



# A national educational campaign to raise awareness of child physical abuse among health care professionals

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## Abstract

Education is necessary to improve child physical abuse detection and management. A few studies have described national child abuse training programs, but none has measured changes in knowledge among participants. A collaboration of child abuse experts from the USA, an academic pediatric department, and a non-governmental organization in child protection aimed at (a) training hospital physicians in a train-the-trainer course for the detection and management of child physical abuse and (b) conducting workshops and measuring attendance and gain of knowledge of participants. A train-the-trainer and a national curriculum were created. A 78-item and a 20-item knowledge questionnaire were used pre and post the train-the-trainer course and all workshops, respectively. Nineteen physicians from all pediatric departments of the seven medical schools in Greece attended the course. Eight workshops in seven cities took place with a total attendance of 1220 health care professionals. Gain of knowledge was demonstrated for participants in the train-the-trainer course ( $p = 0.0015$ ) and local workshops ( $p < 0.001$ ).

**Conclusion:** We successfully engaged physicians from all medical schools in Greece and conducted a train-the-trainer module and eight workshops in major cities that improved the participants' knowledge in child physical abuse. This approach may help address physician deficiencies in emerging areas of child abuse clinical practice.

## What is Known:

- Education is necessary to improve child physical abuse detection and management.
- Although national training programs have been described, none has measured participants' changes in knowledge.

## What is New:

- A collaboration of child abuse experts, all medical schools in Greece, and a non-governmental organization resulted in a national educational campaign in child physical abuse and gains in knowledge for participants.
- This approach may help address deficiencies in emerging areas of clinical practice.

**Keywords** Child abuse curriculum · Child maltreatment · Child protection · Continuing medical education · Educational workshops · Train-the-trainer program

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## Abbreviations

NKUA National and Kapodistrian University of Athens

## Introduction

Child physical abuse is a global public health problem with long-term negative effects for involved family members. In the short-term, recognition of physical abuse can be life-saving, especially in young children who are at the highest risk of fatal abuse [1]. However, even in countries with mandatory reporting systems in place, child physical abuse is under-recognized and underreported [2, 3]. Although adult reports of child physical abuse seem to be decreasing in countries where primary prevention interventions and policies were implemented in the 1990s [4], rates are still unacceptably high. In addition, due to limitations in physician effectiveness to convey primary prevention messages to caregivers [5], timely recognition and appropriate management of physical abuse remain the cornerstones of child protection in clinical practice.

Limited available data suggest that health care professionals in Greece have been failing to protect children at risk [6, 7]. Since 1977, the Institute of Child Health has developed child protection policies and educational programs in Greece. However, pediatric clinicians have demonstrated very little participation and interest in these efforts, partly due to a striking absence of medical educational programs and lack of interagency collaboration. Furthermore, although the law against family violence issued in 2006 requires physicians to report child abuse and neglect, there were no hospital policies in place or child protection teams to support them.

These deficits are disconcerting since an epidemiological study reported an alarming prevalence of exposure (> 75%) to physical violence among school-aged children and adolescents in Greece [8]. This finding is supported by the large number of calls related to child maltreatment placed to a national child helpline in Greece in the past few years [9]. On the other hand, pediatric clinicians are recognized as key professionals in the identification and referral of suspected victims of child physical abuse [10]. Moreover, education is considered a fundamental prerequisite to improve the quality of clinical work, increase the chances of detecting abuse, and provide services to ensure the child's safety [11]. Despite the recognized importance of education, tools to assess gained knowledge following training courses have not been thoroughly investigated [12].

Although a few studies have described the development of national child abuse training programs [13–15], none has implemented the same program in all pediatric academic units of a country and none has measured changes in knowledge among participants. The aims of this study, therefore, were to develop and evaluate a national child abuse training program by (a) selecting, training, and engaging a group of

hospital physicians in a train-the-trainer course for the detection and management of child physical abuse in Greece and then (b) conducting a national medical educational program and measuring attendance and gain of knowledge of participants.

## Methods

### Train-the-trainer course

A train-the-trainer curriculum in child physical abuse for hospital physicians in Greece was created by two child abuse specialists (JL and RO) from the USA, collaborating with a core team consisting of two pediatric faculty members (AS and MT) of the National and Kapodistrian University of Athens (NKUA), School of Medicine, and the Executive Director (AfS) of ELIZA—the Society for the Prevention of Cruelty to Children, a non-profit organization, from Greece. The Chairs of all 12 Pediatric Departments of all seven medical schools in Greece were contacted to recruit at least one physician from their departments. The characteristics and needs of the prospective trainers were taken into consideration during the design of the training course. The course was planned to take place at the “P. & A. Kyriakou” Children's Hospital of Athens under the auspices of the Ministry of Health of Greece. The Institutional Review Board of the Hospital approved this training course and the associated study. There was no charge to attend, and travel and accommodation expenses were provided.

A 3-day curriculum to train the trainers was created, comprising 25 h of lectures in the following modules: (1) Epidemiology and risk factors, (2) Clinical care (data collection, decision making, types of injuries, and clinical skills), and (3) Systems of child protection (US, international, and local). Materials were created and presented by the two academic child abuse specialists. Lectures were designed to repeat and enhance information during the training course and included numerous case vignettes.

## Workshops

### Translation and development of a national curriculum

All educational materials pertaining to epidemiology and risk factors and clinical care provided by the two child abuse specialists for the train-the-trainer course were translated into Greek by a medical school graduate and a pediatrician, both fluent in English. A pediatric NKUA faculty member, who had received post-graduate training in the USA and the UK, edited all materials and created short versions of all presentations. Under the supervision of the child abuse specialists, the pediatric NKUA faculty and the pediatrician created a

protocol with practical clinical steps for the management of suspected child physical abuse and selected an emblematic case for presentation to demonstrate the need for interagency collaboration in Greece. A child advocate attorney from ELIZA created a brief presentation on Greek reporting mandates in the health care setting. The pediatrician and the child advocate attorney joined the core team in conducting the workshops.

### Testing of a pilot workshop

A pilot workshop in Athens coordinated by both child abuse specialists, aided by simultaneous translation in English, took place the day following the completion of the train-the-trainer course. Five trainers were sent a Greek PowerPoint presentation with explanatory captions in English a month prior to the train-the-trainer course. These trainers joined the core team to conduct the pilot workshop. Following the pilot workshop, all presentations were adjusted according to the suggestions of the child abuse specialists.

### Training in the respective cities

Subsequently, all trainers and the chairs of all departments collaborated with the core team to conduct workshops in their respective cities. The core team along with the local trainers was required to present the standardized materials in a uniform manner. All workshops were managed by the same administrative office and took place under the auspices of the Ministry of Health of Greece. The Institutional Review Board of the Hospital hosting the pilot workshop approved the teaching of all workshops. Each workshop's duration was 6 h. Attendance was free and granted with six Continuing Medical Education credits. At the end of the workshop, attendees received a print-out of the child abuse protocol.

### Description of knowledge questionnaires

A 78-item questionnaire was used to measure gain of knowledge following the train-the-trainer course. The questionnaire was based on a 168-item assessment tool developed by a child abuse specialist for pre- and post-training evaluation in child maltreatment (Charles Johnson, unpublished, personal communication). Pertinent questions were selected and used unchanged. The adapted questionnaire consisted of 48 true/false questions, 29 five-item multiple-choice questions (in 20 the stem consisted of a drawing), and one four-item multiple choice question. The questionnaire was completed by participants prior to (pre-test) and immediately following the completion of the course (post-test). All questionnaires were anonymous and numbered to ensure pre- and post-test pairing.

Subsequently, 20 questions pertaining to the content of the workshops were selected from the 78-item questionnaire.

These questions were translated into Greek and back-translated into English, according to the guidelines of the World Health Organization [16]. The 20-item questionnaire had 15 five-item multiple-choice questions (in 11 the stem consisted of a drawing) and five true/false questions. Attendees were requested to complete the pre-test and the post-test and note their profession and workplace. Questionnaires were anonymous and numbered to ensure pre- and post-test pairing.

### Data analysis

Data analyses were conducted in two phases. First, paired *t* tests were performed to compare the average scores before and after the training course. Continuous variables were expressed as means and standard deviations.

Second, to estimate if the difference in mean scores before and after workshops were significant, paired and unpaired Student's *t* test were performed in total scores and paired *t* test in scores by city of training and occupation.

Data management and analysis was performed using StataSE (v13); *p*-values less than 0.05 were considered significant.

## Results

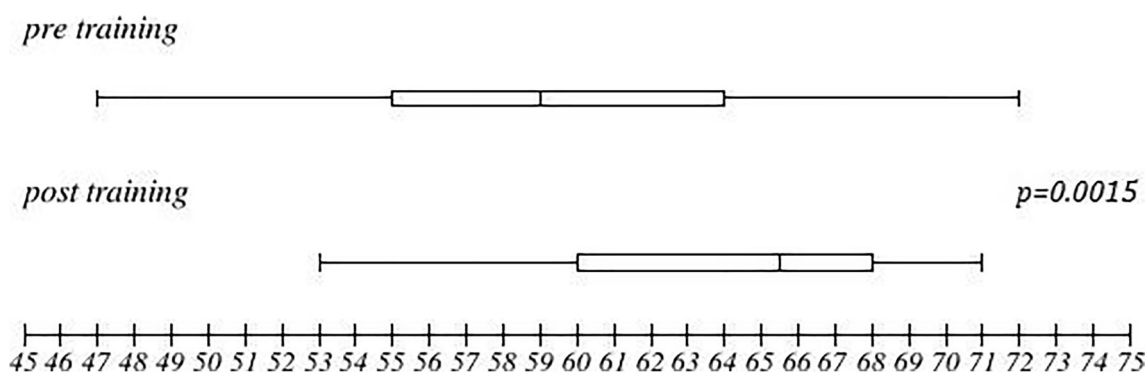
### Train-the-trainer course

There were participants from all 12 pediatric departments in the train-the-trainer course, specifically 18 pediatricians and 1 pediatric research fellow. Thirteen were females (68%); 9 held National Health System (47%), and 10 University (53%) positions. Time post-residency training was 15.0 years (mean, SD = 6.2), range 4.0–31.0 years. Six participants were General Pediatricians (32%), and twelve practiced Specialty Pediatrics across nine subspecialties (63%).

All 19 participants completed the pre-test, and one failed to complete the post-test. The mean pre-test score was  $59.4 \pm 6.9$  (range = 47.0–72.0), and the mean post-test score was  $64.0 \pm 5.2$  (range = 53.0–71.0) (Fig. 1). Based on the paired *t* test, the 95% confidence interval of the pre- and post-test score difference was  $-7.18$  to  $-2.05$  ( $p = 0.0015$ ).

### Workshops

Eight workshops in seven cities of Greece took place with a total attendance of 1220 health care professionals. There were 188 attendees in the pilot workshop in Athens. Within 5 months, seven workshops were conducted with 1032 attendees in total. These seven workshops took place in Athens, Alexandroupolis, Heraklio, Ioannina, Larisa, Patra,



**Fig. 1** Pre- and post-training scores for the participants in the train-the-trainer course. Bars indicate range of scores. Boxes indicate interquartile range. Vertical lines within boxes indicate median scores

and Thessaloniki. The professions of the 1220 attendees are shown in Fig. 2.

The 20-item questionnaire was completed by 758 attendees. Of those, 58% completed both pre- and post-tests, 40% only the pre-test and 2% only the post-test. For all questionnaires, the mean pre-test score was  $14.7 \pm 3.0$  ( $N=740$ ) and the mean post-test  $15.9 \pm 2.1$  ( $N=458$ ). For paired questionnaires, the mean pre-test score was  $15.0 \pm 2.6$  and the mean post-test  $15.9 \pm 2.1$  ( $N=440$ ). The paired  $t$  test for the matched analyses and the  $t$  test for the unmatched analyses both showed significant gains in the scores of the questionnaire ( $p < 0.001$ ). Pre- and post-training scores of the matched workshop questionnaires are shown in Fig. 3.

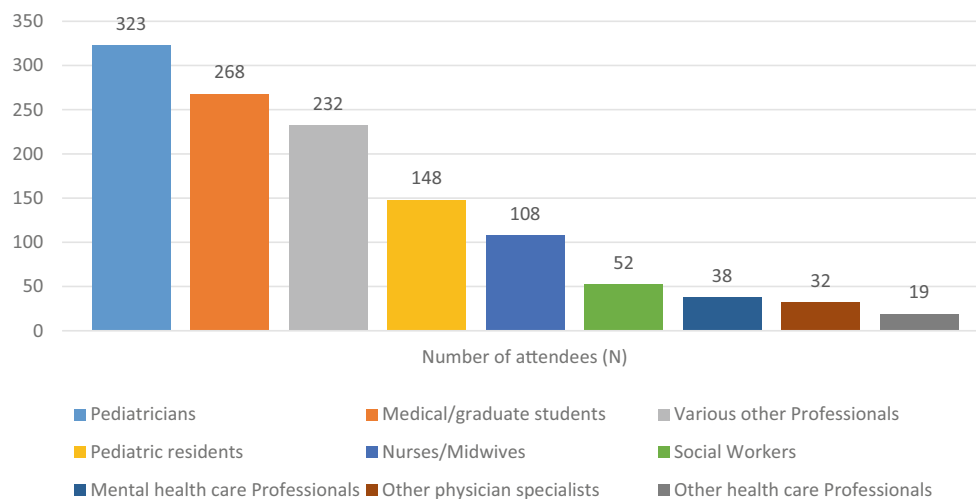
Analyzing mean scores by occupation, pediatricians, and pediatric residents scored the highest pre-training (15.8 and 16.1, respectively) followed by residents of other specialties (15.7). In all occupations, there was an increase in scores after the workshop. Statistically significant differences in mean scores were found for medical students/graduates ( $p < 0.001$ ), pediatricians ( $p = 0.003$ ), pediatric residents ( $p < 0.001$ ), mental health care professionals ( $p = 0.012$ ), and social workers ( $p = 0.003$ ) (Table 1).

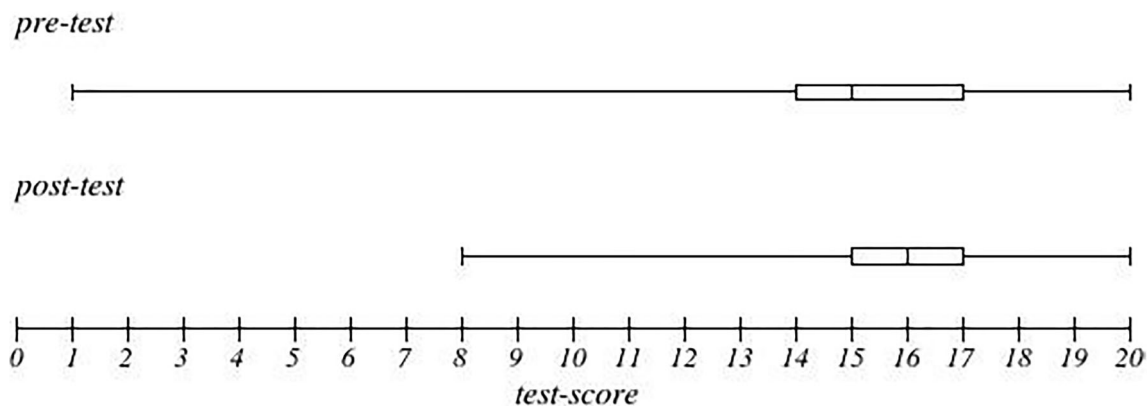
## Discussion

This is the first study to extend the train-the-trainer method on the detection and management of child physical abuse to all pediatric academic sites of a country and evaluate knowledge gains. Specifically, we demonstrated three key findings: (1) a collaboration of US child abuse experts with a strong and committed local core team resulted in the training of 19 pediatric physicians from all seven medical schools in Greece; (2) these physicians with the core team conducted eight medical educational workshops on child physical abuse in seven cities with a total attendance of 1220 health care professionals; and (3) overall, there were statistically significant increased scores when pre- and post-training questionnaires were compared. This train-the-trainer module ensured reliable and uniform presentation of medical information in all cities and for all health care professionals. In addition, local trainers helped attract larger audiences, consisting mainly of pediatricians, pediatric residents, medical students, and medical school graduates.

Assessment of change in knowledge in the context of a train-the-trainer program is unique in our study. However,

**Fig. 2** Professional status of workshop attendees ( $N=1220$ )





**Fig. 3** Pre and post scores for the course.  $N = 440$  matched 20-item questionnaires. Bars indicate range of scores. Boxes indicate interquartile range. Vertical lines within boxes indicate median scores

consistent with our findings, training professionals from local communities to become trainers in child abuse has been previously successful in raising awareness of child maltreatment in large groups. Similarly, in the “Action in Childcare Settings,” a train-the-trainer program in Quebec, Canada, trained practitioners trained others with multiplying effects [17]. A national pediatric train-the-trainer program on the recognition and response to child abuse and neglect in India gathered participants from all over the country and resulted in a dedicated task force and a training module [13]. Similar to our efforts, the aim of a UK standardized intensive pediatric course held in venues throughout the country was to empower pediatricians in the diagnostic process of child abuse [14]. Another example is the EPIC-SCAN (Educating Physicians in Their Communities on Suspected Child Abuse and Neglect) program, through which a network of devoted clinicians in Pennsylvania, USA, was created [18].

Our course included previously reported effective strategies in building train-the-trainer programs, such as targeting specific practice settings following a needs assessment and the participation of powerful and inspiring experts [17]. In addition, it resulted in the achievement of an optimal recruitment

rate (100%) from all twelve pediatric academic centers and a high completion rate (95%) for the course. These rates compare favorably with a UK effort to engage general practitioners in training in child safeguarding in the context of domestic abuse, where only 55% of approached practices participated in the program and 42% of the participants completed the pre- and post-questionnaires [19].

Despite legal mandates and the role of pediatricians as “first responders,” child abuse work in Greece has been an area of practice highly neglected by pediatric educators and clinicians. The enthusiastic participation of pediatricians in both the train-the-trainer course and the subsequent workshops indicates their empowerment as educators about this topic. The degree of their engagement in clinical child abuse work, however, remains to be assessed in the future.

Several educational principles deemed important in translating enhanced knowledge in child protection issues to altered physician behavior [11] were followed in the train-the-trainer course: targeting a specific group of physicians, assessing their needs and baseline knowledge, aiming at well-defined goals, using illustrative materials with repetition of key messages, and teaching by experts in the field from

**Table 1** Paired  $t$  test for mean pre- and post-training scores, by occupation

	$N$	Pre-training Mean (SD)	Post-training Mean (SD)	$p$
Medical students/graduates	119	14.8 (2.4)	15.9 (1.7)	< 0.001
Pediatricians	105	15.8 (2.1)	16.4 (1.7)	0.003
Residents in pediatrics	55	16.1 (2.1)	16.9 (1.8)	< 0.001
Social workers	31	12.8 (3.7)	14.6 (2.7)	0.003
Nurses/midwives	22	14.4 (2.1)	15.1 (2.5)	0.211
Other health care workers	22	15.2 (1.9)	15.6 (1.6)	0.319
Various other professionals	18	14.6 (2.1)	15.6 (1.9)	0.142
Mental health care professionals	17	13.2 (3.3)	15.5 (2.2)	0.012
Other physician specialists	14	14.8 (3.0)	15.6 (1.4)	0.223
Residents in other specialties	13	15.7 (1.6)	16.5 (2.1)	0.119



distinguished institutions. Altered physician behavior, as a result of education in child maltreatment, has been shown in previous studies in a variety of settings. For example, in a survey of 482 US Air Force emergency physicians, family practice physicians, and pediatricians, the single factor associated with the likelihood of reporting child maltreatment was the amount of relevant continuing medical education received [20]. In the USA as well, staff training at an institution significantly improved detection of perinatal maternal and neonatal illicit drug exposure [21]. There also are two examples from Mediterranean countries. First, a nationwide educational campaign on child abuse in Turkey resulted in a considerable increase of the existing number of multidisciplinary teams and pertinent educational activities at all medical education levels [15]. Second, a 3-day workshop for 150 physicians on domestic violence in Israel not only improved perceived knowledge and skills but also overall management of cases for a 6-month period [22].

Lack of medical education in child protection issues may have resulted in inadequate awareness, insufficient skills, and subsequent under-recognition and underreporting of suspected victims by physicians in Greece [7]. A similar deficiency in education has been highlighted in neighboring countries. For example, a survey among primary care physicians in Turkey revealed inadequate knowledge and attitudes regarding the identification and response to child abuse [23]. Recently, a survey of physicians in Turkey revealed that only 13.1% had received postgraduate training on child abuse [24]. According to an Italian survey, most pediatricians and general practitioners had never attended any training course on child maltreatment [25]. Even in the USA, where relevant educational programs are well established, a small but representative sample of physicians with no access to child abuse specialists in their areas expressed a need for practical teaching modules aimed at the identification of child abuse cases and management tools [26].

Given the paucity of studies on the evaluation of knowledge gain following training and interventions to promote child protection [12], another need that emerges is the development and use of relevant standardized tools. In our study, using both the 78- and the 20-item pre- and post-tests in the train-the-trainer course and the workshops, respectively, participants improved their knowledge on child physical abuse ( $p = 0.0015$  and  $p < 0.001$ ). Consistent with our findings, a systematic review of training interventions to improve the response of physicians, nurses, social workers, and teachers to domestic violence and child abuse demonstrated a significant improvement in participants' knowledge scores in the majority of studies [27]. Similarly, a training program about child safeguarding in the context of domestic violence for general practitioners found positive changes in knowledge scores, which were sustained at 3-month follow-up [19].

There are at least five limitations of this study. Two relate to the training since there were neither practical exercises to assess the participant's ability to apply gained knowledge nor sessions on other types of maltreatment, such as sexual abuse and neglect. Another three relate to the evaluation of the courses since the measures used were not standardized and there was no long-term assessment of knowledge and no evaluation of potential changes in the behavior of the participants.

This study has strengths regarding at least four areas: the process, the team, the educational materials, and the effectiveness. The executive director of the NGO (AfS) formed a strong partnership with a pediatric faculty member (AS) to develop a clear vision of the project and gather a core team. Initially, they established collaboration with child abuse specialists (JML & RO) from prestigious US institutions as well as the active involvement of the faculty's chair (MT). Then, this core team worked closely together to seek funding, engage prospective key stakeholders, recruit participants, prepare the curriculum, create relevant materials, and delegate well-defined roles for all involved parties. This critical leadership led to securing adequate funding and the enthusiastic participation of all stakeholders. The trainers were experienced physicians representing all medical schools located in various regions of Greece, with motivation in receiving training and willingness to teach others. The educational materials and the supervision of the child abuse specialists were excellent. The numerous practical case vignettes in the lectures stimulated interaction and increased engagement in the course. In addition, in the end of all workshops, all participants received a copy of the protocol. This train-the-trainer group coupled with the driving force of NGO funding and administrative support led to a major educational campaign conducted within the span of a few months.

Furthermore, this unique collaboration of US child abuse experts, academic pediatric centers, and a powerful NGO dedicated to child protection could serve as an effective model to overcome important deficiencies in physician awareness in emerging areas of pediatric practice, such as sexual abuse and exploitation, child trafficking, and child refugee status. Our experience might also be helpful to address expressed training needs of other health care professionals in child abuse, such as prehospital emergency care providers [28].

In conclusion, in one of the few country-wide efforts to improve the detection and management of child physical abuse, we successfully engaged a group of hospital physicians from all medical schools in Greece and conducted a train-the-trainer module and eight workshops in major cities in Greece that improved the participants' fund of knowledge. This approach can serve as a model for the development of potent pediatric educational campaigns.

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## Compliance with ethical statements

**Conflict of interest** The authors declare that they have no conflict of interest.

**Ethical approval** This article does not contain any studies with human participants or animals performed by any of the authors.

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