A mobile-based application for children emergency identification training for mothers

F Awalia*, D Septriana, B Afziani, B Budiman and N Romadhona
Faculty of Medicine, Universitas Islam Bandung, Jalan Tamansari No. 1, Bandung 40116, Indonesia

*fajar@unisba.ac.id

Abstract. Melong is a dense district in West Java of Indonesia and mostly occupied by pre-prosperous families, therefore the probability to be exposed with a pediatric emergency situation is large. The intervention was dedicated to preparing the community in identifying the pediatric emergency situation. The preliminary survey was conducted to identify household with toddlers. The mother of correspondent households was gathered in a forum and the baseline data about their knowledge in a pediatric emergency situation were measured twice, before and after the intervention. The intervention given in this public service is group discussion between a pediatrician, public health specialists, and the mothers. After the intervention had given, the mothers were explained and equipped by tools that would be useful to identify (and to cope) with problems such as a thermometer, water bladder, and measuring glass. Most of the respondents filled the questionnaires, they were mothers with children or grandchildren at home. The intervention method was successful to increase the pediatric emergency identification. Further evaluation for consistency of knowledge at home is needed due to rare chances of emergency situation.

1. Introduction
Indonesia is a country that populated over 261,115,456 people. With 2.39 fertility rate, the population growth is increasing positively, hence the proportion of younglings (aged between 0-4 years old) is greater compared to other age groups. The proportion of toddlers in many areas of Indonesia are consistent, regardless of their population density [1]. The West Java, as the highest populated province in Indonesia, experiencing the same situation that children are the most prominent group in the population. 18% of West Java residents are lodged in Bandung Raya area (regency of Bandung and West Bandung, the city of Bandung and Cimahi), approximately 8,670,501 citizens [2].

Cimahi is a city with three districts and fifteen villages. Melong area is situated in South Cimahi district with the lowest altitude compared to surrounding areas, the height is 685 m above sea level and being a part of the longest river in West Java province, the Citarum. In population characteristic, Melong is renowned as the most crowded area (71,558 persons) and owning larger pre-prosperous families than other villages. Those characteristics produce poor health outcome, such as infant mortality rate in 6.85/1000 live births, with acute respiratory tract infections as the number one disease in toddlers (9986 cases or 34.33%) and followed by diarrhea (2853 cases or 9.81%) [3].

The infant mortality rate is one of the unaccomplished indicators of Indonesia’s millennium development goals (MDGs) with 22.9 (95% CI 19.1; 27.6) rate in 2015, followed by under-five mortality...
rate at 27.3 (95% CI 22.5; 33.4) in every 1000 live births. Major causes of child mortality are respiratory tract infection, nutrition problem, injury, and diarrhea [4].

Due to the mortality and morbidity rate mentioned above, the optimization of health service and health education is still needed. Despite the information technology is replacing the old fashioned-way of knowledge transfer, meet the expert is still the most effective way of exchanging information. Two-way communication diminishing boundaries of the unknown zone in knowledge, by chances, to ask the questions to the expert directly. This study was aimed to find the success of the training in elevating the knowledge of child emergency situation.

2. Methods
This workshop was planned, organized, actuated, and controlled. First, the program was planned by a series of meeting identified the date, place, material, and event. It was decided that the event would be held in Tuesday may 1st 2018 in a Majelis Taklim Melong Cimahi, with the topic in the identification of fever, diarrhea, and dyspnea. The audience target was mother or woman who had children at home and the data was gathered from the Majlis. The event was scheduled into registration, opening, pre-test, mini-lecture, discussion, equipment recognition, post-test, door prizes, and closed by announcement of the best participant and documentation.

The topics that had given were the identification of the most frequent symptoms that happened in children, what to do when kids got a fever, dyspnea and diarrhea, and dangerous symptoms that must be identified in a quick manner. The questions were made by a team of public service in the medical faculty of Universitas Islam Bandung (UNISBA), evaluated by a pediatrician and public health specialist before launched in the workshop. The test was assessed and rated by the percentage of correct answers. The result was compared by analyzing the dependent T-test and elevated scores were expected to conclude that the workshop was a success.

The main topics of mini-lecture were given in a presentation by a pediatrician. They were topics about fever, dyspnea, and diarrhea. All of those topics involved the danger signs when things get worse and what to do to prevent them. Definition of fever, diarrhea, and dyspnea was introduced, followed by the etiology, what to do when contracted to those symptoms when the correct time to refer to a doctor, and the accompanying dangerous symptoms that must be aware of. Inside the training, the participants were given videos, photos or diagram about symptoms that had the possibility to be a dangerous situation.

3. Results and discussion
Participants' enthusiasm was felt by 22 questions on the floor regarding the topics and situation that they had encountered with their children. Pens and notes were all spent, and the training was attended by 43 mothers who were actively asking. The number of respondents who joined the pre and post-test was 34, most of them were aged between 51-60 years old, had grandchildren at home, and graduated from high school. The analysis of T-test concluded that there was a significant difference statistically between the mean of pre and post-test, where the mean of post-test was greater than pre-test. There were 67.65% senior high graduated but still some of the respondents were graduated from elementary school.

| Table 1. Respondents age. |
|-------------------------|
| Age (years) | n | % |
| 31-40  | 2  | 5.88 |
| 41-50  | 5  | 14.71 |
| 51-60  | 26 | 76.47 |
| > 60   | 1  | 2.94 |
Table 2. Respondents education.

| Education   | n  | %     |
|-------------|----|-------|
| Elementary  | 3  | 8.82  |
| Junior high | 8  | 23.53 |
| Senior high | 23 | 67.65 |

Table 3. Difference analysis of pre and post-test mean.

| Variable     | n  | Mean | SD     | P Value |
|--------------|----|------|--------|---------|
| Correct answers |
| Pre-Test     | 34 | 70.2 | 13.26  | 0.001*  |
| Post-Test    | 34 | 80   | 10.25  |         |

Respondents' knowledge in pre-test generally were good enough, expressed in 70.2 means of correct answers. However, there were incorrect answers about potential emergency symptoms and temporary treatment that able to do at home that measured in particular questions in the questionnaire. Fortunately, mean of the post-test correct answers was increasing 9.8 points became 80 and the P value of T-test described there was a significant difference between the mean of correct answers in pre and post-test.

The elevation of the mean of correct answers is one of the success indicators in a round-up, nevertheless, it has a temporary effect if the participants will occasionally be exposed to such condition. However, the dangerous situation is not expected in our daily activities but the continuous training will be needed to prepare mothers in their own household. Every participant was provided with knowledge and some equipment to detect dangerous situation earlier, consisted of water bladder, thermometer and measuring glass. The plan for the next workshop would be an early treatment of pain (a headache, stomachache, nausea, vomit, etc.) using a hot or cold water bladder, explanation about correct time to use antipyretic drugs according to body temperature that measured by a thermometer, and oral rehydration therapy at home using measuring glass.

The mini-lecture method was given by audiovisual aid that proven to be effective as a media to promote healthy condition as conducted by Kapti et al. [5]. As explained in the methods section, the intervention was given by pediatrician, well connected to the mothers by bidirectional discussion while presenting the audiovisual media. This live lecture attracted mothers’ interest concerning their children and motivated them to be carefully watch their kids due to possibility of emergency situation at home. A research conducted by Varao-Sousa and Kingstone shows that interest and motivation are correlated positively with higher memory performance [6]. There were numerous questions by the mothers and grandmothers that concerned about an emergency situation that might be dealt with, their common background as members of Qur'an reciting club (majlis taklim) made them courageously asked the questions critically. The two following pictures below showing the situation where the workshop was held. It was held in a reciting place in the morning. There was no buzzing discussion when the workshop was held, indicating that the topic was needed and important for them.
4. Conclusion
Most of the participants agreed that the workshop was useful and demanded to be held again in the near future. Motivation and knowledge-elevating was crucial to gain mothers attention, and proven that the intervention method by mini-lecture, discussion, and practice of identification was successful to increase the pediatric emergency identification score in mothers. Continuously same program will be conducted in the same area but with broader segments, including fathers and elementary kids that will be make a healthy surveillance system for children.

Acknowledgments
This research was supported by Unit of Research and Civil Service of Bandung Islamic University (UNISBA) Indonesia. We would also like to show our gratitude to Ajeng, Anastassya, Fasya, and Fadhil, students of UNISBA medical school for assistance that greatly helped the civil service and research assessment.

References
[1] WorldBank 2017 Fertility rate, total (births per woman) [Online] Retrieved from: https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=ID [Accessed December 20, 2017]
[2] Pemprov Jabar 2011 PendudukWebsite Resmi Pemerintah Provinsi Jawa Barat [Online] Retrieved from: http://jabarprov.go.id/index.php/pages/id/75 [Accessed December 20, 2017].
[3] Dinkes Kota Cimahi 2014 Profil Kesehatan Kota Cimahi 2013
[4] WHO 2017 GHO | By country | Indonesia - statistics summary (2002 - present). WHO [Online] Retrieved from: http://apps.who.int/gho/data/node.country.country-IDN [Accessed December 21, 2017]
[5] Kapti R, Rustina Y and Widyatuti W 2013 Efektifitas audiovisual sebagai media penyuluhan kesehatan terhadap peningkatan pengetahuan dan sikap ibu dalam tatalaksana balita dengan diare di dua rumah sakit kota malang Jurnal Ilmu Keperawatan 1(1) 53-60
[6] Varao-Sousa T L and Kingstone A 2015 Memory for Lectures: How Lecture Format Impacts the Learning Experience PloS one 10(11)