



SKILLS AND SAFETY: INVESTIGATING FIRST AID TRAINING IN STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

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Abstract:

Objectives: The study aimed to assess the first aid capabilities of children with special educational needs and examine the retention of their first aid knowledge and skills over time. **Methods:** We conducted an experimental longitudinal study in randomly chosen schools in Thesprotia, Greece. Twelve children, aged 4-8, and with special educational needs, underwent first aid training. We assessed their knowledge and skills using a questionnaire and specific scenarios one day before, one day after, and two- and seven-months post-training. **Results:** Before the training, the children did not answer the questionnaire correctly. However, after the training, all students got every question right. In the 2-month follow-up, their responses showed that the training kept their improvements. In the 7-month follow-up, there was a drop in the percentage of correct answers compared to the immediate post-test at 2 months. Based on the scenario-based assessment, before the training, the children did not know how to respond to a choking incident, but after training, all students reacted correctly. However, after two and seven months, students with special educational needs students had difficulty applying first aid skills correctly to a choking incident. **Conclusions:** Children with special educational needs can learn first aid, but they tend to forget some of this information after two months. However, additional research is needed to confirm these observations and explore similar studies involving children of different ages and various levels of special educational needs.

Keywords: children with special educational needs, first aid, educational program

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1. Introduction

Special education services play a pivotal role in enhancing the social engagement of children with special educational needs (SEN) by fostering the development of independent life skills. Safety skills are indispensable for individuals with special educational needs (Tse et al., 2023). The acquisition of these safety skills empowers these individuals to cultivate self-reliance, enabling them to navigate various risky and dangerous situations effectively and, importantly, to avoid such circumstances altogether (Eldeniz Cetin & Bozak, 2020).

Learning first aid goes beyond just responding to emergencies; it gives people confidence and independence, especially those dealing with intellectual and other disabilities (Sureshkumar, 2021). Acquiring the knowledge to administer first aid equips them with the ability to handle unforeseen situations, promoting a greater sense of security and well-being in their daily lives (Tse et al., 2023).

Moreover, learning first aid opens opportunities for children with disabilities. It helps them join in different activities, go to school, and even look for jobs with more confidence (Didden et al., 2021). First aid skills are not just about medical care; they are about making everyone feel capable, included, and part of a society where everyone, no matter their abilities, can have a good life and contribute meaningfully (Schroeder et al., 2023).

This research focuses on imparting practical and crucial first aid knowledge to children with special educational needs using a targeted and hands-on teaching method. Through the utilization of a meticulously crafted training package, children with special educational needs will have the opportunity to acquire fundamental life-saving skills.

The research questions that this study sought to address were:

- 1) Can children with special educational needs effectively acquire first aid knowledge and skills?
- 2) What is the duration of retention for first aid knowledge and skills among children with special educational needs?

2. Material and Methods

We conducted an experimental longitudinal study in randomly selected schools in Thesprotia, Greece. Twelve children, aged 4-8 and with special educational needs, were invited to participate after securing written permission from their parents. Children participated in a 6 hour first-aid course and underwent follow-up evaluations. Information was gathered using a questionnaire administered one day before, one day after, and two- and seven-months post-program. The questionnaire consisted of twelve questions, including two on demographics and ten on first aid, comprising eight multiple-choice and two time-ordered questions (Tse et al., 2022). Additionally, we employed scenario-based observation as a reliable method to assess students' first aid skills. This approach provides practical, real-life experiences for students, enabling them

to handle potential situations. Through this method, we evaluated students' performance, understanding of fundamental principles, adherence to correct first aid procedures, and the impact of practical training on skill development. The chosen scenario involved assessing students' response to a choking incident, with a girl named Eleni choking on an apple. The researcher assessed first aid skills using a checklist.

The study is registered as a clinical trial under the identifier NCT05563129 since October 3, 2022.

2.1 Ethical considerations

The research program received approval from the Ethics Department of the University of Ioannina. All participants, including the children, their parents, and the teachers, were provided with both written and oral information before the commencement of the study. The researcher communicated to parents their right to withdraw their child from the study at any time without facing personal consequences and reassured them of the assurance of anonymity. Written informed consent was obtained from the parents to enroll their children in the study. In line with confidentiality regulations in the Greek national education system, the researchers did not access personal data of the children.

2.2 Educational program

The training program comprised three lessons, each lasting 2 hours. It encompassed both theoretical elements through electronic presentations and hands-on role-play training. The topics covered included fundamental aspects such as understanding first aid, following the rules of first aid, making emergency calls (including the correct telephone number, when to contact an ambulance, and providing accurate information), and addressing specific situations like head injuries, nosebleeds, cuts, and choking.

2.3 Statistical analysis

The demographic and other categorical variables were characterized using counts and percentages, while quantitative variables were described using means and standard deviations. An analysis involving Related-Samples Friedman's Two-Way Analysis of Variance by Ranks was conducted to explore variations in responses among children with special educational needs across different measurements. Pairwise Comparisons were then employed to evaluate differences between distinct measurement points. The entire analysis was carried out using SPSS v28.0 software, with a predetermined significance level of 0.05.

3. Results

In the study, 12 students with special educational needs participated, with an average age of 6.25 years, including seven boys and five girls. Initially, children with SEN did not provide correct answers in the pre-test. However, after the training, all students exhibited correct answers to every question in the post-test. The responses of children with SEN to

the questions in the 2-month follow-up test indicate that the training maintains improvements in their performance over this period. These students consistently maintain high accuracy rates across multiple questions, highlighting the success of the training in enhancing their knowledge (Diagram 1). In the 7-month follow-up, there is a decrease in the percentage of correct answers compared to the immediate post-test at 2 months.

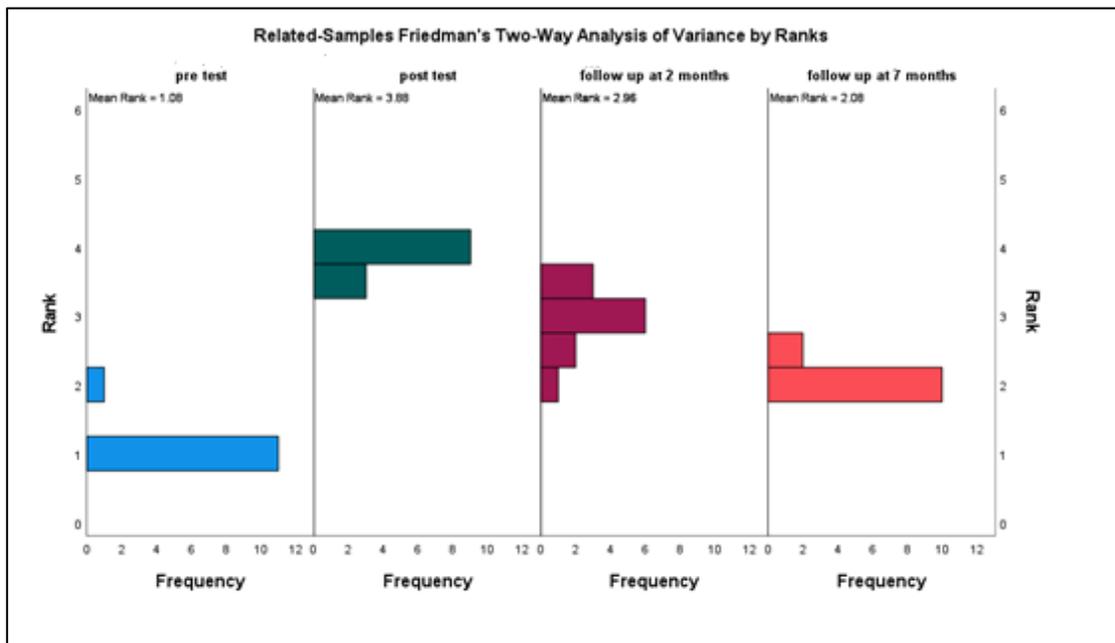


Diagram 1: Disparities in responses of children with SEN across various measurements

Table 1 presents the statistical indices and corresponding p-values for comparisons between various measurements in the performance of children with SEN. The comparison between correct answers in the pre-test and the 7-month follow-up shows a statistically nonsignificant difference ($p = 0.058$), indicating no significant change in performance between these two time points. Conversely, the comparison between correct answers in the pre-test and the 2-month follow-up reveals a statistically significant difference ($p < 0.001$), suggesting a substantial improvement in children's performance after two months of training. Similarly, the comparison between correct answers in the pre-test and the post-test demonstrates a statistically significant difference ($p < 0.001$), signifying a notable enhancement in children's performance after the training. Moreover, the comparison between correct answers in the 7-month follow-up and the 2-month follow-up shows a nonsignificant difference ($p = 0.097$), implying that the performance of the children does not significantly differ between these two time points. In contrast, the comparison between correct answers in the 7-month follow-up and the post-test indicates a statistically significant difference ($p < 0.001$), suggesting a decline in children's performance after the completion of the training. Finally, the comparison between correct answers in the 2-month follow-up and the post-test shows a

nonsignificant difference ($p = 0.082$), indicating no significant change in performance between these two time points.

Table 1: Statistical comparison of results across various time points of evaluation

	Statistical Indicator	Statistical Indicator	Standard Statistical Indicator	P	Adjusted Significance
Pretest- follow up at 7 months	-1.000	.527	-1.897	.058	.347
Pretest- follow up at 2 months	-1.875	.527	-3.558	<.001	.002
pretest- post test	-2.792	.527	-5.297	<.001	.000
Follow up at 7 months-2 months	.875	.527	1.660	.097	.581
Follow up at 7 months- post test	1.792	.527	3.399	<.001	.004
Follow up at 2 months- post test	.917	.527	1.739	.082	.492

Based on the scenario-based assessment, during the pre-test, participants provided incorrect skills to all questions on the Checklist, revealing limited knowledge or skills before undergoing training. Following the completion of the training, all participants achieved proficiency in accurately applying all Checklist questions, showcasing a substantial enhancement in their knowledge and skills resulting from the education. However, in both the two-month (follow-up 2 months) and seven-month (follow-up 7 months) evaluations post-training, it was observed that students with special educational needs once again inaccurately applied all checklist questions.

4. Discussion

The primary focus of the current research was to investigate the capability of primary education students with SEN to deliver first aid and manage injuries. Specifically, the research aimed to assess the frequency of first aid training repetition among primary education students with SEN.

An intriguing discovery stemming from this study is that students with special educational needs exhibited heightened knowledge and skills following their training. This aligns with Sureshkumar's (2021) findings, noting significant enhancements in self-administered first aid performances among children with cognitive and developmental disorders, sustained for a minimum of four weeks. However, subsequent measurements at two- and seven-months post-training revealed that students with special educational needs had forgotten a substantial portion of the acquired first aid knowledge and skills. Additionally, Ergenekon's (2012) research uncovered the effectiveness of the "*first-aid skills training package*," incorporating activities such as "*reading a story, creating a simulation*

scenario tied to the target behaviour, and watching a video illustrating the simulation," in imparting essential first-aid skills to children with autism.

It is imperative to emphasize that continuous repetition and practice play a crucial role in maintaining and enhancing first aid skills (Tse et al., 2023). Students should be provided with opportunities to revisit procedures, techniques, and receive training for new practices and situations they might encounter. Consistent education and practice ensure that students retain their skills and are well-prepared to deliver effective first aid in emergency situations (Tse & Alexiou, 2021).

Utilizing role-playing in first aid education represents an approach that encourages lively participation and the acquisition of skills in an engaging and captivating manner (Schmitz et al., 2015). Rather than delivering first aid concepts through passive lectures or straightforward readings, students immerse themselves in role-playing activities designed to foster the development of their knowledge and skills. Simulating emergency situations through role-playing not only offers students the opportunity to develop their skills but also does so with an enthusiastic and spontaneous approach (Vizeshfar et al., 2016).

5. Conclusion

Implementing a tailored and hands-on teaching method, this research is dedicated to equipping children with special educational needs with practical and essential first aid knowledge. Although these children can initially grasp the information, there appears to be a decline in retention after a two-month period. To strengthen the validity of these observations and broaden the scope, further research is imperative. This includes exploring similar studies encompassing children of various ages and different levels of special educational needs.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Ioannina and approved by the Institutional Review Board (or Ethics Committee) of University of Ioannina (56655/26/11/2021).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest Statement

The authors declare no conflict of interest.

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