged 0-1 years	66	88

2.	Disease in children that makes they cannot attend the school	75	84
3.	Respiratory infection's prevention	48	67
4.	Immunization for children	76	79
5.	Mask using for children	58	64
6.	Maximizing a healthy and child-friendly home	97	99
7.	family cluster in covid-19 cases	37	64
8.	Children injury at home	43	32
9.	Cause of children injury at home	30	36
10.	Prevention of injuries at home	87	99
11.	food processing	44	48
12.	Food poisoning in children	19	26
13.	Canned food safety	9	26
14.	The danger of honey to a baby	62	67
15.	Food preferences of children	82	88
16.	Level of child activity at home	13	64
17.	Physical activity for children	33	25
18.	The proper way to save liquid medication after opened	14	37
19.	Mistakes in choosing the type of medication	71	67
20.	Principle of giving the drug to children	83	88

#### 4. DISCUSSION

Everyone in the same house has a role in the health of the individual or member in that house, as well as parents or caregivers who play a very important role in creating a healthy environment for their children. Parents have a role in the growth and character building of children [10]. In this study, 26,4% of respondents were male with a bachelor's education background (22 respondents) and diploma (11 respondents). [10], [11] identify the reason why fathers are still absent from parenting activity, such as fathers generally provide economically for their families so are less involved than mothers in interaction with children, mothers are primary caregivers and fathers are secondary, and fathers give money matter more than emotional support for children's development and this has a relationship with social norm about the appropriate role of men and women. Most of the participants in this study are working mothers. Data from Indonesian Statistics Center shows that only 38,7% of women do not work in the workplace, the rest are working women [12]. A survey conducted by [13] showed that with parents with children in primary school, mothers tend to work from home and the fathers tend to work in the workplace. Mother and father should reorganize to care and work time so that the goal of a healthy home environment can be realized. Higher education background (40,2% undergraduate and 25,9% master's) affected the level of knowledge about a healthy home to have fair scores. There was a statistically significant total score increase, the level of poor knowledge (33,3%) decreased to 21,8% after education. Likewise, the level of fair and good knowledge is increasing significantly. Education using distance learning is an efficient method to increase knowledge [14], [15].

Questions no 1-10 are related to the first topic about how to protect children from infectious disease, the role of family members in realizing child-friendly homes, and child protection and first aid. A study on knowledge of prevention of upper respiratory tract infections in Bangalore found a lower level of knowledge about prevention. A familial habit such as close contact without a mask, sharing food, sexual contact or contact with viral particles on the skin increases the risk of spreading covid-19 at home [16- 18]. Several factors affect the ability to identify and prevent injuries at home such as the educational and occupational status of parents, the number of children in the family, and the history of an accident at home

[19]. Questions 11-20 relate to the topic of processed food, physical activity in children, and medication at home. This is in accordance with the research conducted by Unusan N [20] which obtained a study about the level of knowledge of food safety among family members who had the primary responsibility for food preparation was still in poor knowledge. Regarding physical activity, the result shows a similarity with a survey conducted in China that showed that during the local lockdown, more than half of Chinese adults lived temporarily sedentary lifestyles with insufficient physical activity and more screen time [21]. The factors that influence drug storage behaviour are gender, the presence of health workers in the family, and the level of education of parents [22]. It needs special attention to knowledge about processed food and food processing for children, physical activity and the use of medication in the family because these topics have a lower percentage of correct answers after education. In this study, there was no assessment related to how the parents give physical activities and choose the food for their children. In this study, we did not do the practical session to improve the caregiver's or parent's skills.

Online education is an effective way to increase parent knowledge. Continuous education and training of the caregivers and parent are needed to maintain and increase knowledge about a healthy home environment. These activities can be carried out as part of a hospital-based community empowerment program

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