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Anna Klim-Klimaszewska
http://orcid.org/0000-0001-7418-9983
University of Siedlce, Poland
klimanius@interia.pl

Kindergarten teacher preparedness to provide first aid

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Abstract

Research objectives (aims) and problem(s): This article presents research into the preparedness of kindergarten teachers to provide first aid. The research was based on statistics regarding accident rates in Polish kindergartens.

Research methods: The study involved 360 kindergarten teachers and employed the diagnostic survey method using a questionnaire.

Process of argumentation: The objective of the study was to assess Polish kindergarten teachers' knowledge of first aid principles. The scope of the research was defined by the following questions:

1. How do the surveyed teachers evaluate their knowledge of first aid?
2. What types of situations involving danger to children have the surveyed teachers encountered?
3. Were the surveyed teachers able to take appropriate action when a child's life or health was at risk?

Research findings and their impact on the development of educational sciences: The study showed that teachers' knowledge of first aid principles is insufficient and that the measures taken did not always follow proper procedures.

Conclusions and/or recommendations: There is a need to raise teachers' awareness of the importance of regularly updating their ability to respond effectively in situations that threaten children's safety.

***Keywords*:**
kindergarten teacher, first aid, child safety, child health, teacher knowledge, teacher skills

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Introduction

Kindergarten is a place where children spend a significant portion of their day, and the teacher is responsible for their safety and well-being. There is always a risk of accidents involving children. Young children are especially prone to minor injuries such as cuts, scrapes, or bruises, and they can fall ill suddenly. The risk of accidents increases particularly during outdoor activities, field trips, or events held outside the preschool setting.

Since teachers are typically the closest adults to children during these times, they are the ones who can respond the fastest in emergency situations. Teachers who are trained in first aid can react effectively to injuries, fractures, burns, fainting, or epileptic seizures. In many cases, quick and appropriate first aid can prevent serious health complications, or even save a child's life. In some situations, especially in more serious cases, immediate action can be crucial. This is all the more important as kindergartens do not employ nurses, so a teacher who knows first aid procedures can administer life-saving care before professional medical services arrive.

The essence of pre-medical first aid

Safety in the preschool environment is essential for the well-being and health of children, teachers, and staff. Accidents, injuries, or medical emergencies are events that cannot be predicted and, therefore, cannot always be prevented. In a kindergarten setting, an accident is defined as "a sudden event caused by an external factor, resulting in injury or death, which occurred during educational, instructional, or caregiving activities either on or off kindergarten premises, such as during a field trip or outing under teacher supervision" (Act on Procurement, October 30, 2002).

An injury is defined as "damage to human tissues or organs caused by an external factor" (Act on Insurance, October 30, 2002). A sudden health risk is defined as "a condition presenting with the abrupt or rapidly approaching onset of symptoms that may lead to serious harm to body

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functions, injury, or loss of life, requiring immediate emergency medical care and treatment" (Act of September 8, 2006).

Providing a safe educational environment is critical to minimizing the risk of accidents, injuries, and health-related emergencies. Kindergarten safety is influenced by the following aspects:

- Infrastructure: The building, playground, classrooms, and other areas must be properly maintained and secured against potential hazards.
- Training: Teachers and other staff should be trained in first aid, emergency procedures, and response to medical incidents. This ensures they can act quickly and effectively in the event of accidents or emergencies.
- Health awareness: Teachers and staff should be aware of any children with health issues, such as allergies, asthma, or chronic illnesses so they can respond appropriately in a crisis.

All of these factors contribute to maintaining a safe and supportive preschool environment. Knowledge, preparation, and appropriate training of staff are key to ensuring a high level of safety and well-being during all educational activities. For this reason, it is vital that teachers are familiar with the rules of first aid, as this has a direct impact on the safety of children. The European Resuscitation Council defines first aid as "the helping behaviors and initial care provided for an acute illness or injury." First aid can be administered by anyone, in any setting (Zideman et al., 2015).

The kindergarten principal is responsible for guaranteeing safe and hygienic conditions both on-site and during activities outside the facility (Regulation of the Minister, 2002, §2). The principal is also responsible for equipping all kindergarten rooms with first aid kits containing the necessary supplies and clear instructions on handling medical emergencies (Regulation of the Minister, 2002, §20). It is important to note that in the event of an accident, legal responsibility for the child lies with the kindergarten and its governing authority. Without a doubt, teachers are expected to provide continuous supervision and care of children. If an

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accident occurs during their class, they must be able to demonstrate that appropriate safety measures and due care were taken. Therefore, teachers should regularly refresh their first aid training to stay up-to-date with best practices and updated procedures.

In accordance with the Regulation of the Minister of National Education and Sport, all kindergarten teachers are required to undergo first aid training (Regulation of the Minister, 2002, §21). According to the law, first aid training does not have an expiration date and is only required to be completed once. However, from a practical point of view, it is beneficial to repeat the training periodically so that teachers retain their knowledge. The 2021 Resuscitation Guidelines indicate that first aid skills in non-healthcare professionals tend to decline within 3 to 12 months after the initial training. For this reason, refresher courses are recommended after that time frame.

Scientific evidence shows that more frequent refresher training improves rescue skills, boosts the confidence of first responders, and increases their willingness to act. As a result, teachers' knowledge remains current and is less likely to be forgotten. Understanding the principles of first aid helps teachers feel more confident and respond more effectively in emergency situations. It allows them to stay calm and make the right decisions, which is especially important when young children experience medical issues (Resuscitation Guidelines 2021). Teachers do not always work alone; they often collaborate with other school staff, such as administrative personnel, assistant teachers, and custodians. With first aid training, teachers can effectively support the entire team in the event of a medical emergency before professional help arrives. Moreover, parents are more likely to trust a kindergarten whose staff is properly trained in first aid. Knowing that their children are cared for by people who are prepared for potential health emergencies gives parents peace of mind when leaving their children at kindergarten.

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The most common risks in preschool children

It should be noted that accidents involving children in kindergartens unfortunately occur quite frequently. Data from the Ministry of Education and Science show that during the 2021/2022 school year, 644 accidents were reported in Polish kindergartens, including five classified as serious. Table 1 presents the accident statistics for Polish kindergartens.

Table 1. Accident rate in kindergartens

Item	Causes of accidents	No.	%
1.	Lack of or inadequate supervision of the child	2	0.3
2.	Unintentional action by another person	68	10.6
3.	Unintentional action by the child	92	14.3
4.	Intentional action by another person	5	0.8
5.	Intentional action by the child	3	0.5
6.	Child's inattention	348	54.0
7.	Improper use of playground equipment	1	0.2
8.	Unintentional collision or strike	25	3.9
9.	Poor technical condition of facilities	2	0.3
10.	Other causes	98	15.1
11.	Total	644	100
Item	Location of accident	No.	%
1.	Kindergarten room	248	38.5
2.	Playground	279	43.3
3.	Gym	12	1.7
4	Canteen	1	0.2
5.	Sports ground	16	2.5
6.	Circulation areas/Corridors	20	3.1
7.	Public assembly area	1	0.2
8.	Sports facilities	1	0.2
9.	Street	9	1.4
10.	Other	57	8.9
11.	Total	644	100

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Item	Type of activity during accident	No.	%
1.	Didactic activities	182	28.3
2.	Free play	10	1.5
3.	Implementation of an educational project	1	0.2
4.	Physical education	9	1.4
5.	Art classes	2	0.3
6.	Sports competition	2	0.3
7.	Educational trips	10	1.5
8.	Other activities	428	66.5
9.	Total	644	100

Source: Author's research

Based on the data presented in Table 1, it can be concluded that situations posing a threat to a child's safety can occur at any time and in any place. Therefore, it is important to be aware of the actions to take when such an event occurs. The outcome for a child in a life-threatening condition often depends on the first person who comes to their rescue and provides first aid. Waiting for an ambulance without taking any action exposes the child to complications that may affect them for the rest of their life.

The most common sudden health risks in preschool children include loss of consciousness, altered awareness, seizures, sudden sharp chest pain, heart rhythm disturbances, increased dyspnea, sudden sharp abdominal pain, persistent vomiting, acute and severe allergic reactions, bites or stings from venomous animals, poisoning with medications, chemicals or gases, hypothermia, falls from significant heights, nosebleeds, choking, injuries to the musculoskeletal system (fractures, sprains and dislocations), head injuries, foreign objects in the eye, wounds caused by mechanical trauma, chemical substances or external conditions (e.g. high temperature), burns – most commonly from hot liquids or chemicals – chemical burns of the esophagus caused by accidental ingestion of toxic substances found in cleaning products, chemical burns to the eyes, electric shock, and hyperthermia caused either by external factors such as sunlight, saunas or hot baths, or internal factors such as impaired heat regulation (Kleszczyński, 2018; Kołodziejski, 2004; Kopta, 2016; Pogorzelczyk et al., 2020).

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Methodological foundations of research

The aim of the study was to determine the knowledge of Polish kindergarten teachers about the principles of first aid. The scope of the study was determined by the following problems:

1. How do the surveyed teachers assess their knowledge of first aid?
2. What child hazard situations have the surveyed teachers encountered?
3. Were the surveyed teachers able to take appropriate action in a situation where the child's life or health was threatened?

In searching for answers to the questions included in the problems, it was theoretically assumed that:

1. The surveyed teachers positively assess their knowledge of first aid.
2. The surveyed teachers encounter various situations requiring first aid.
3. The surveyed teachers are able to take appropriate actions in situations of a threat to a child's life or health.

In order to address the research questions, a diagnostic survey method was employed, which used an original questionnaire developed by the author. The survey consisted of a personal information section and 15 closed-ended questions, each followed by open-ended questions for more detailed responses. The study included 360 kindergarten teachers from the Siedlce commune, with 94.4% (340 individuals) identifying as women and 5.6% (20 individuals) as men. The age distribution of the respondents is shown in Table 2.

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Table 2. Age distribution of surveyed teachers

No.	Age	Number of teachers	
		N	%
1.	Under 25	80	22.2
2.	25-35	140	38.9
3.	36-45	100	27.8
4.	46-55	30	8.3
5.	Over 55	10	2.8
6.	Total	360	100

The data in Table 2 indicate that the majority of surveyed teachers were between the ages of 25–35 (38.9%) and 36–45 (27.8%). The teachers surveyed had varying lengths of service, as shown in Table 3.

Table 3. Length of service of surveyed teachers

No.	Length of service	Number of teachers	
		N	%
1.	Less than a year	60	16.7
2.	1 –3 years	50	13.9
3.	4 –5 years	30	8.3
4.	6 –8 years	80	22.2
5.	9 –10 years	40	11.1
6.	11 –15 years	60	16.7
7.	Over 15 years	40	11.1
8.	Total	360	100

The data in Table 3 show that the largest groups of respondents had 6–8 years of experience (22%) and less than one year or 11–15 years of experience (16.7% each). The smallest group consisted of teachers with 4–5 years of experience (8.3%).

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Analysis of the results

To begin with, the surveyed teachers were asked what first aid is. A total of 89% of respondents (320 people) answered this question. Their responses can be grouped into four main categories:

1. Actions aimed at saving lives – 39.1% (125 people)
2. Activities focused on protecting health – 30.9% (99 people)
3. Providing assistance and initial care – 21.9% (70 people)
4. Calling for qualified help – 8.1% (26 people)

Next, the respondents were asked whether knowledge of first aid is an important skill for a kindergarten teacher. 71.9% (259 people) answered yes, 6.1% (22 people) answered no, and 22.0% (79 people) had no opinion on the matter. Teachers who stated that knowledge of first aid is an important skill for a kindergarten teacher most often gave the following reasons:

– A teacher's responsibilities include care, education, and teaching; children must be safe in the kindergarten.
– The teacher must ensure that children are well cared for and safe.
– The teacher is responsible for the children; if something happens, the teacher is held accountable.
– Children are very active, and accidents often happen; the teacher must know how to respond.
– It is the teacher's duty to care for the child.
– Because human life is the highest value.
– You can save someone's life.

Respondents who answered negatively explained that they had never encountered a situation in their professional career in which they needed to provide first aid. Therefore, they did not believe that such a skill is important in a teacher's work. Following this, the teachers were asked whether they had participated in first aid training. 88.9% of respondents

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(320 people) said yes, while 11.1% (40 people) said they had not taken part in such training. Among those who had, the amount of time since their last training varied (see Table 4).

Table 4. Time elapsed since first aid training

No.	Participation in the training	Number of teachers	
		N	%
1.	This year	50	15.6
2.	A year ago	30	9.4
3.	2-3 years ago	60	18.7
4.	4-6 years ago	80	25
5.	7-10 years ago	30	9.4
6.	Over 10 years ago	70	21.9
7.	Total	320	100

The data presented in Table 4 shows that the largest group, 25% of respondents, had completed first aid training 4–6 years ago. The second largest group, 22%, were teachers who had received such training more than 10 years ago. Slightly fewer respondents, 19%, had completed first aid training 2–3 years ago, while 16% had done so in the current year. The smallest proportion of teachers had undergone training either one year ago or 7–10 years ago – 9% in each case.

Most respondents participated in first aid training at kindergartens – 71.9% (230 people) – followed by those who received training at university – 15.6% (50 people) and those who attended courses they enrolled in on their own initiative – 12.5% (40 people). None of the surveyed teachers had undergone retraining.

The next step was to gather information on how the teachers assessed their own level of first aid knowledge (see Table 5).

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Table 5. Self-assessment of first aid knowledge among surveyed teachers

No.	Level of expertise	Number of teachers	
		N	%
1.	Very good	0	0
2.	Good	20	5.6
3.	Average	130	36.1
4.	Weak	160	44.4
5.	Lack of knowledge	50	13.9
6.	Total	360	100

The data presented in Table 5 shows that the majority of respondents assessed their level of knowledge of first aid principles as poor (44.4%) or average (36.1%). Additionally, 13.9% of respondents believed they had no knowledge of first aid at all. Only 5.6% rated their knowledge in this area as good. Teachers were also asked whether they would like to improve their first aid knowledge. A total of 53.1% (191 people) answered yes, while 46.9% (169 people) had no opinion on the matter. Those who answered affirmatively gave the following reasons:

- Reducing fear of making a mistake – 47.1% (90 people)
- A desire to learn how to save lives – 31.9% (61 people)
- A sense of responsibility for children's safety – 21.0% (40 people)

Further questions in the survey concerned the topic of Automated External Defibrillators (AEDs). Only 21.9% of respondents (79 people) knew what an AED is, what it is used for, and when it should not be used. The remaining 78.1% (281 people) had no knowledge about it. When asked whether there was a defibrillator in their kindergarten, only 11.1% (40 people) answered yes, 13.9% (50 people) said that there was no such device, and as many as 75.0% (270 people) did not know whether an AED was present in their facility.

In the next stage of the study, teachers were asked whether they had ever encountered a child health emergency during their professional work.

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63.1% of respondents (227 people) answered yes, while 36.9% (133 people) said they had not. Teachers who had encountered a child health emergency were then asked to describe the situation (see Table 6).

Table 6. Child health emergency situations encountered by surveyed teachers

No.	Type of emergency situation	Number of teachers	
		N	%
1.	Sudden cardiac arrest (SCA)	9	4.0
2.	Nosebleeds	84	37.0
3.	Choking	75	33.0
4.	Foreign object in the eye	70	30.8
5.	Seizures	14	6.2
6.	Cuts	152	67.0
7.	Limb injuries	50	22.0

Note: Teachers could report more than one type of situation; percentages do not total 100%.

The data presented in Table 6 shows that the most common child health emergency that teachers encountered in their work was a cut (67.0%). Significantly fewer reported dealing with nosebleeds (37.0%), choking (33.0%), foreign objects in the eye (30.8%), and limb injuries (22.0%). The least frequently reported incidents were seizures (6.2%) and sudden cardiac arrest (4.0%). The percentages do not total 100% because many teachers mentioned more than one type of emergency situation. As a follow-up, teachers were asked how they responded to these situations.

In cases of sudden cardiac arrest (SCA) and loss of consciousness, 8 teachers correctly initiated life-saving procedures. One teacher provided the following detailed response:

> "I assessed the safety, checked the child's consciousness and breathing, and asked my colleague to call an ambulance. I started cardiopulmonary resuscitation (CPR), 30 compressions, 2 breaths for 1 minute,

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and assessed breathing. CPR continued until the child was taken over by the doctor."

This procedure follows the standard CPR protocol for adults. However, for children under 7, the most common cause of SCA is hypoxia, and a ratio of 15 compressions to 2 breaths is generally more effective. Still, using adult CPR protocol on a young child was not a serious mistake, as life-saving action was taken promptly.

In cases of nosebleeds, the majority of teachers, 90.5% (76 people), correctly followed the recommended procedure by tilting the child's head forward so that the blood could flow out without entering the stomach. However, 9.5% (8 people) made errors by tilting the child's head back, applying a cold compress to the neck, or pinching the nose. Tilting the head back is incorrect because it can cause blood to drain into the throat and stomach, which can lead to vomiting and worsening of the child's condition.

Another emergency situation indicated by teachers was airway obstruction caused by a foreign body. In all reported cases, the child choked on food. Only 25.3% of teachers (19 people) responded correctly by allowing the child to clear the airway on their own. In contrast, 74.7% (56 people) reacted immediately by striking the interscapular area without first checking whether the child's cough was effective. This response is inappropriate because it may startle the child and cause them to inhale forcefully, potentially pushing the object deeper into the airway, which can worsen the situation. 31% of teachers (70 people) reported encountering a foreign object in a child's eye. Only 18.6% of them (13 people) were able to properly clean the eye. However, as many as 81.4% (57 people) were unable to perform the appropriate first aid measures. Their actions involved mechanically removing the object from the eye, which is a mistake.

Seizures were another type of emergency experienced by the surveyed teachers. In one case, the seizure was triggered by an allergic reaction to a bee sting; in the other cases, the children had been diagnosed with epilepsy. Unfortunately, all of the responses described by the teachers were inappropriate. While they removed nearby objects that could

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pose a danger to the child and held the child's head, they also made the mistake of placing a crayon in the child's mouth to prevent tongue biting. They did not attempt to stop the seizure itself. After the seizure ended, they placed the child in the recovery position and called the parents.

The most common child emergency situation reported by teachers was cuts (67%, 152 people). These included superficial abrasions, scratches, a broken eyebrow arch, and head wounds without neurological symptoms. In all of these cases, the first aid procedures were performed correctly, with no serious errors that could have worsened the child's condition. The procedures involved washing the wound with soap and water or hydrogen peroxide and covering it with a Band-Aid. The final type of emergency situation involved limb injuries, such as contusions, sprains, fractures, and dislocations. First aid in these cases was relatively rare. Most teachers informed the parents about the incident and, with their consent, called an ambulance. Only 5 teachers, that is 10% of those who encountered such cases, immobilized the injured limb with a bandage and sling in the event of a dislocation.

Discussion

The presented research study is part of a broader trend in examining teacher education. A review of the relevant literature shows that there are relatively few publications that explore teachers' knowledge of first aid. Most available studies focus on primary and secondary school teachers (Kosydar & Mach-Lichota, 2008; Tokarski & Wojciechowska, 2008; Bilewicz-Wyrozumska, Rybarczyk, Lar, Złotkowska, Kucybała, Zbrojkiewicz, Bilewicz-Stebel, Mroczek, & Ziółko, 2014; Sowizdraniuk & Lesiewicz-Misiurnala, 2018; Wiśniewski & Majewski, 2007). However, no similar studies have been found that target specifically kindergarten teachers.

Similarly, in the international literature, there is a lack of research on kindergarten teachers' knowledge of first aid, despite widespread recognition of the importance of such skills. Much of the available research focuses instead on school nurses, who are often seen as key actors in

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emergency care, chronic condition management, and meeting students' daily healthcare needs (Elgie, Sapien, Fullerton, & Moore, 2010; Elgie, Sapien, & Fullerton-Gleason, 2005; Pappas, 2011; Ugalde, Guffey, Minard, Giardino, & Johnson, 2018).

These studies predominantly investigate the readiness of school nurses to respond quickly and effectively to threats to children's health or life, particularly in cases of sudden cardiac arrest and the use of automated external defibrillators (AEDs). They also examine readiness to handle emergencies involving children with special healthcare needs who require oxygen, tracheotomies, or ventilators, as well as the ability to manage head injuries and safely transfer students to emergency departments when a concussion is suspected (Evans & Ficca, 2012; Porter, Page, & Somppi, 2013; Olympia, 2017). Additional research has concentrated on the preparedness of school nurses to respond to potential mass emergencies and disasters, such as tornadoes, explosions, shootings, and earthquakes (Grant, 2002; Burke, Goodhue, Berg, Spears, Barnes, & Upperman, 2015; Olympia, Wan, & Avner, 2005). The readiness of school nurses to respond to pediatric emergencies, especially in meeting the health needs of children with asthma, has been emphasized by researchers such as Hillemeier, Gusic, and Bai (2006), Sapien (2007), and Olympia (2016).

Similarly, the key role of school nurses in caring for students with food allergies, which pose a serious risk of anaphylactic shock, has been highlighted by Powers, Bergren, and Finnegan (2007); Rhim and McMorris (2001); Robinson and Ficca (2012); and Behrmann (2010). An analysis of the existing literature reveals a lack of publications or research on teachers' – and especially kindergarten teachers' – knowledge of first aid in emergency situations, which often occur unexpectedly in early childhood facilities. In such cases, the teacher is usually the closest adult to the child in need and should be the first to initiate life-saving measures. This is an urgent issue in education with potentially serious implications for children's safety.

The absence of clear requirements for teachers' first aid competencies may point to gaps in legal regulations or educational standards. Admittedly, many publications address the general principles of first aid,

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but few focus specifically on the skills and responsibilities of teachers. This lack of emphasis contributes to a general unawareness and a failure to prioritize first aid education in the teaching profession. Moreover, the lack of relevant research and publications may hinder teachers' understanding of the importance of first aid training. Dedicated studies on teachers' first aid competencies could serve as valuable references for educational institutions and teacher training programs. Expanding research and publication in this area would benefit both preschool teachers and the children in their care.

It is important that kindergarten teachers possess not only theoretical knowledge but also practical first aid skills in order to fully protect and support the children that they are responsible for. As the findings of this study indicate, current levels of knowledge and preparedness are insufficient.

Conclusion

Kindergarten is an environment where a variety of situations can occur, some of which may require pre-medical assistance. The physical setting of the kindergarten, i.e., its building, equipment, and the way classes are organized can contribute to risks to children's health and safety through accidents and injuries. Additionally, children's psychophysical traits, such as high activity levels, curiosity, and a desire for new experiences are risk factors that may lead to situations in which first aid is necessary. The social environment, including peer interactions, such as tendencies toward aggression or fighting, is also of considerable importance. For these reasons, knowledge of basic first aid principles is essential.

Professional first aid skills can help save lives and protect health. The research conducted for this study indicates that kindergarten teachers' knowledge of first aid principles is inadequate, even though 89% of the surveyed teachers had completed some form of first aid training. Most of these courses took place on the premises of the kindergarten. However, none of the teachers rated their knowledge as very good. The study also

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found that none of the teachers had received refresher training, despite the European Resuscitation Council's recommendation that such training should be repeated 3 to 6 months after the initial course.

The findings show a significant need for first aid education among kindergarten teachers. This is a skill set that must be continuously developed to ensure that teachers can respond effectively in emergency situations and maintain a safe environment for children. Not only is this important for the safety of the children, but it also contributes to a sense of trust and calm in the kindergarten setting. Therefore, it is vital that educational authorities require kindergarten teachers to regularly update and improve their first aid knowledge and skills.

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