

Training of Laic Blind Subjects to Basic Life Support Manoeuvres

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Abstract: Heart attack is an extremely urgent medical condition which may occur at any time and can affect anybody and means the failure of the pump function of the heart and it represents the condition which brings to death. The aim of this study is the training, which is the acquisition of knowledge, abilities and skills as a result of education and practice in a certain discipline and this project has been created to make as accessible to all as possible the information about the identification and treatment of heart attack. However, the key objective has been involving only laic blind subjects in the trial and theoretical-practical course to support vital functions (BLS (basic life support)), to demonstrate that in a state of emergency, like a heart attack, even a subject affected by visual impairment, if properly trained, can be very helpful and can contribute to save a life. Fifteen partially sighted and sightless executors have participated in this study. In order to evaluate learning objectives of the course, participants have completed a pre-course test to examine these areas: cognitive and emotional, motivational, theoretical-practical; while, at the end of the course, participants have completed a comment card about the course. At the end of this study it can be seen that blind subjects do not present any type of limitation in the learning and in the execution of BLS manoeuvres after an appropriate training.

Key words: Heart attack, blindness, training for blind people, CPR (cardiopulmonary resuscitation), Basic Life Support manoeuvres, nurse training.

1. Background

Heart attack is an extremely urgent medical condition which may occur at any time and can affect anybody. Older people may be at increased risk of heart attack, especially if they present risk factors, such as the use of tobacco or obesity, or they are affected by other pathologies, such as high blood pressure or diabetes mellitus, which increase the possibility to be affected by heart attack. Heart attack means the failure of the pump function of the heart and it represents the condition which brings to death.

The term “visual impairment” means a particular type of disability in which the deficit consists in the reduction of sight, which related to its entity, and can be defined with specific terms like “blindness” or “low vision”. According to the ICF (International Classification of Functioning, Disability and Health),

“people with visual deficiency are usually those affected by an impairment of the organs and the anatomical structures related to sight”. The first approach to the issue of a subject with a visual deficiency implies three variables: “the perceptual dimension, that is the quantity and quality of visual information available for the subject; the time dimension, which means the medical history of visual impairment, the period in which arose and changed, the possible prognosis on future development; the overall functioning dimension, which implies the correlation with health and development factors, which can influence the subject, especially if other deficiencies damage the resources useful for the organism to compensate visual impairment”.

BLS (basic life support) is a procedure aimed at restoring the oxygenation of the brain and heart tissue in absence of cardiac and spontaneous respiratory activity. Maintaining a patent airway, blowing air through the respiratory tree and compressing the chest

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of the victim, any trained rescuer can slow down the deterioration of myocardial and brain cells, delay the conversion of v-fib (ventricular fibrillation) in bradyarrhythmia and preserve the patient for longer in a state so that the team of emergency health can reanimate successfully the patient.

While in a patient with v-fib, in absence of BLS the chances of survival decrease by 6-10% for each minute, arriving at percentages close to zero after 10 minutes, in the case of BLS survival decreases by 3-4% per minute, by allowing longer waiting time. In this way, a cardiac arrest by several minutes will be defibrillated with greater hope of restoring a sinus rhythm.

The aim of this study is the training that is the acquisition of knowledge, abilities and skills as a result of education and practice in a certain discipline⁵.

Consequently, this project has been created to make as accessible to all as possible the information about the identification and treatment of heart attack. However, the key objective has been involving only laic blind subjects in the trial and theoretical-practical course to support vital functions (BLS), to demonstrate that in a state of emergency, like a heart attack, even a subject affected by visual impairment, if properly trained, can be very helpful and can contribute to save a life. In this study, the term "laic" subject means non healthcare subject. This initiative has been created with the cooperation with UICI (Unione Italiana Ciechi e Ipovedenti) of Barletta and with some instructors of BLS and Defibrillation certified Italian Resuscitation Council of ICU (intensive care unit) of the hospital unit of Barletta (Emergency Department) and the Faculty of Medicine and Surgery of the University of Foggia.

2. Materials and Methods

Fifteen partially sighted and sightless executors have participated in this study; specifically 14 sightless subjects and 1 partially sighted subject. In

order to provide an appropriate learning about BLS manoeuvres, the trial has been divided into several theoretical meetings with the sample, in this case two monthly meetings. The theoretical aspect has been carried out in a quarter. However, in the second quarter of the trial, the learning of BLS manoeuvres has been carried out with practical meetings, through the use of didactic half bust mannequins, appropriate to give instructions. In order to evaluate learning objectives of the course, participants have completed a pre-course test to examine these areas: cognitive and emotional, motivational, theoretical-practical; while, at the end of the course, participants have completed a comment card about the course. Specifically, the tests in this study were structured in this way: a first test given before the beginning of the theoretical-practical course of BLS in order to evaluate cognitive and emotional, motivational and theoretical-practical areas to find information about age, sex, aspects referred to blindness condition of the sample from a pathological point of view, in relation to environment and society. The test is made up of 17 questions, it includes a numerical scale for the evaluation, 11 closed questions and 4 open questions. In order to complete both the tests, it is necessary asking the question to the sample orally and then the answers are reported in the appropriate test in paper form. After the compilation of the first test, the first part of the course has been developed, in which issues related to heart attack have been dealt briefly, its treatment with cardiopulmonary resuscitation and manoeuvres to unblock airway. The theoretical part carried out during the first quarter of the trial has included even lessons about manoeuvres to unblock airway. After the theoretical part of the course, which lasted approximately 360 minutes during the first quarter, the practical part of the course began, which also lasted 360 minutes, with two monthly meetings. During the practical part, the sample has been divided into three groups made up of 5 subjects. It was considered necessary using 120 minutes per group for the performance of BLS

manoeuvres. There were two positions for the performance of the practical part, with a mannequin and a certified instructor for each position. The sample was invited to approach to the position in order to proceed with the simulation of cardiopulmonary resuscitation. Before the simulation of cardiopulmonary resuscitation, as explained during the theoretical part of the course, it was necessary proceeding with the simulation of the verification of the fugue state through LLF(looking, listening, feeling) operations properly changed into TLF (touching, listening, feeling). In contrast to the conventional LLF method, which provides that the operator notices the expansion of the chest to make sure that the victim affected by heart attack is breathing, in the case of a partially sighted subject or a blind subject, it was necessary to review this operation re-examining and changing it into TLF; in this way, after the blind subject has proceeded to the hyperextension of the head, to provide the patent airway, he lays the palm of the hand on the chest of the victim to perceive the possible chest expansion. The sample has carried out the simulation of cardiopulmonary resuscitation on mannequins, through the help of instructors, following the last guidelines published by the AHA (American Heart Association) in 2015, which is: 30 thorax compressions with the frequency of 100/120 minutes, with a maximum depth of 6 cm in the adult and 2 CPRs (cardiopulmonary resuscitations). During the simulation, the sample was observed to provide that the manoeuvre was executed correctly. Possible errors were corrected immediately, explaining again the right execution of the operation.

At the end of the simulation of cardiopulmonary resuscitation, a second test, made up of only one question, was given to the sample and it evaluated the usefulness of the course through a numerical scale from 1 to 10. The administration of the second test can be related to that used for the first test. Considering the sampling for the statistical survey, it can be said that a sampling of convenience of partially sighted and

blind people has been carried out. The trial has been conducted using a quantitative and qualitative survey. The quantitative aspect has been studied through the use of tests, while the qualitative aspect has been analysed through participated observation and direct interaction with the sample examined.

3. Results

The results obtained from the tests are reported below, through graphical representation and subdivision with figures of all the aspects investigated during the phase of data collection.

3.1 Description of Target Population

Eleven males and 4 females have participated in the trial, Figs. 1a and 1b show that 8 subjects between the ages of 41 and 50, 6 subjects aged over 50 years and only one subject between the ages of 31 and 40 have participated in the trial. With regard to the level of schooling (Fig. 1c), it can be seen that there are not subjects with a degree. However, there are exactly 9 subjects with a diploma and the other 6 subjects with a qualification. From the representation of the pathological aspect (Fig. 1d), it can be seen that in the sample group there is only one partially sighted subject; 10 blind subjects from birth and the other 4 subjects have been affected by blindness after birth.

In Fig. 2a there are data regarding the knowledge about cardio-circulatory arrest of the sample. Fig. 2b shows that only one subject did not know what a cardio-circulatory arrest is. The other 13 subjects know something about cardio-circulatory arrest. It can be seen that only one subject has been present during a cardio-circulatory arrest, while the other 14 subjects have not experienced this situation. Fig. 2c one hundred percent of the sample does not know which manoeuvres can be carried out in the case of a circulatory arrest. Obviously, this result has emerged before the participation of the sample to the theoretical-practical course.

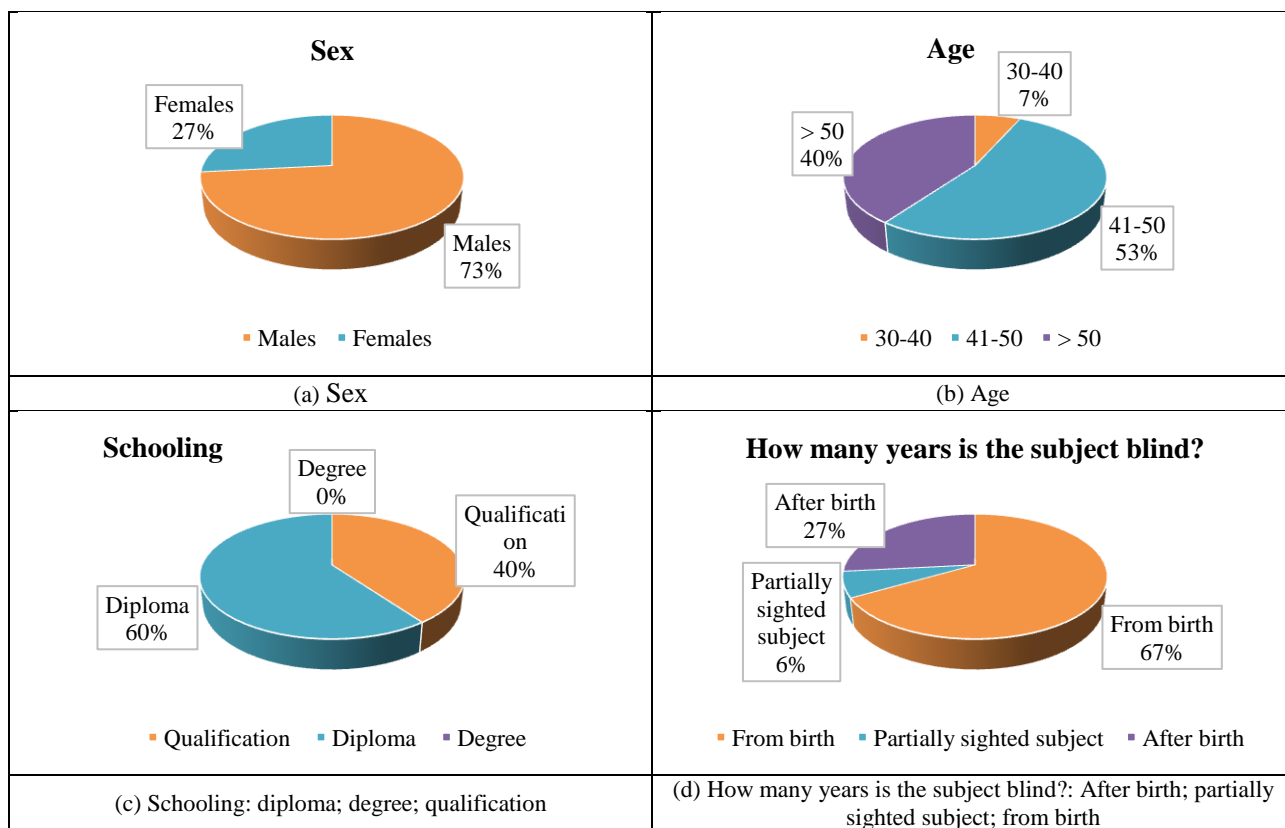


Fig. 1 Description of target population.

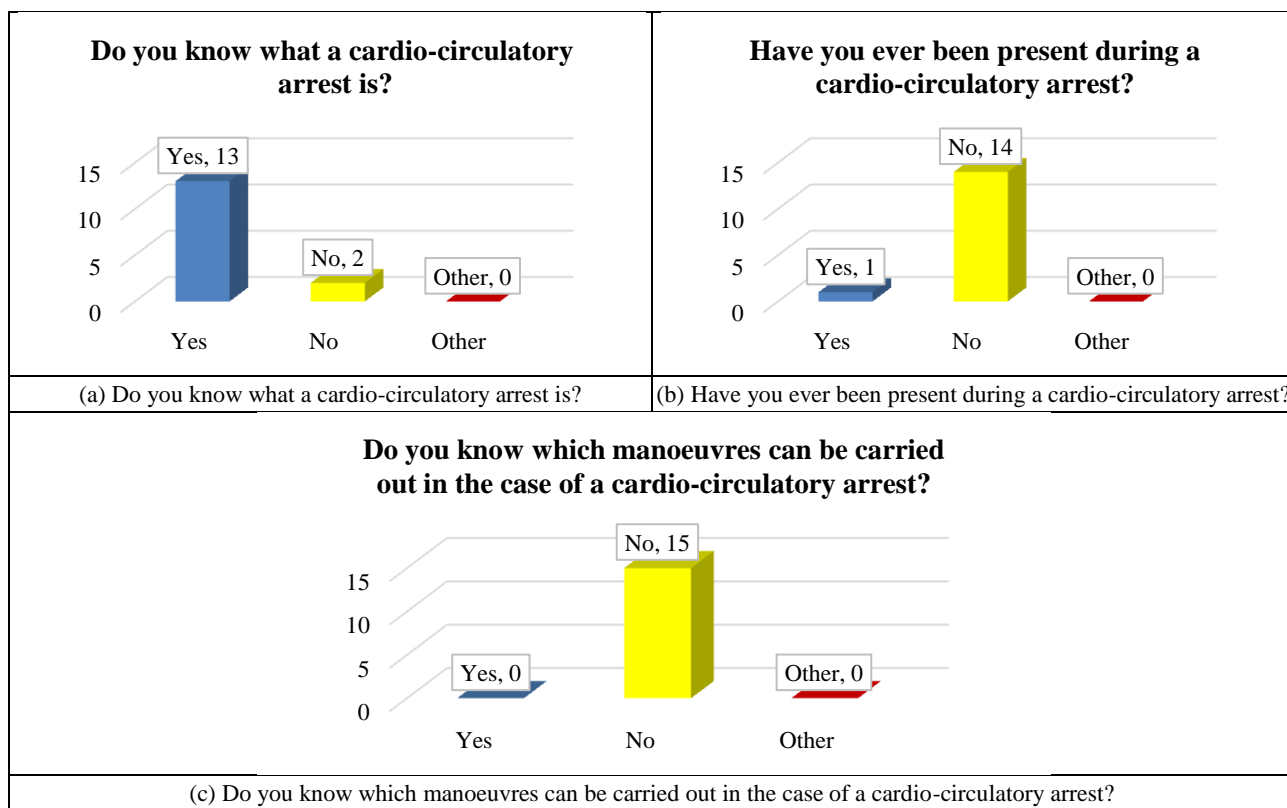


Fig. 2 Knowledge about cardio-circulatory arrest.

It was considered appropriate investigating the knowledge of BLS before the beginning of the course, in order to understand the starting level before the course. It can be seen that the answer to the question “What is BLS” (Fig. 3a) is not affirmative. One hundred percent of the sample does not know BLS before the theoretical-practical course. Even if it can seem a contrasting result with the question and the relative answer to the previous question, 5 subjects have heard of BLS before the course, but during the trial they have pointed out that they have heard of BLS informally and indirectly. They never investigated this issue. It is important to see that 10 subjects have never heard of BLS. Obviously, in Fig. 3b only the affirmative answers to the previous question “Have you ever heard of BLS?” (Fig. 3b) have been taken into consideration. In particular, the affirmative answers are 5 and show that the sources of information from which subjects receive information about BLS, even if unclear, are “job” for 3 subjects, so the working environment in general and “TV” for 2 subjects (Fig. 3c). It is worth considering the result of Fig. 3d. No-one suggests taking part in the sample taken into consideration, made up of 14 blind subjects and 1 partially sighted subject, in a course about BLS in order to achieve a BLS certification. Recently, there is the development of the knowledge about cardiopulmonary resuscitation which affects many areas such as the sport and, in these days, even places of worship are complying with this culture buying semi-automatic defibrillators AED (automated external defibrillator) and training expert staff in this field. On the contrary, it can be seen that there are not training courses for laic subjects with disability, such as the case of a subject affected by blindness or low vision.

One hundred percent of the sample believes that there are not obstacles in the achievement of BLS certification in case of this pathological condition that is blindness (Fig. 4a). Before the beginning of the theoretical-practical course, the sample was asked to

evaluate how useful obtaining a BLS certification is, through a numerical scale from 1 to 10. As it can be seen from Fig. 4b, the sample asked “1” unanimously, because they did not know anything about BLS manoeuvres. With regard to the question “do you know subjects affected by blindness with a BLS certification?”, considering Fig. 4c, it can be seen that only one subject knows only one blind subject external to the trial with a BLS certification.

Fig. 4c shows another result which requires a detailed analysis. The sample states unanimously that the surrounding world does not consider the needs of blind people in the field of health education. From this element, it can be understood that none of the participants in the trial has ever taken part in an event about health education. It can be possible suspecting that no-one has developed the culture of health education for subjects affected by blindness or low vision. From these data, it can be seen that the sample feels the need to take part in courses useful to achieve competences and skills regarding BLS manoeuvres. As it can be seen, even in this case the sample gives an affirmative answer to the question “Do you think that it is worth involving partially sighted people in courses for the achievement of these competences and skills?”. At the end, the sample was asked to evaluate with a numerical scale from 1 to 10 answering the question “How useful is taking part in this theoretical-practical course about BLS manoeuvres?”. Results show that 20 percent of the sample answers “8”, 33.3 percent of the sample answers “9” and the other 46.66 percent answers “10” (Fig. 5). As a consequence, it can be said that the course has been appreciated and the sample thinks that obtaining a BLS certification is an important prerogative.

4. Discussion and Conclusions

As a consequence, considering the results achieved, it can be seen that blind subjects do not present any type of limitation in the learning and in the execution of BLS manoeuvres after an appropriate training. On

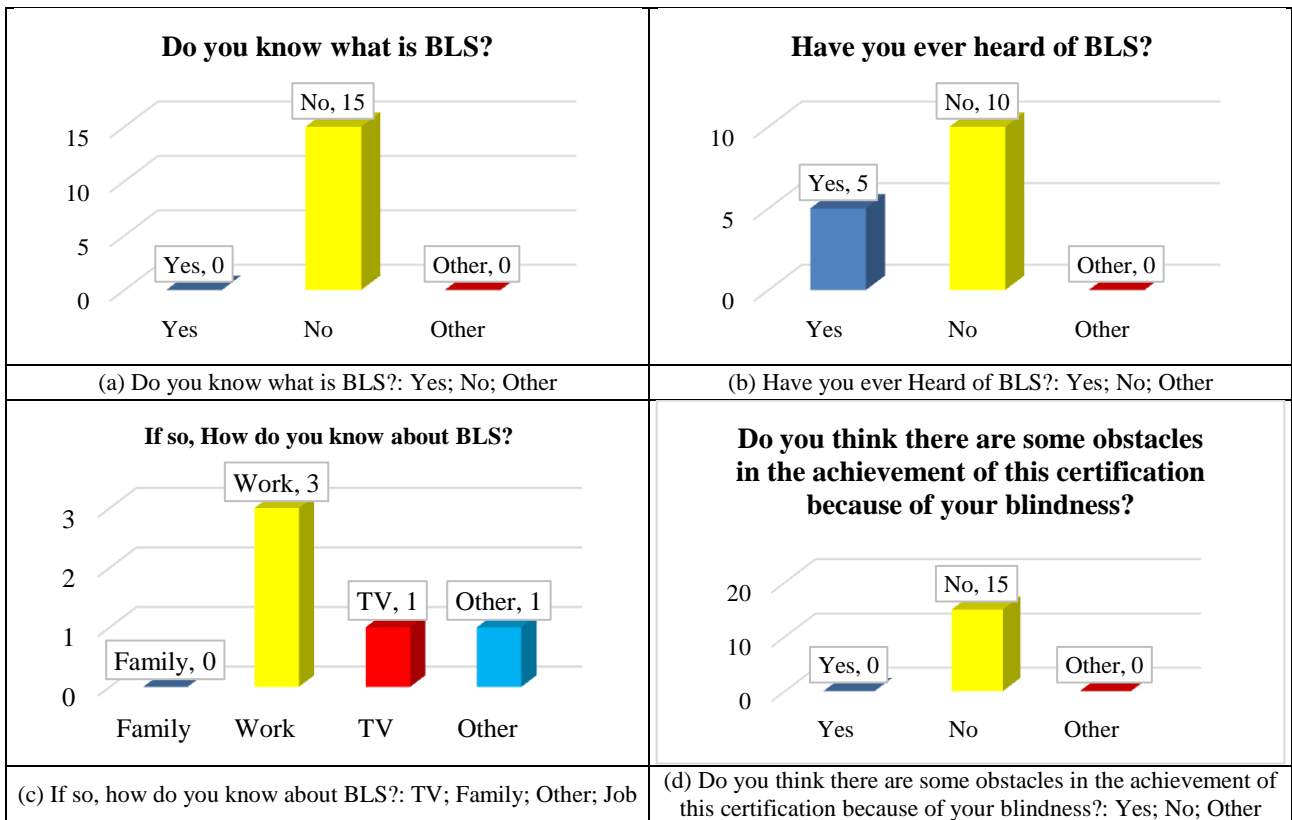


Fig. 3 Knowledge of BLS before the beginning of the course.

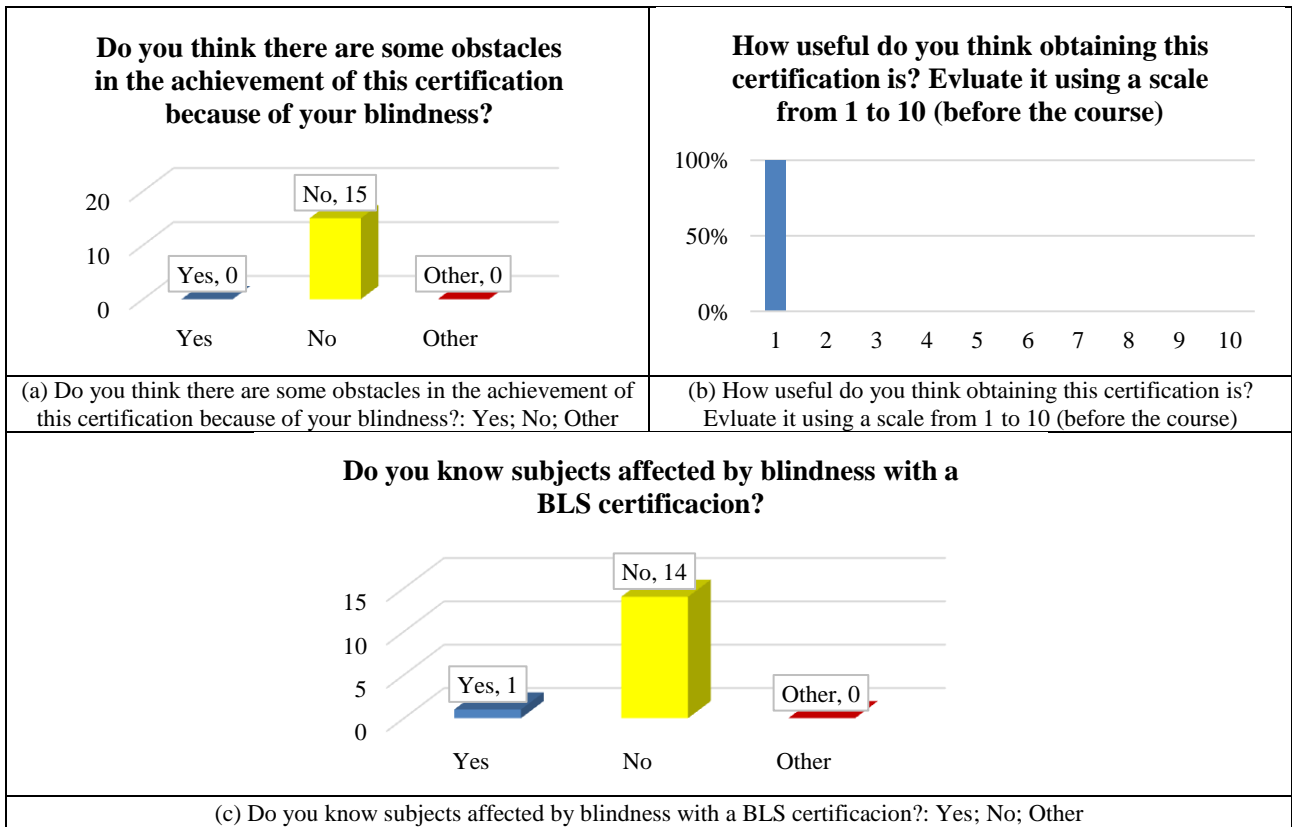


Fig. 4 The importance of BLS certification.

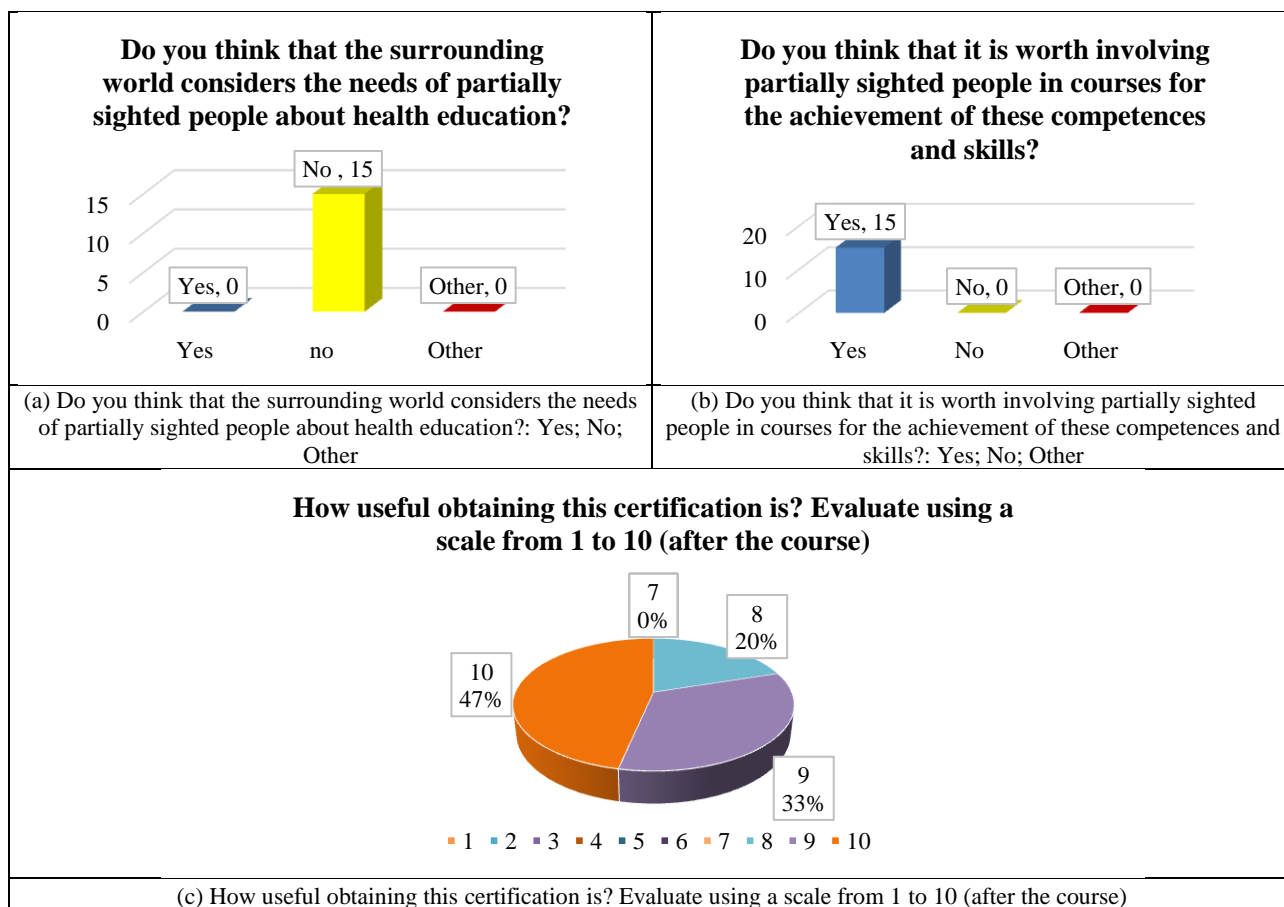


Fig. 5 Understanding and satisfaction of the course.

the contrary, this sample seems to be motivated to learn this type of knowledge which, generally, is precluded to people with a disability. All the participants in the trial have achieved the minimal and essential objectives for the appropriate practice of BLS manoeuvres, regardless of qualification, age, and different time of onset of blindness in their life. At the end of the trial, it can be seen that the training for the learning of BLS manoeuvres in partially sighted and blind subjects has produced positive effects, and this leads to future research in the nursing field in order to improve health education even in case of people with a disability, and it gives the possibility to think that nurses can improve, and they can be considered an essential figure in the field of health education, even in the case of blind patients or patients with any type of disability. This work has been selected and presented at 36th National Congress

ANIARTI (Associazione Nazionale Infermieri di Area Critica) on days 8, 9, 10 of November at Riva del Garda (Tn).

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Università di Foggia

Anonymous Test for Subjects Affected by Blindness in Order to begin a BLS Course for Laic Persons

Grad student: Carnicelli Vito

Identification Number 547075

Academic year 2016/2017

(1) Sex: M F

(2) Age: ____

(3) Schooling:

(4) How many years is the subject blind? ____ years

(5) Do you know what a cardio-circulatory arrest is? Yes No

(6) Have you ever been present during a cardio-circulatory arrest? Yes No

(7) Do you know which manoeuvres can be carried out in the case of a cardio-circulatory arrest?

(8) Do you know what BLS is? Yes No

(9) Have you ever heard of BLS? Yes No

(10) If so, how do you know about BLS? _____

(11) Has someone suggested you a course to obtain a BLS certification? Yes No

(12) If so, who has suggested you?

- Employer
- Acquaintance
- Other: _____
- No-one

(13) Do you think there are some obstacles in the achievement of this certification because of your blindness?

- Yes
- No
- Other: _____

(14) How useful is obtaining this certification?

1	2	3	4	5	6	7	8	9	10
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Evaluate with a number scale from 1 to 10.

(15) Do you know subjects affected by blindness with a BLS certification?

- Yes
- No
- Other: _____

(16) Do you think that it is worth involving partially sighted people in courses for the achievement of these competences and skills?

- Yes

No

Other: _____

(17) Do you think that the surrounding world considers the needs of partially sighted people about health education?

Yes

No

Other: _____