

# The Influence of Health Education and Simulation Methods on The Improvement of Mother's Knowledge and Skill in Handling Injury toward Children at Home

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## The Influence of Health Education and Simulation Methods on The Improvement of Mother's Knowledge and Skill in Handling Injury toward Children at Home

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### Abstract

This research aimed to analyze the influence of providing health education and simulation method on the mothers's knowledge and skill in handling first aid toward children at home. This research was a quasi-experimental research by utilizing two group pretest-posttest design. The sample size were 65 mothers, selected using purposive sampling. Data collection was carried out in the pre test and post test phases. In this case, the data were collected through questionnaires, observations and interviews. After the data has been collected, then analyzed using paired sample t-test. Regarding the knowledge, the statistical test result was obtained p-value of 0.000 (<0.05), so it could be concluded that there was a significant difference of mother's knowledge in handling injury toward children between before and after having health education and simulation method. Regarding the skill, the p-value was 0.000 (<0.05), which meant that there was a significant difference of mother's skill score in handling injuries toward children between before and after having health education and simulation method.

**Keywords:** Injury toward Children, Mother, Health Education, Simulation Method, Knowledge, Skill.

### Introduction

World Health Organization (WHO) describes that accident or injury is an incident that is caused by the impact of an external agent that suddenly and quickly causes damage both physically and mentally. The injuries include: being scalded, being slipped, being cut, poisoning, drowning, and fall. Usually, it is caused by the lacks of parental supervision toward their children. Injury to the children can be caused by object in the house [1].

The biggest accident is occurred in dining room and living room but the most serious accident is occurred in the kitchen and stairs. Every year, more than 67.000 children experience accidents in the kitchen and 43.000 of them are occurred in less than 4 years old children. Almost everything can be prevented and can be overcome if the parents know what they have to do to prevent accident and if the accident is occurred

[2]. Knowledge about children's growth and development needs to be included with an understanding of the importance in preventing the danger that can be occurred toward the children. Meanwhile, parents' attitude, which too let their children to do everything and everywhere, will have an impact on the safety of their children's life.

Mother as parent is required to be able to take care if an accident is occurred toward their children by providing health education and simulation method about how to help victim if an accident or injury is occurred. Parents who have knowledge about prevention and child care will behave and have certain attitude toward that knowledge [3]. Skill or psychomotor must always be trained, thus, the skill will be improved. The simulation method is very suitable to be given because the respondents will perform

role-play directly. As what is stated by Anitah et al. [4], which simulation method is one learning method that can be used in group learning. Simulation method can be interpreted as a way in presenting learning experiences by using artificial situation in order to understand certain concepts, principles, or skills. The advantage of simulation is not only in order to enrich knowledge but also to enhance attitudes and skills. Simulation method gives opportunity for the mothers to practice more and it will improve mother's skills, especially in handling children's injuries.

**Methods**

This research was a quasi-experimental research by utilizing two group pretest-posttest design. The location of this research was in Karang Anyar Urban Village, Makassar City, South Sulawesi Province, Indonesia. Population of this research was all mothers who had infant and were working. The sample size was 65 mothers, selected using purposive sampling. Data collection was carried out in the pre test and post test

phases. In this case, the data were collected through questionnaires, observations and interviews. Tools, materials, and media which were utilized in this simulation method were in lecture, puppet or phantom, such as complete phantom doll, splint, mitella, long spine board and bandage. After the data has been collected, an analysis was then carried out to describe the numerical data in the form of mean, median, standard deviation, minimum and maximum [5]; then compare the knowledge and skills of mothers between before and after the intervention, using paired sample t-test.

**Results**

The characteristics of the respondents were mothers who were 20 years old to 54 years old. The education levels were 2 respondents (3.1%) were graduated from elementary school, 4 respondents (6.15%) were graduated from Junior High School, 48 respondents (73.8%) were graduated from Senior high School, and 11 respondents (16.9%) were graduated from university.

**Table 1: Distribution of mother's knowledge regarding injury management toward children before and after having health education and simulation method**

Knowledge	Mean	Median	Standard Deviation	Minimum-Maximum	95% Confidence Interval
Pre test	9.5	10.00	1.50	6-12	8.9-10.06
Post test	13.96	13.00	1.03	11-15	13.58-14.35

Based on table 1 it can be seen that there had been a change in the level of knowledge of mothers regarding injury management toward children, from a mean score of 9.5 before having health education and simulation method to 13.96 after having health education and simulation method

**Table 2: Distribution of mother's skill regarding injury management toward children before having health education and simulation method (pre test)**

Skill	Mean	Median	Standard Deviation	Minimum-Maximum	95% Confidence Interval
BLS	37.00	38.00	5.33	28-47	35.00-38.99
SD	38.36	39.00	7.43	23-56	35.59-41.14
BC	39.83	39.00	7.92	27-57	36.87-42.79
AM	39.46	39.50	5.54	25-49	37.39-41.53
Overall	38.07	39.00	4.55	27.75-46.50	36.37-39.77

Note: BLS: Basic Life Support; SD: Splint Dressing; BC: Bleeding Cessation; AM: Airway Management  
Based on table 2, most of mother's skills in providing Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), and Airway Management (AM) before having health education and simulation method were still poor. Overall, the total score for injury management skills toward children before having health education and simulation method was 38.07. The lowest score was 27.75 and the highest score was 46.50

**Table 3: Distribution of mother's skill regarding injury management toward children after having health education and simulation method (post test)**

MSIM Post HE-SM	Ma	Md	SD	Min-Max.	95% CI
BLS	92.50	95.00	6.84	70-100	89.94-95.05
SD	91.63	95.00	7.54	65-100	88.81-94.45
BC	93.16	95.00	6.55	75-100	90.71-95.61
AM	93.83	97.00	8.11	67-100	90.80-96.86
Overall	92.78	95.12	6.16	69.25-98.75	90.48-95.08

Based on table 3, most of mother's skills in providing Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), and Airway Management (AM) after having health education and simulation method had improved with an mean score of 92.78. The lowest score was 69.25 and the highest score was 98.75

Inferential analysis of the influence of health education and simulation methods in

improving mother's knowledge and skills in handling injuries toward children at home was seen in table 4.

**Table 4: The comparison of mother's knowledge in injury management toward children before and after having health education and simulation method**

Knowledge	Mean	Standard deviation	Standard Error	z	p
Pre test	9.5	1.50	0.27	4.74	0.000*
Post test	13.96	1.03	0.18		

The statistical test result was obtained p-value of 0.003 (<0.05), so it could be concluded that there was a significant difference of mother's knowledge in handling injury toward children between before and after having health education and simulation method

**Table 5: The comparison of mother's skill in injury management toward children before and after having health education and simulation method**

No	Skill	Mean	Standard deviation	Standard Error	z	p
1	Basic Life Support (BLS)					
	Pre test	37.00	5.33	0.97	4.78	0.000*
	Post test	92.50	6.84	1.24		
2	Splint Dressing (SD)					
	Pre test	38.36	7.43	1.35	4.78	0.000*
	Post test	91.63	7.54	1.37		
3	Bleeding Cessation (BC)					
	Pre test	39.83	7.92	1.44	4.78	0.000*
	Post test	93.16	6.55	1.19		
4	Airway Management (AM)					
	Pre test	39.46	5.54	1.01	4.78	0.000*
	Post test	93.83	8.11	1.48		
5	Overall					
	Pre test	38.07	4.55	0.83	4.78	0.000*
	Post test	92.78	6.16	1.12		

Based on table 5, it was obtained a description about the comparison of mother's skill before and after having health education and simulation method in handling injuries toward her children, which were: Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), Airway Management that had improved. Moreover, the overall score of skill had been improved from 38.07 (pre test) to be 92.78 (post test). The p-value was 0.0013 (<0.05), which meant that there was a significant difference of mother's skill score in handling injuries toward children between before and after having health education and simulation method

**Discussion**

**The Influence of Health Education and Simulation Method on Mother's Knowledge Regarding Injury Management toward Children**

The finding of the research indicated that there was a significant influence of health education and simulation method on mother's knowledge in handling injury toward children. This was in line with the result of conducted research by Firawan (2013). In his research, he found a significant difference in the effect of health education against changes in people's knowledge and attitude about dengue fever [6]. Similarly, a conducted research by Suryaningsih (2013) and she said that there was a significant influence of health education against postpartum knowledge regarding exclusive breastfeeding [7], as well as a conducted research by Salafiah et al. (2014) who stated that there was a significant correlation between the

provisions of health education against the improvement of mother's knowledge about parenting for infant [8]. The influence of someone's knowledge level was occurred due to communication factor which was the process of operating a stimulus in form of a symbol of language or motion.

Health education was an effort or activity to create community behavior that was conducive for health. It meant that the society was aware or understood about how to maintain health and avoid or prevent things that was detrimental for health [3]. Finding of the research indicated that the intervention of health education and simulation method had led to an improvement of mother's knowledge in handling injury toward children. This illustrated that health education and simulation method could be a strategic or superior instrument in improving family's or community's knowledge, especially for

mothers regarding with an emergency particularly in handling injury toward children. Moreover, this was in line with Nursalam's opinion (2008) which stated that health education as a consciously planned process was in order to create opportunity for individual to learn and to improve awareness (*literacy*) and also to improve knowledge and skill for their health [9].

The influence of health education factor and simulation method in improving mother's knowledge in handling injury toward children was in line with conducted research by Budiman & Riyanto (2013) concerning with several factors that affected one's knowledge especially in education factor, information, experience [10]. Participation or involvement from the mothers took a role or part in health education and simulation method gave the advantages for the improvement of experiences and changes in behavior both in preventing and managing injury toward their children.

This was in accordance with Bandura's opinion regarding behavior change as an experience function and learning experience was very important influence against learning something [11]. Likewise, according to Budiman, personal experiences and information were factors that could influence mother's knowledge and attitudes which were given health education and simulation method [12]. The implementation of health education activity and simulation method by involving working mothers and having children could become predisposes, enabling and reinforcing factors for the mothers in improving their knowledge, especially in handling injury toward their children at home.

### **The Influence of Health Education and Simulation Method on Mother's Skill Regarding Injury Management toward Children**

Finding of this research indicated that mother's skill in handling injury toward children, including Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), and Airway Management (AM) overall experienced improvement score after having health education. Furthermore, finding of the research was in line with several previous researches, such as conducted research by Sari et al (2018) which showed that there was a significant influence of

health education against knowledge level and skill in first aid on X Grade Singkopoleh students in Public Senior high School [13]. Health education with simulation method functioned as facilities or infrastructure as training skill for mothers in order to improve their skills in health care, especially the prevention and the treatment of injury toward children.

The skills required training and basic ability which were owned by everyone in order to be able to help in producing more valuable and quick things [10]. The implementation of health education activity and simulation method for mother in injury prevention and management toward children was expected in order to fulfill four types of skills as what was proposed by Robbins (2000): first, Basic literacy skills (basic skill, especially listening information and knowledge about ways to provide Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), and Airway Management (AM); second, Technical Skills (technical expertise in performing BLS, SD, BC and AM); third, Interpersonal Skills (expertise in listening and communicating the treatment of BLS, SD, BC and AM in their group); fourth, Problem Solving (expertise in preventing and overcoming injury problems toward the children by using their logic and feeling) [14].

### **Conclusions and Suggestions**

Health education and simulation method had a significant influence. It produced improvement in mothers' knowledge in handling injury toward their children. Likewise, in terms of Basic Life Support (BLS), Splint Dressing (SD), Bleeding Cessation (BC), and Airway Management (AM) had improved significantly after the implementation of health education and simulation method at home in Karang Anyar Urban Village, Makassar, South Sulawesi Province, Indonesia. Regarding with that, it is suggested: First, the implementation of health education activities and simulation methods need to be intensified and be extensive in household / family and society; Second, Regional Government, especially Makassar City Government, in particular needs Urban Village Government, the Health Office, and the Health Service Unit (*Unit Pelayanan Kesehatan (UPK)*) such as Public

Health Center together develop and implement special policies and programs

regarding the implementation of health education and simulation methods for housewives in their working area; Third, the cadres or health workers who are suggested to more often conduct socialization and provide information either directly or through the available media to the mothers about injury management toward children. Coordination and collaboration between health cadres and the community needs to be improved to more notice about the child safety and child health.

### Implication and Limitation

This research was limited to be conducted in only one urban village in an urban area by limited number of samples. Therefore, it needs further research in wide-scale and intensive scale across the urban areas, across family communities and society. Besides, local governments / related institutions, universities (Health Polytechnic of Ministry of Health, especially for Nursing Study Programs) and the Health Service Unit need to compile and provide a special module for housewives or families as a guideline in implementing health education and nursing in the field of prevention and injury management toward children.

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