

## **Descriptive research about first aid teaching by Physical Education teachers in Primary School**

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### **Abstract**

This research aims to know the current situation of first aid taught at Physical Education (PE) in Primary Schools. Research population consisted of active teachers who taught in Primary School, in Lugo. Sample consisted of 36 teachers (N=36) and an ad hoc questionnaire with 22 questions about the interest topic was applied to obtain data. The statistical program SPSS version 20.0 was used to analyze data. Results reveal a poor use of first aid content, used on Primary Education class programme.

**Keywords:** Physical Education, first aid, curriculum, class programme, Primary School.

### **Resumen**

Con esta investigación se pretende conocer el estado actual de la enseñanza de los primeros auxilios en la etapa de Educación Primaria como contenido de la Educación Física. La población de estudio estuvo compuesta por docentes en activo que impartían Educación Física en la etapa de Educación Primaria en los centros de la provincia de Lugo. La muestra estuvo formada por 36 docentes (N=36). Para la obtención de los datos, se aplicó un cuestionario *Ad Hoc* con 22 preguntas acerca del tema de interés: la inclusión de contenidos sobre primeros auxilios en la etapa de Educación Primaria. Para el análisis de los datos se empleó el programa estadístico IBM SPSS versión 20.0. Los resultados revelan un uso pobre de los primeros auxilios como contenido dentro de las programaciones de aula en la Educación Primaria.

**Palabras clave:** Educación Física, primeros auxilios, planes de estudios, programación de aula, Educación Primaria.

## 1. Introduction

Since Organic Law 8/2013, December 9<sup>th</sup> for the improvement of educative quality (LOMCE) was established in Spain, inclusion of first aid contents at Spanish Primary Schools is mandatory.

We can highlight two important reasons, among others, to include first aid at school:

1. The fact that almost 100% of the population goes to school, and it is convenient to educate as much people as possible in first aid topic.
2. Results of other researches establish that thirteen-year-old kids are already physically capable of carrying out the practice of resuscitation, and, at the same time, they have the needed mental maturity to understand the importance of facing a cardiac arrest situation (Sanz et al. 2013).

As any other kind of contents, teaching first aid in class requires a method and resources to make it possible to learn. In order to analyze this variable, this research investigates the methodology that Primary Education PE teachers carry out to teach and evaluate these contents, because PE is one of the subjects in which first aid contents are included.

The initial consideration to organize the research refers to the fact that teachers in general, and specifically Physical Education teachers, do not usually teach these contents because of the lack of time and resources aula (Reder & Quan 2003).

Because of this reason, the main objective of this researche is getting to know the current state of first aid education during Primary Education taught by active PE teachers from Lugo's province.

This main objective leads to the specific following ones:

1. Getting to know how these first aid contents are included in the subject of PE at Primary Shools in Lugo's province.
2. Getting to know how are first aid contents taught by PE teachers of Primary Education.
3. Getting to know the evaluation method of knowledge related to first aid carried out by PE teachers of Primary Education.

## 2. Theoretical framework

### 2.1. First aid on Primary Education legislation

In our country, the last few decades, there were a lot of different laws involving Primary Education curriculum, establishing guidelines for the teachers in their classes (minimum contents they must work on, objectives to reach per student, evaluation criteria to decide if objectives were accomplished, etc.).

First aid as a part of Primary Education curriculum, shows up for the first time at national level with the last educative law approved, Organic Law 8/2013, December 9th (B.O.E. nº 295), for the improvement of educative quality (LOMCE). In the Real Decree 126/2014 (B.O.E. nº 52), regulating LOMCE, first aid are explicitly named as a learning standard of Physical Education: “Explains and recognizes most common injuries and sportive diseases, and preventive actions and fist aid”.

On the other hand, first aid were already named exlicitly on 130/2007, June 28<sup>th</sup> Decree (D.O.G. nº 132), which established the Primary Education curriculum in Galician Autonomous Community. This content showed up explicitly to teach and work with it in PE classes during the last cycle of Primary. Inside block 4, physical activity and health, it was mentioned “injuries prevention during physical activity: warming up, effort dosage, recovery/relaxing, first aid...”.

Also in Galicia, the last published decree, 105/2014 (D.O.G. nº 171) September 4<sup>th</sup> Decree, which established Primary Education curriculum in Galician Autonomous community, increases the contents related to first aid and it includes them in three different subjects: Natural Science, Physical Education and Social and Civic Values. Table 1 shows how explicit they are.

Subject	Grade	Block	Evaluation criteria and/or learning standards
Natural Science	Sixth	Block 2. Human being and health.	Knows first aid techniques, in simulated and real situations.
Physical Education	Fifth	Block 5. Physical activity and	Explains more common injuries and sportive diseases, as well as preventive actions and basic firs aid.

		health.	
	Sixth	Block 5. Physical activity and health.	Explains and recognizes more common injuries and sportive diseases as well as preventive actions and first aid.
Social and Civic Values	Sixth	Block 3. Cohabitation and Social Values	Be able to realize first aid and taking preventive actions, evaluating the importance of preventing domestic accidents.
			Knows first aid practices.

Table 1. First aid in Primary Education curriculum

This way, teachers of this educative stage, and more specifically, those who teach these subjects, should follow the curriculum instructions and include first aid on their class programmes.

## 2.2. Research about teaching children about CPR

After analyzing different text on this subject, it can be confirmed that teachers consider useful teaching first aid techniques during Secondary Mandatory Education (ESO). The general opinion is that the best moment to teach it is from 3<sup>rd</sup> grade ESO (14 years old) during PE classes or Biology.

There is not a single opinion about teaching these contents during Primary Education, even though it is proved that teaching basic cardiopolmonary resuscitation (bCPR) is successful among primary students, because in spite of having lack of physical force, they do learn the technique. In fact, there are researchs that prove that students between 7 and 12 years old (Primary Education stage) can learn and reproduce the maneuver and remind the theoretical knowledge (López-Unanua et al. 2008). In this regard, there are researches in which it is revealed that CPR at the age of 6-7 years old, and even more, they say that these kids could be prepared to save lifes.

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As an example, Naqvi et al. (2011) named a research realized in United Kingdom, inside a programme designed by the Heart British Foundation through “Heartstart United Kingdom”, which revealed the introduction of thoracic compression practices to kids of primary age (7 to 14). The obtained results proved that most of them confirmed to remind theoretical and practical, even with the appropriate compression chest’s depth (a fact that shows up the opinion of many teachers at the time of teaching this contents in primary)

According to the named research, 19% of students between 11 and 12 years old and 45% between 13-14 years old reached the appropriate depth compression. This is also related to height and weight; if they are taller, they would be better at carrying out these basic CPR techniques.

Anyway, different opinions show up another time. According to Jones and Whitfield (2007, in Naqvi et al. 2011), none of the kids between 9-10 years old, could make properly the chest compressions with the recommended depth.

However, other reserches, as the ones carried out by Frederick et al. (2002), Lewis et al. (1997) and Uray et al. (2003) (in Abraldes, 2011, and in Plant & Taylor, 2013), have proved scientifically that kids with ages between 6 and 15 years old are capable of understand and properly practice first aid, including bCPR techniques.

According to research carried out by García-Vega and associates (2008), children between 10 and 12 years old can make these maneuvers correctly on the 100% of the cases, using selftraining techniques with a kid dummy.

All these statements lead us to ask ourselves if these contents should be taught at schools.

First of all, there is a research which establishes that most of the parents consider that first aid should be a mandatory subject during Primary and Secondary School. In fact, according to the results of Uray et al. (2002, in Abraldes 2011), over 94% of the respondents said that this classes should last at least an hour a month, given them more importance as children pass grades.

Authors such as Bohn and associates (2012) concluded that including first aid at schools is feasible, and they revealed that, in order to do it, it would be necessary, at least an anual class, which would not make a huge change in the Primary Education curriculum. Besides, they made themselves clear saying that it is appropriate to start organizing the

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education as soon as possible. It should be highlighted also the fact that this research showed it would only be necessary to carry out minimus changes on the educative plan, and the formation could also be taught by the existing teachers. Therefore, cost or lack of qualified staff should not be a problem in order to teach CPR at school.

What it is obvious is that emergencies are unpredictable, specially in an environment full of children. If a kid has any accident, it is necessary to know when to call capacitated staff for emergencies, and most of all, what to do while you wait for them to come. Help provided by people present in the moment of the accident, may mean the difference between life and death; even though first aid do not replace medical attention, they could complement it and beneficially help (Ríos, 2010).

There are situations in which the correct and immediate action of present people is essential to save a life. For this reason, first aid should be carried out immediately and in situ, until specialized staff attends (Cazull et al. 2007).

The prime example is that early practice of bCPR by a present person during an accident can duplicate or triple the survival chances of cardiac arrest victims. However, witnesses carry out a low percentage of cases of bCPR practices (in Galicia, only 18% of cases). It is essential to highlight that as much people trained to carry out CPR practices, more chances for a witness to realize bCPR maneuvers to a cardiac arrest victim (PCR) (López-Unanua et al. 2008).

Cazull and associates (2007) calculated between 15% and 20% the percentage of daily deaths because of the lack of prepared people referring to basic first aid. These bad statistics would be highly reduced if part of the population was efficiently capable to carry out first aid techniques, because an accident may happen anywhere at any time, and most of the time, the person who intervenes first is the one in that place at that time.

Focusing on Physical Education's case, due to the fact that is a subject in which accidents could happen frequently because of its practical content, trained teachers are essential to face this kind of situations, and also, to prepare their students so they know how to act in case is needed.

### 2.3. Convenience of educate children on CPR topic

A way to reach good results is to educate kids since they are young, because they are an easy audience and it is not expensive to do it (Plant & Taylor 2013) because of the following reasons:

First of all, kids learn quickly and they are usually open to learn new things, so it is easy to get them motivated to learn first aid contents, and acquire them in a meaningful way.

Secondly, once they reach some skills, they can teach them to others, even to their own family; for example, a trained boy or girl can teach these techniques to the rest of the family members. Besides, Plant and Taylor (2013) confirmed on their researches that it is impossible to split CPR ability from cost, time and effort needed to carry the teaching programmes out. They also suggest possible options to get over obstacles: to reduce instructor's time; use instructors instead of medical staff, specially teachers that may have to be prepared for that; to promote learning these contents outside the school, and also at home with the use of selfinstruction kits; to increase the use of basic techniques, etc. Researchs made by López-Unanua and associates (2008) and also by Naqvi and associates (2011) demonstrated that family member's training on CPR helps to save lifes, specially if there are cardiac risk patients among the family group.

In third place, in our country, formation at school is equal, reaching every social class, and for this, every children. So this way, we could educate the whole population.

Moreover, periodic reviews would avoid the forget fulness of these contents at schools. Even 11-year-old children, could learn easily these first aid techniques and reproduce them efficiently even three months later the initial formation. With the appropriate train, they would be qualified to carry out chest compressions efficiently during five minutes without showing fatigue (Naqvi et al. 2011). In addition, Plant and Taylor (2013) referred to a research located in Stavanger (Norway), where CPR rate by witness increased from 60% (2001-2005) to 73% (2006-2008), due, among others, to training of over 54,000 boys and girls at school age from this country.

It is essential to begin with first aid training as soon as possible, because childhood is a fundamental period to set knowledge and behaviours that could acquire a depth emotional sense only during this stage. If they are not obtained at this mentioned moment, later on, it would be more difficult to form them, because their needs are focused on other aspects of life

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that seem more necessary and complexes for that moment, so to keep them motivated to learn these contents may be harder.

Because of this reason, it seems that school environment is the most appropriated to train and teach about basic first aid topic. This practice could be repeated every year with the same student's group, reinforcing and remembering what was already learned, something that Peter Safar (1990, in Cazull et al. 2007) confirmed already when he said "in the future, schools should play a key role in the expansion of first aid and basic resuscitation knowledge and experiences to the audience in general" (p.4).

### 3. Methods and working techniques

This research is based on a descriptive method. From the obtained data, a detailed description was made about the inclusion of first aid contents in PE during Primary Education stage in Lugo's province.

#### 3.1. Material and method to collect data

During the first part of the research, a theoretical introduction was made, based on a wide bibliographic search of the main data bases linked on Physical Education.

During the second part, a questionnaire Ad Hoc was sent to all active PE teachers in Primary Education from Lugo's province. Specifically, it was sent by e-mail to all schools in Lugo where Primary Education is taught.

#### 3.2. Population and sample

In order to give an answer to the posed questions, it was considered as population all active teachers of PE in Primary Education located in any of the 123 Primary Schools in Lugo, registered by the Education and University Planning Concierge of Galicia (<https://www.edu.xunta.es/centroseducativos/BuscaCentros.do>). Finally, total sample was composed by 36 subjects, 22 men (61.1%) and 14 women (38.9%). However, sample which really gives us results was composed by 16 subjects, who confirmed to teach first aid at their classes.



### 3.3. Questionnaire

To obtain data, a questionnaire Ad Hoc composed by twenty-two (22) questions was used, one of them divided in three subitems. All items were closed answer, except the last one, in which suggestions about which aspects would they like to deepen were accepted.

On the middle of the questionnaire a excluding question showed up, in which people could not keep answering if they answered that one wrong. Specifically, the questionnaire was composed by five (5) dichotomous questions, fifteen (15) polichotomous. Four (4) out of these fifteen questions were multiple choice, and eleven (11) sigle choice; one (1) item as Likerts scale; and one (1) opened question. The questions were made based on two dimensions:

- 1) Sociodemographic dimension (7 questions).
- 2) Dimension of first aid use as teaching contents; technique, style and type of used contents (15 questions).

### 3.4. Procedure

To obtain data, the questionnaire was sent by e-mail to Primary Schools located in Lugo, after a previous review of an expert committee composed by University Proffesors and also Primary Education teachers. Specifically, it was sent to PE teachers during this educative stage.

Once received and covered, answers were codified and data was analyzed with a statistical treatment programme (IBM SPSS v. 20.0).

After data collection, it was reflected on frequency tables distinguished by dimensions, with absolute and percentage values.

## 4. Results

The obtained results were analyzed on a quantitative manner through an exploratory descriptive analysis and emphasizing on important data, showing it in descriptive tables and completing them with an exploratory analysis of graphic representations.

### 4.1. Sociodemographic results dimension

Sociodemographic dimension data, which helped to identify subjects, revealed a higher presence of men among PE teachers in Primary Education (61.1%). Most of the sample's people were between 31 and 50 years old. (83.3%)

Variable		Average (%)
GENDER	Women	38.9
	Men	61.1
AGE (years old)	21-30	8.3
	31-40	44.4
	41-50	38.9
	≥51	8.3

Table 2. Results: gender and age distribution.

Most of the sample taught because of an academic degree diploma (86.1%). Regarding the current situation inside the schools in which teachers were giving lessons, most of them were public officials with final destination (72.2%), highlighting among the sample public school teachers (77.8%).

Variables		Average (%)
Qualification	Certified	86.1
	Graduated	0.0
	Other	13.9
Current situation as a teacher	Susitution interim	16.7
	Public official with provisional destination	2.8
	Public official with final destination	72.2
School type	Public	77.8
	Concerted	22.2
	Private	0.0

Table 3. Results: Distributed by: qualification, current teacher's situation and school type in which belongs.

#### 4.2. First aid use as teaching contents, technique, style and used content types dimension results

First question of this dimension was excluding. It consisted on getting to know if teachers included or not in their classes, contents related to first aid. If their answer was

negative, questionnaire was over for them. Less than half of the participant teachers answered affirmatively (44.5%) and only this part kept contributing as data to the research.

Variables		Average (%)
Your class programme includes first aid	Yes	44.5
	No	55.5

Table 4. Results: First aid inclusion in class programme.

Table 5 shows results referred to technique, styles and type of contents used to teach first aid. Direct teaching obtains an 83.3% against a 15.7% which will mix direct teaching and research as the teaching technique to use.

Referring to first aid teaching style, the outstanding ones were: traditional (35.6%), participatives (28.5%), against cognitive (14.3%) and individuals, creatives and socializing ones, this three shown as less used ones (7.2% each other).

Related to learning types, acquisition of knowledge and correct execution of CPR (55.56%) seems to be better than students' attitude (44.44%).

On the other hand, referring to the percentage distribution of contents among evaluation, it was observed in concept contents, that the value from 25 to 50% predominates in 66.66%, while it was the same (16.67%) among values from 0 to 25% and from 50 to 75%, being 0% in those values going from 75 to 100%. Procedure contents had more importance, 83.3%, and their value went from 50 to 75% against 16.67% of values going from 25 to 50%. Attitude contents were less important among the three different types. An 83.33% of the subjects participating, gave them a value between 0 and 25% against a 6.67% which gave them a value from 25% to 50%.

Regarding evaluation tools, half of the sample expressed to combine both methods, quantitative and qualitative, but the ones who expressed to use only one of them, revealed to prefer qualitatives (33.33%) against quantitative (16.67%).

Variables		Average (%)
Used teaching technique	Direct teaching	83.3
	Research	0.0
	Both	16.7

First aid teaching types	Traditional	35.6
	Cognitive	14.3
	Participative	28.5
	Individual	7.2
	Creative	7.2
	Socializing	7.2
Primary learning types	Knowledge and correct CPR execution	55.56
	Students entertainment	0.0
	Students attitude	44.44
	Todas	0.0
Distribution concept contents among evaluation	0 - 25%	16.67
	25 - 50%	66.66
	50 - 75%	16.67
	75 - 100%	0.0
Distribution procedure contents among evaluation	0 - 25%	0.0
	25 - 50%	16.67
	50 - 75%	83.33
	75 - 100%	0.0
Distribution attitude contents among evaluation	0 - 25%	83.33
	25 - 50%	16.67
	50 - 75%	0.0
	75 - 100%	0.0
Evaluation tools	Quantitative	16.67
	Qualitative	33.33
	Both	50.0

Table 5. Results: technique, styles and types of contents used to teach.

## 5. Discussion

First thing to comment has to do with the inclusion of first aid related contents in class. As proved in the results, less than half of the participating teachers answered affirmatively to this question. This way, only 44.5% of PE Primary teachers, expressed to work on first aid with their students during this educative stage.

This is a curious fact if we have in mind that first aid are shown in the PE area on Primary Education's curriculum of Galicia for seven years (130/2007 Decree), and more if it is considered the new education law and the Decree which develops it (105/2014 Decree), where first aid increased their presence on the Primary Education curriculum.

Besides, considering the number of research which endorse to educate first aid to students from Primary stage (Bohn et al. 2012; García-Vega et al. 2008; López-Unanua et al. 2008; Naqvi et al. 2011; etc.), it would be easy to suppose that teachers would have them in mind at the time of transmitting their knowledge.

On the other hand, analyzing the results referring to technique, styles and type of contents used to teach first aid, it is unusual to find direct teaching as the most used (an 83.3% of the participants expressed to work these contents in Primary Education classes) against 16.7% which confirmed to combine direct teaching and research.

Besides, this technique is directly related to teaching styles used to teach first aid, highlighting the traditional ones (35.6%), although participative styles showed up among the most used to teach these contents (28.5%), as well as the cognitive ones (14.3%). Individual styles, creative and socializing ones, were less common, only 7.2% of the teachers expressed to use each one of them.

As we said before the answers to these two questions may be related directly, due to the fact that expressing the use of direct teaching to transmit these contents, matches with a traditional teaching style. This implies that most of teachers teach first aid on a general way, to the entire group, without individualisation (Sicilia & Delgado 2002).

Participative teaching styles are used on a 28.5% of the cases to work first aid, which implies an active participation of the student on his or her learning process and on their partner's (Sicilia & Delgado 2002). This way of transmission of knowledge related to the studied topic, seems to have better results related to the importance of the learning process, because teaching first aid takes with it the execution of practical individual exercises, for example, the correct way to act when a person is located alone in the accident scene.

Cognitive, individual, creative and socializing teaching styles are not as used as the ones we exposed before at the time of transmit first aid knowledge by the PE Primary teachers. However, any of them could be valid and effective, even the combination of different styles (as many of the participating teachers expressed) would be helpful to work this kind of content in class.

Referring to the different learning types, as it was shown in the previous results, participating teachers seem to value more the acquisition of knowledge and correct CPR execution (55.56%), against student attitudes (44.44%). At this point, it seems that previous

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named researches have been taken into account, which showed that a child during Primary Education stage can carry out a valid CPR.

Furthermore, procedure contents have more importance, against concept and attitude ones, so we could consider that the best way to learn is doing and acting. However, this data goes against the fact that traditional teaching is highlighted one, against other such as the participative one.

Regarding evaluation, it seems favorable that the 50% of cases evaluates combining quantitative and qualitative types, but not all is getting first aid knowledge, kids should also show enthusiasm and interest to learn them.

## 6. Conclusions

Because of the recent inclusion of contents related to first aid in the Primary Education curriculum at a national level, and considering that in Galicia they were already included for many years in the autonomous curriculum, if they are actually been taught during this educative stage or not comes out as a doubt.

This research focuses on PE because it is where most of the contents about first aid are included, but with the new law, they are also included in other subjects.

After analyzing the obtained data through the questionnaire, results related to the inclusion of first aid in Physical Education during the primary stage, are not good enough. In between the teachers, less than half of them expressed to include these contents on their class programme.

On the other hand, the one that do work first aid with their students, do not seem to do it correctly, 80% of them teach it through a not recommended way: direct teaching.

This data shows a gap in this topic, so it is recommended to carry out more similar researches in our community and also to expand them to the whole country, to verify the results. The interest is that, as we said before, first aid is named explicitly in Primary Education curriculum, so teachers should include them on their programme.

Furthermore, new programmes could be tried and developed and also projects about education related to first aid for children, giving this way, new resources and help to the teachers regarding this topic.

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