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The Knowledge of and Attitudes Toward First Aid and Cardiopulmonary Resuscitation Among Parents☆,☆☆

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ABSTRACT

Purpose: To determine the level of knowledge of first aid and cardiopulmonary resuscitation (CPR) among the parents of children who attended our Pediatric Emergency Department and to identify the factors that affect this knowledge.
Design and Methods: Descriptive, transversal study. A questionnaire was distributed anonymously among parents to collect data about their previous CPR training, knowledge and experience.
Results: A total 405 valid questionnaires were returned. The mean age of the sample was 38.08 (SD 7.1) years, and 66.9% of participants were female. The mean score of correctly answered questions was 6.76 out of 19 questions. Parents with a university education received a mean score of 7.16 versus 6.24 for those with a primary education ($p = 0.022$). Parents with previous training received a higher mean score (8.04 vs 6.17, respectively, $p < 0.01$). Parents with jobs related to healthcare or education received a higher mean score compared to those who did not (8.63, $p < 0.01$ and 7.16, $p = 0.0013$, respectively).
No significant differences among parents with chronically ill children ($p = 0.76$) or related to the number of children ($\rho = -0.101$) were observed. Furthermore, 77.3% of parents expressed an interest in receiving further training.
Conclusions: Knowledge of first aid among the general population is lacking. Parents with previous training in this field, those with a university-level education, and those who are healthcare providers and educational professionals received significantly higher scores.
Practic Implications: Studies based on surveys can be useful in estimating a population's knowledge base, allowing the development of community-based training activities.

Introduction

Every day, either by accident or illness, there are numerous situations in which the safety of individuals, families or communities is endangered. >2000 children worldwide die every day as a result of unintentional injuries (World Health Organization, 2008), and accidental injuries are the leading cause of death among children older than one year of age in Spain (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2014), and it has been estimated that about 453,482 children in Spain suffer unintentional injuries per year, including traffic accidents, drownings, burnings and fallings, in decreasing order of frequency (Junco, 2016).

First aid is defined as an integration of assessments and activities that either witnesses or victims are able to perform without medical equipment. A first aid provider would be anyone who gave first aid regardless of their level of training or knowledge; nevertheless, it would be desirable to have enough knowledge of first aid, emergency care or medicine to guide actions for a better outcome (Eisenburger & Safar, 1999). These actions must be based on scientific evidence or, in the absence of evidence, on the consensus of experts. First aid should not delay the activation of the emergency medical system if it is necessary (Markenson et al., 2010).

Quality first aid, which is often provided by people without medical training, is essential to support life and to avoid physical and psychological sequelae (Wei et al., 2013). Parents and caregivers' knowledge of first aid is particularly important, as it is widely established that appropriate initial first aid can significantly improve outcome (Alomar, Rouqi,

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& Eldali, 2016), which means that adequate knowledge, skills and confidence to administer first aid before they take their children to hospital are required. It has been demonstrated that, if emergency cardiopulmonary resuscitation (CPR) is administered within 4–6 min to a child whose heart has suddenly stopped, the likelihood of survival increases by 8–40% (Burford, Ryan, Stone, Hirshon, & Klein, 2005). However, only a few studies have investigated first aid knowledge among the general population (Conrad & Beattie, 1996). (Eichelberger, Gotschall, Feely, Harstad, & Bowman, 1990)These studies concluded that educational interventions are necessary to improve knowledge of the practice of first aid (Conrad & Beattie, 1996; Eichelberger et al., 1990), (Langley & Silva, 1986; Singer, Gulla, Thode, & Cronin, 2004; Sunde, Wik, Naess, & Steen, 1998; Thein, Lee, & Bun, 2005; Wei et al., 2013), and should be undertaken regularly to ensure that the knowledge and confidence is maintained (Howard & Houghton, 2012).

Purpose

This paper describes the results of a study, the main objective of which was to determine the level of knowledge of first aid (FA) and cardiopulmonary resuscitation (CPR) among the parents of children who accessed the Pediatric Emergency Department of a tertiary hospital of the Community of Madrid and to identify what factors influenced this knowledge.

Methods

Study Design

We performed a unicentric, descriptive cross-sectional study with in the Pediatric Emergency Department of a tertiary hospital.

The study was approved by the Ethics and Local Clinical Research Committee and was conducted in compliance with the standards of the Declaration of Helsinki. All principles of good clinical practice were followed during the study.

Written informed consent was obtained from all participants in the study.

Sample and Study Setting

The study was conducted in a third level pediatric hospital in the Community of Madrid, which responds to approximately 55,000 emergencies annually.

The parents of patients who went to the pediatric emergency department from August 1st, 2015, to November 30th, 2015, were invited to participate in the study. It included all parents of children with a priority categorization of three, four and five in the Modified Canadian Pediatric Triage and Acuity Scale – that classifies patients into five priorities of decreasing severity related to waiting times, with level one patients to be attended immediately- excluding children who had high-risk emergency, and that gave their written consent. Since data collection was performed through a written questionnaire, parents who did not know how to read and those with difficulties understanding and responding adequately to our survey (which was only available in Castilian) were excluded. Only one of the parents of the same child was enrolled in the study if they both were in attendance. Those who agreed verbally and in writing anonymously completed the survey. Exclusion criteria were as follows: children included in the high urgency categories (one and two on the Modified Canadian Pediatric Triage and Acuity Scale) and individuals who had language - the questionnaire was developed and only available in Spanish – or cognitive barriers. Questionnaires without at least 90% of the questions completed were also excluded.

To guarantee the representativeness of the sample and to maintain the proportions of the reference population, a stratification by time periods of the Pediatric Emergency Department was created (morning: 8:00 a.m. to 3:00 p.m.; afternoon: 3:00 p.m. to 10:00 p.m.; and night: 10:00 p.m. to 8:00 a.m.). The sample was randomly selected. Questionnaires were offered by the principal investigators during times when they were present to assist. It was decided that investigators would be in charge of recruitment, as they were aware of the randomization method. In addition, recruitment required a brief explanation of the study and collection if a written consent, which could meddle with the work of gatekeepers and increase waiting times. The randomization consisted of providing surveys to the parents of the first five children who visited the emergency room at each of the following times: 10:00 am, 5:00 pm and 1:00 am. This procedure was followed until a suitable sample size- that is to say, with a minimum size which was previously estimated by statistical estimation- was achieved.

Study Protocol

This study explored parent's knowledge by asking them about specific situations related to FA and CPR. We considered variables that could have had an impact on FA knowledge, such as gender, education level and attendance to educational events. We also took into consideration qualitative factors, like parents' self-confidence in FA techniques, parents' perception of need of training and their willing to take part to training courses.

Data collection was achieved through an anonymous, self-completed and closed questionnaire. As there was not an available questionnaire in Spanish by the time of the study, an expert group took charge of developing the questions in order to reflect several concepts and situations. The questionnaire was developed following several stages. First, a literaure review was performed, and a definition of the question for each variable was determined. The questions were mainly based on the “Red Cross First Aid and Reanimation Guidelines” of 2010 (Markenson et al., 2010) and from the “American Heart Association First Aid and Cardiopulmonary Resuscitation and Automatic Defibrillator Instructor Manual” (Gelpi et al., 2012). Next, the order of the questions was determined, and the format of the questionnaire was designed by the expert group. Finally, evaluation for reliability and validity of the instrument was performed by pilot testing the survey in 20 people (10 health care professionals and 10 parents), asking for their opinion about the content, writing and clarity of the questionnaire. According to the feedback, changes in the survey were made, including confuse questions before starting actual data collection.

The questionnaire was divided into ten sections as follows:

- The first section included demographic variables such as age, sex, level of education, type of job and if it was related to children (pediatric healthcare and education), number of children and if they had chronic diseases, and, if the answer was affirmative, which this disease was. No personal data were collected.
- The second section included information about previous training or experience in first aid, including attendance in courses related to this subject, personal searching for information in books or websites and experience with situations in which those skills may have been useful. It also included questions regarding on the thoughts and feelings about first aid and CPR, self-perceived training and interest on learning more in lectures and courses.
- Sections 3 to 10 identified the knowledge of the parents concerning first aid and resuscitation via 19 questions with 4 possible answers for each question; only one answer was the correct answer, and the option "I do not know/I have doubts" was included to avoid random answers as much as possible. The first five questions addressed general aspects of first aid, and the following 14 questions were related to the management of specific situations such as injuries, trauma, burns, poisoning, choking, loss of consciousness/convulsion, and cardiorespiratory arrest.

The final score was equal to the sum of the correct answers to the questions concerning knowledge of first aid and cardiopulmonary

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