

IMPACT OF FALSE FIRST AID INFORMATION AND MYTHS ON PARAMEDIC EDUCATION

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ABSTRACT

Objective: The purpose of this study was to evaluate the effect of false information and myths related to first aid on paramedic education that have been formed in society.

Method: A two-level qualitative approach was employed. Focus group interviews with paramedic students were conducted at the beginning of their paramedic training and subsequently, at the end of the second semester, when they had completed their basic paramedic training. An independent qualitative researcher conducted thematic analysis in two stages. Furthermore, to complete the analysis and triangulation of data, paramedic educators involved in the research team reviewed and interpreted the presented themes independently.

Results: Ten themes emerged from the first focus group interviews, including misinformation about first aid and practices that may be considered myths. The participants also revealed that the media and family elders disseminated false information and myths related to first aid. Furthermore, while false information could be corrected in subjects such as foreign body aspiration and hemorrhages that are taught mainly in practice in the curriculum, there was resistance when attempting to rectify false information in more theoretical subjects such as poisoning and epilepsy.

Conclusion: Paramedic students are affected by false information related to first aid. Despite the academic education they received to become professional emergency medical service (EMS) employees, they appeared to resist replacing some incorrect first aid information with that which is correct. It is deemed that the media is the most important means to replace false information with true information and spread scientific information.

Keywords: First Aid, Paramedic Students, Emergency Medical Services

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YANLIŞ İLK YARDIM BİLGİLERİNİN VE MİTLERİN PARAMEDİK EĞİTİMİNE ETKİSİ

ÖZ

Amaç: Toplum içerisinde üretilmiş olan ilkyardım ile ilgili yanlış bilgi ve mitlerin paramedik eğitimi üzerine etkisinin değerlendirilmesidir.

Gereç ve Yöntem: Çalışmada paramedik öğrencilerle odak grup görüşmeleri ile yürütülen iki seviyeli bir nitel yaklaşım kullanıldı. Görüşmelerin ilki paramedik eğitiminin başında, ikinci görüşmeler ise temel paramedik eğitiminin tamamlandığı ikinci dönemin sonunda yapıldı. Tematik analiz, bağımsız bir nitel araştırmacı tarafından iki aşamada gerçekleştirildi. Analizi tamamlamak ve veri üçgenlemesi için araştırma ekibinde yer alan paramedik eğitimciler bağımsız olarak sunulan temaları gözden geçirdi ve yorumladı.

Bulgular: Paramedik öğrencileri ile yapılan ilk odak görüşmelerden, ilkyardım ile ilgili yanlış bilgi ve mit sayılabilecek durumlardan 10 tema oluşturuldu. Odak grup görüşmelerinde, ilkyardım ile ilgili yanlış bilgi ve mitlerin öğrenilmesinde, medyanın ve aile büyüklerinin etkili olduğu görüldü. Müfredatta ağırlıklı olarak uygulamalı işlenen yabancı cisim aspirasyonu ve kanamalar gibi konularda yanlış bilgilerin düzeltilebildiği görülürken, zehirlenmeler ve epilepsi gibi daha çok teorik işlenen konulardaki yanlış bilgilerin düzeltilmesinde direnç olduğu görüldü.

Sonuç: Paramedik öğrenciler içinde buldukları toplumda üretilen yanlış bilgilerden etkilenmektedir. Üstelik profesyonel EMS çalışanı olma yolunda aldıkları akademik eğitime rağmen bazı yanlış ilkyardım bilgilerinin doğru bilgilerle değiştirilmesi konusunda direnç olduğu görülmektedir. Yanlış bilgi ve mitlerin yayılmasında etkili olan medya, yanlış bilgilerin doğruları ile değiştirilmesi ve bilimsel bilginin yayılması için de kullanılabilecek en önemli araç olarak görülmektedir.

Anahtar Kelimeler: İlkyardım, Paramedik Öğrencileri, Acil Sağlık Hizmetler

INTRODUCTION

In emergencies, individuals may easily make mistakes related to precautions and first aid practices that need to be executed. In particular, it is common for those without adequate first aid training to perform incorrect practices or follow myths that abound in society in emergencies. Although the misinformation and myths that are prevalent in society related to first aid may vary across societies, some myths may spread rapidly among societies because of the impact of globalization. While incorrect practices encompass a considerable range of vastly different issues, in general, those practices that pose a life risk are minimal. Furthermore, myths have resulted because of incorrect information about first aid practices. These may include

extending the head to stop nose bleeds, slapping an individual who suffers a temporary loss of consciousness, placing a foreign substance in their mouth to prevent their tongue from getting stuck in their throat, assuming digesting vomit poisons individuals, and applying arterial tourniquets for snake bites (O'Neill, 2015; Fürst, 2020; Lombardi, 2021).

In every society, the formation of traditional knowledge may take generations and possibly even centuries. Traditional knowledge often does not contradict scientific knowledge, but supports scientifically developed knowledge. However, some traditional information may contradict scientific knowledge and become a myth. False information and myths, especially related to issues that are related to human life such as first aid, may place individuals' lives at risk and thus, result in social costs. During the preceding 25 years, the field of science related to emergency medicine and first aid has developed rapidly. Moreover, the scientific information produced in the field is being updated quickly. However, century-old myths related to first aid may lead to confusion in those who have undergone first aid training. In Turkey, paramedic education is provided as a two-year associate degree level. One may ask how professional pre-hospital emergency medical service (EMS) paramedics, who are professionals, are affected by false information and myths related to first aid within the society in which they were raised. One may further question how resistant they are to adopt correct academic information. Finally, one may wonder, in particular, how they behave in their professional and civil lives.

The purpose of this study was to evaluate the effects of false information and myths related to first aid on paramedic students. Furthermore, the study sought to explore the determining factors thereof and whether resistance was encountered when there were endeavors to replace false information with that which is correct. This study makes an important contribution to the improvement of paramedic training, which is directly related to saving lives, and thus, the enhancement of the quality of EMS services.

1. MATERIALS AND METHODS

A two-level qualitative approach was employed with focus group interviews with paramedic students. The participants included 15 paramedic students at three state universities located in Izmir Province. The participants were divided into three focus groups. Subsequently, interviews were conducted with each of the focus groups so as to have in-depth discussions on the obtained themes, acquire a deep understanding thereof, and provide insights and recommendations for future research and policies. Data saturation was realized when no new themes emerged from the data. Because of the COVID-19 pandemic, the interviews were not

conducted face-to-face but in the form of video calls in a digital environment through video conferencing programs by a qualitative researcher.

The interviews were conducted in two stages. While the first focus group interviews were conducted during the first week of the paramedic's training, the second were held during the last week of the second semester when the basic paramedic training was complete so as to identify false information and myths related to first aid among students at the beginning of paramedic training and subsequently evaluate how resilient they were to changing their notions about myths after studying basic first aid knowledge and skills.

Two paramedic educators who were part of the research team received support on technical issues. The focus group interviews lasted between one and two hours. All the interviews were recorded and transcribed verbatim. An independent qualitative researcher conducted the thematic analysis in two stages. First, after the first focus group interviews, the data were prepared for presentation and discussion in the second focus group interviews. Second, after the second focus group interviews, the final report was prepared. Moreover, the researcher employed a well-established iterative thematic analysis process to analyze the transcripts word-by-word.

After the transcripts of the first focus group interviews had been read, notes were made of the participants' opinions of well-known mistakes and myths. Subsequently, themes of systematically recurring ideas with excerpts from the transcripts were noted. Thereafter, the themes were reviewed by checking whether they were meaningful and research-related before the themes were named. Finally, a report was generated, with themes and excerpts. To complete the analysis and triangulation of data (Işık & Semerci, 2019), paramedic educators involved in the research team reviewed and interpreted the presented themes independently. Confidentiality as well as the right to refuse and refrain from answering certain questions was ensured when the participants provided informed consent.

Ethical considerations

This study was conducted in adherence to the Declaration of Helsinki. Ethics committee approval for the study was obtained from the Ethics Committee of the University (Ethics Committee approval number; 21-3.1T/42). The study was planned and implemented following this approval. Institutional guidelines for retrospective studies acclaimed by the institutional review board were the baseline for the study.

2. RESULTS

In the first focus group interviews, the following 10 myths or false first aid information, which the community perceived to be true, were noted and confirmed by the participants:

- Slapping a patient who has lost consciousness or has fainted,
- Hitting a patient's back because of a partial blockage of the respiratory tract with a foreign body,
- Attempting to stop the convulsions of a patient suffering from an epileptic seizure,
- Believing digesting vomit poisons a patient,
- Thinking that drinking ayran or eating yogurt will poison a patient,
- Applying a tourniquet that will block arterial circulation in snake bites,
- Sucking out the poison in snake bites,
- Applying mud to bee stings,
- Applying yogurt or toothpaste on thermal burns, and
- Extending the head to stop nose bleeds.

The following themes emerged during the first focus group interviews: false information and myths related to first aid, the role of the media in disseminating false information and myths, transmission of myths from generation to generation, and dilemmas experienced by paramedic students when they are present at emergencies as professional EMS workers or first aid providers.

Changes in the state of consciousness and slapping a patient who has fainted

In the first focus group interviews, the participants conveyed the myth that patients should be slapped if they had lost consciousness or fainted. However, during the second focus group interviews, they generally agreed that this was wrong:

The patient is placed in a supine position after evaluating the airway, circulation, and respiration (ABC). If the patient is breathing, he is put in a shock position. Their clothes are relaxed. You don't slap the patient (Focus Group 1).

No slapping, no shaking. Apart from that, the feet will be raised up to 30 centimeters. The person may vomit. We also need to be vigilant in case of vomiting, if there is no trauma, he can be turned to his side (Focus Group 2).

If he didn't fall hard on the floor and there's no damage to the neck vertebrae, I would put him in a coma position, in case he vomits. Apart from that, I would do ABC evaluation (Focus Group 3).

Hitting a patient's back whose respiratory tract is partially blocked by a foreign body

While there was a discussion during the second focus group interviews on whether hitting a patient's back whose respiratory tract was partially blocked by a foreign body was correct, the groups agreed the patients should not be hit:

First of all, I would act according to the manner of the blockage. I'll determine if it's a partial blockage or a complete blockage. If it is a partial blockage, if there is enough air that goes in and out, I would encourage the patient to just cough, not hit him on the back (Focus Group 1).

I would hit him on the back first. If there was a complete blockage, I would perform the Heimlich maneuver (Focus Group 2).

I would encourage him to cough, if there is something that got stuck in his windpipe, coughing can make it come out (Focus Group 3).

Attempting to stop contractions of a patient suffering from an epileptic seizure

After intense discussions during the second focus group interviews, the groups mainly expressed the opinion that the contractions of a patient who was suffering convulsions could be stopped:

As the patient contracts, I would try to hold his arms and legs in case the patient hurts himself (Focus Group 1).

I would try to keep it steady so that he wouldn't hurt himself, then wait for the seizure to pass (Focus Group 2).

I would also try to fix the body in the same way because the patient would be shaking (Focus Group 3).

Poisoning a patient by digesting vomit

In the second focus group discussion, the participants generally shared the notion that digesting vomit could poison a patient. Although the participants were taught otherwise (Goktas et al., 2014; Avau et al., 2021), most of them stated they would force the patient to vomit:

We try to induce vomiting and put him in a position so that his vomit does not get into his throat when he does vomit (Focus Group 1).

If the esophagus is not damaged, if it has been taken orally, we can encourage the patient to vomit (Focus Group 3).

Poisoning a patient by drinking ayran or eating yogurt

In the second focus group interviews on digestive poisoning, the participants largely agreed not to give the patient anything to eat or drink:

I'd either try to make him vomit or I'd make him eat yogurt (Focus Group 1).

I also thought I'd make him eat yogurt (Focus Group 2).

Applying a tourniquet that will block arterial circulation in snake bites

In the second focus group interviews, the discussion related to snake bites was fairly intense. While the vast majority of participants supported the idea of slowing down circulation by wrapping a bandage around the affected part of the body, some did not recommend such (Bush & Kinlaw, 2015; Hifumi et al., 2015) but were persistent that an arterial tourniquet should be applied even though they were told this was incorrect during lectures:

In order to prevent the spread of the poison throughout the body, we apply an arterial tourniquet to the upper part of the place where the snake bit (Focus Group 1).

Tourniquets shouldn't be used. It doesn't matter if it's a snake bite or a scorpion bite. It is necessary to close it with a bandage from above, but it should not interfere with circulation (Focus Group 2).

Sucking out the poison in snake bites

During the second focus group interviews, all the groups acknowledged that sucking out the poison after being bitten by a snake was incorrect:

I know that sucking out poison is completely wrong. Because when you take the poison into your mouth, you can get poisoned from your mouth even if you don't swallow it (Focus Group 1).

If there is a situation of a snake bite, sucking the wound site can also poison the first aid provider (Focus Group 2).

Applying mud to bee stings

In bee stings, applying mud to the area stung was discussed extensively during the second focus group interviews:

I would only clean out the wound site in a bee sting (Focus Group 1).

We rub mud and toothpaste on bee stings (Focus Group dec).

I have rubbed mud into the area that was stung in a bee sting a few times, I think I just rubbed it to prevent it from swelling or I don't know why I did it (Focus Group 2)

Applying yogurt or toothpaste to the burn area for thermal burns

In the second focus group interviews, very few participants emphasized that applying any substance other than something cold such as ice would cause infection despite learning that foreign substances should not be applied to burn wounds (Cuttle et al., 2009). In fact, the vast majority of participants insisted that they could apply yogurt:

If it's not a very big burn, I would apply yogurt or something, think of it like a normal sunburn (Focus Group 1).

I would apply yogurt to the place where there was a burn (Focus Group 2).

Teacher, we apply yogurt and toothpaste on burns (Focus Group 3).

Extending the head to stop nose bleeds

All the groups concurred during the second focus group interviews that extending the head to stop nose bleeds was incorrect:

Teacher, I would tilt the patient's head forward. I would put pressure on the front of the nose for five minutes with the thumb and forefinger. If the bleeding does not stop, I would put ice on the upper part of the nose and cheeks (Focus Group 2).

I would tilt the head forward so that the blood does not flow into the windpipe (Focus Group 3).

The influence of the media in disseminating false information and myths

The participants stated that they had learned false information and myths related to first aid extensively through the media:

Teacher, no one has never fainted around me, I only saw it on TV (Focus Group 1).

I definitely saw it in a movie (Focus Group 2).

I saw it on TV (Focus Group 3).

Transmission of myths from generation to generation

A number of participants acknowledged that they had learned false information and myths about first aid primarily from their family elders:

I live in a village. When there is such a problem, we usually do the practices we learned from our great-grandmothers and grandfathers as first aid before going to a healthcare facility (Focus Group 1).

I learned it from my grandmother (Focus Group 2).

I have heard from my mother that we should always eat yogurt in case of burns and vomiting (Focus Group 2).

Our elders taught this, I didn't know it myself (Focus Group 3).

Mixing the roles of a professional EMS worker and a first aid worker

The participants experienced dilemmas about practicing first aid based on incorrect information and/or myths, depending on whether they were providing professional EMS at the scene or were present as first responders. They appeared to accept providing first aid in accordance with false information and/or if they were present at the scene of the emergency as a first responder and had limited equipment:

In poisoning, vomiting is effective in the first thirty minutes in conscious people. But I wouldn't do this when I work as a paramedic, after all, we have many opportunities for intervention (Focus Group 2).

If I intervened as a paramedic, I could intervene with medications, but as a first aid provider, I would try to keep the patient stable while contracting, so that he doesn't hurt himself (Focus Group 3)

For minor burns, we already use toothpaste in everyday life, not while working as a paramedic, of course (Focus Group 3).

3. DISCUSSION

CBRN events are rare but high-impact events (Olivieri et al., 2017:366-70). CBRN events present a significant risk to public health and safety, and healthcare professionals such as doctors and nurses, play a critical role in providing medical care to affected individuals and preventing the spread of hazardous substances (Razak et al., 2018:543-49). They are responsible for a range of tasks, including; *Assessment and triage*: Evaluating patients to determine the extent and type of exposure and prioritizing care based on the severity of symptoms, *Treatment*: Providing medical care to individuals with symptoms related to exposure, such as administering decontaminating solutions or medications, and managing symptoms such as respiratory distress, *Containment*: Preventing the spread of hazardous substances by following infection control and decontamination procedures and wearing personal protective equipment, *Surveillance and monitoring*: Monitoring the health of exposed individuals and tracking the spread of any infectious agents to help prevent further spread, *Public health response*: Working with public health agencies to coordinate a response to the CBRN event, including distributing information

about the event, providing treatment and support to affected individuals, and helping to contain the spread of hazardous substances (Jama and Kuisma, 2016:392-96; Sheikh et al., 2012:34-38; Veenema et al., 2019:1-8; World Health Organization and The International Labour Office, 2018). In a CBRN event, the actions of healthcare professionals can have a significant impact on the outcome. They must be properly trained and equipped to respond effectively to such incidents.

In our study, the CBRN preparedness level of the ED personnel' was not sufficient. In addition to the low level of the CBRN preparedness of the ED personnel, the low participation in trainings and exercises in accordance with the in-house job description is worrying.

In his study, Kotora found that emergency care providers in a city hospital ED were not adequately prepared to manage CBRN incidents (Kotora, 2015:431-46). There are studies showing a correlation between the amount of education and personal confidence levels, with a lower percentage of knowledge in handling CBRN events indicating a poor level of CBRNE readiness (Hung et al., 2013:90-97; Kotora, 2015:431-46; Sheikh et al., 2012:34-38) Since CBRN events are not recurrent events, it is necessary to periodically repeat and remind current and realistic theoretical and practical information about these issues.

Contrary to previous studies, the increase in the age of the participants and the time spent in the profession did not cause an increase in the level of knowledge and preparation about CBRN (Eyison et al., 2020:174-79; Kotora, 2015:431-46; Yahya et al., 2022:103235). This may be related to factors such as increasing age, reluctance to participate in in-service training, the time elapsed since formal education, decreased professional interest and decreased performance (Ozyar, 2003:85-88; Patchen Dellinger et al., 2017:967-71) Professional performance increases can be achieved through practices such as encouraging participation in evidence-based medical education, providing performance feedback, and in-service proficiency exams.

The use of PPE is essential for the protection of healthcare professionals themselves and the patients they care for. The Covid 19 pandemic has shown how effectively healthcare workers can and cannot be protected with the use of PPE (Liu et al., 2020:6-11). All the participants had received training on the use of PPE. This situation was thought to be related to the Covid 19 pandemic practices in which all healthcare professionals worldwide participated.

Proficiency in decontamination procedures and training on this subject are important for an emergency room health worker. In CBRN incidents, patients can be brought to the emergency services by being decontaminated at the scene, or they can reach the emergency services by their own means by carrying the contamination findings (Okumura et al., 1998:613-

17). An emergency department must be prepared for decontamination processes with both personnel and equipment preparation.

Participation of ED personnel in CBRN exercises were at a low level. CBRN events are infrequent and require periodic reminders (Kotora, 2015:431-46). Healthcare professionals may need exercises to be informed about these applications, which they may encounter rarely, and to reinforce their existing knowledge. CBRN preparations can be supported by different approaches such as scenario-based CBRN trainings, desk exercises, virtual reality applications, and high-modality simulation dummies for healthcare workers (Eyison et al., 2020:174-79).

A survey study was conducted to determine the CBRN awareness and knowledge levels of health workers who previously worked in emergency services in Türkiye (Eyison et al., 2020:174-79). In this study, it was determined that a low part of the participants (11.9%) had full awareness and they had less dominance of information about radiation-nuclear than chemical and biological events(Eyison et al., 2020:174-79). Türkiye is in a geography open to CBRN hazards, the most important examples of this in the past are the Chernobyl nuclear power plant accident and the chemical attacks carried out in Syria in different years (Ozyar, 2003:85-88; Council of Higher Education, 2017). With the changing terrorist attacks and technological structures, the probability of healthcare professionals to encounter CBRN incidents that occur intentionally or accidentally is increasing. In addition, the existence of a nuclear power plant under construction in Türkiye necessitates increasing the knowledge of emergency care providers about nuclear medical emergencies(Republic of Türkiye Ministry of Energy and Natural Resources, 2022). For these reasons, By increasing the topics related to disaster medicine and CBRN, which are insufficient in the medical and nursing education curricula in Türkiye, can contribute to increasing the CBRN knowledge and preparedness levels of the ED personnel (Bıçakçı, et al., 2022:59-73).

It is inevitable that an inadequate response will emerge in the medical management of these events in the emergency services where there is a health workforce that does not have sufficient knowledge, preparation, and experience about CBRN. For the entire healthcare workforce caring for CBRN casualties in the EDs, drills that include a standardized curriculum and roles in line with job descriptions may be optimal for preparation.

The main limitation of the study is that the data were obtained from a single institution and the study population was relatively small. Another limitation is that since participation in the study is voluntary, people who think they are good at disaster preparedness and CBRN may have chosen to participate in the study. We also collected participants' self-assessments of what they knew, as in other studies of this style. This may have led to an erroneous assessment.

Finally, since the study was not a scale development study, confirmatory factor analysis was not performed for the CBRN PLQ. With the application of CFA, the validity of the structure we discovered after the exploratory factor can be demonstrated.

CONCLUSION

False information and myths related to first aid are utilized by a significant number of individuals. The media has a considerable influence on the formation and dissemination of false first aid information. In particular, social networks contribute to both the very rapid spread of misinformation and resistance to replace such with correct information. Paramedic students are also affected by false first aid information. Moreover, despite the academic education they had received, they still resisted replacing some of their misconceptions with the correct information. In order to avoid social costs, it is imperative to develop measures to eliminate misinformation and myths. This will also ensure paramedics do not experience dilemmas in emergency situations. It is deemed that the media may be the most important means to convey correct information. In particular, Web 2.0 applications can be employed to disseminate scientific information to rectify false information and myths related to first aid.

Author Contributions

Study design AE, SUA, SG; Data Collection AE, SUA, SG; Data analysis SUA; Study Supervision AE, SUA, SG; Manuscript Writing AE, SUA, SG; Critical Review AE, SAU, SG.

Conflict of Interest

There is no conflict of interest between the authors.

REFERENCES

Al-kubaisy, Y., Suwayyid, WK., Al-Shakhs, AA., Addar, LM., Alshammeri, MD., Mhraz, MYB, et al. (2019) Teachers awareness regarding first-aid management and control of epistaxis inside schools in Riyadh region, Saudi Arabia. *International Journal of Medicine in Developing Countries*, 3 (12), 1135-1139. doi:10.24911/IJMDC.51-1572536771.

Avau B, Borra V, Vanhove AC, Vandekerckhove P, De Paepe P, De Buck E. First aid interventions by laypeople for acute oral poisoning. *Cochrane Database of Systematic Reviews* 2018, Issue 12. Art. No.: CD013230. DOI: 10.1002/14651858.CD013230, 19.11.2021.

Baxendale, P. and O'Toole, A. (2017). Epilepsy myths: Alive and foaming in the 21st century. *Epilepsy & Behavior*. 11(2), 192-196.

Bush, SP, Kinlaw, SB (2015). Management of a Pediatric Snake Envenomation After Presentation With a Tight Tourniquet. *Wilderness & Environmental Medicine*. 26,(3), 355-358.

Cuttle, L, Pearn, J, McMillan, JR., Kimble, RM. (2009). A review of first aid treatments for burn injuries. *Burns*. 35(6),768-775.

Ekşi, A. (2015). Management of Prehospital Emergency Medical Services in Case of Mass Incidents. *Kitapana*. İzmir.

Furst, J. (2020). The Top 3 Most Dangerous First Aid Myths. <https://www.firstaidforfree.com/the-top-3-most-dangerous-first-aid-myths/>, 25.11.2021.

Goktas, S, Yıldırım, G, Kose, S, Yıldırım, S, Özhan, S, Senturan, L. (2014). First Aid Knowledge of University Students in Poisoning Cases. *Turkish Journal of Emergency Medicine*. 14(4),153-159.

Guzman, M, Yan Huang, M. (2021). Paramedics debunk 12 first aid myths. <https://www.businessinsider.com/paramedics-debunk-12-surprising-myths-about-first-aid-2021-9>, 19.11.2021.

Ladle, R, Jepson, P, Whittaker, R. (2005). Scientists and the media: The struggle for legitimacy in climate change and conservation science. *Interdisciplinary Science Reviews*, 30, 231–240.

Lewandowsky S., Ecker UKH., Seifert, CM., Schwarz, N., Cook, J. (2012). Misinformation and Its Correction: Continued Influence and Successful Debiasing. *Psychological Science in the Public Interest*. 2012;13(3):106-131. doi:10.1177/1529100612451018.

Lombardi, L. (2021). 13 Common First Aid Mistakes Everyone Makes. <https://www.thehealthy.com/first-aid/common-first-aid-mistakes/>, 15.11.2021.

Moeller, A., Moeller, J., Rahey, S., Sadler, R. (2011). Depiction of Seizure First Aid Management in Medical Television Dramas. *Canadian Journal of Neurological Sciences / Journal Canadien Des Sciences Neurologiques*, 38(5), 723-727. doi:10.1017/S0317167100054093.

Hifumi, T., Sakai, A., Kondo, Y. et al. (2015). Venomous snake bites: clinical diagnosis and treatment. *J intensive care*. 3, 16 (2015). <https://doi.org/10.1186/s40560-015-0081-8>.

Işık, E., Semerci, Ç. (2019). In *Qualitative Research, Focus Group Interview, Individual Interview and Observation as Data Triangulation*. *Turkish Journal of Educational Studies*, 6(3), 53-66. DOI: 10.33907/turkjes.607997.

O'Neill, J. (2015). 8 Common First Aid Mistakes You Should Never Make. <https://www.goodhousekeeping.com/health/g2753/common-first-aid-mistakes/>, 15.11.2021.

Oreskes, N., Conway, EM. (2010). *Merchants of doubt*. London, England: Bloomsbury.

Rossi, KC., Baumgartner, AJ. Goldenholz, SR., Goldenholz, DM. (2020). Recognizing and refuting the myth of tongue swallowing during a seizure. *Seizure*. 83 (December 2020), 32-37.

Sandman, L. & Nordmark, A. (2006). Ethical Conflicts in Prehospital Emergency Care. *Nursing Ethics* 13(6):592-607.

Suarez-Lledo, V., Alvarez-Galvez, J. (2021). Prevalence of Health Misinformation on Social Media: Systematic Review. *J Med Internet Res*. 2021;23(1):e17187. doi: 10.2196/17187.

Wallace HJ., O'Neill, TB., Wood, FM., Edgar, DW., Rea, SM. (2013). Determinants of burn first aid knowledge: Cross-sectional study. *Burns*. 39(6), 1162-1169.

Weaver, K., Garcia, SM., Schwarz, N., Miller, DT. (2007). Inferring the popularity of an opinion from its familiarity: A repetitive voice can sound like a chorus. *Journal of Personality and Social Psychology*, 92, 821–833.