



AN INVESTIGATION ON THE LEVELS OF FIRST AID BAG AND FIRE EXTINGUISHING TUBE IN THE AUTOMOBILES THAT PASS THROUGH THE BUCAK REGIONAL TRAFFIC POINT

Mehmet Zeki YILDIRIM ^{*a} , Cemile ARI^a, Sinem DURMAZ^a

^aBucak School of Health, Burdur Mehmet Akif Ersoy University, Burdur, Turkey

ARTICLE INFO

RESEARCH ARTICLE

Article history:

Received: 08 March 2021

Accepted: 31 August 2021

Available : 31 August 2021

Key Words:

First Aid Bag, Fire Extinguisher, Highway

*Correspondence: Mehmet Zeki YILDIRIM

Burdur Mehmet Akif Ersoy University, Bucak
School of Health, Burdur, Turkey

e-mail: mzyildirim@mehmetakif.edu.tr

Turkish Journal of Health Science and Life
2021, Vol.4, No.2, 82-86.

ABSTRACT

This study was carried out to determine the compliance of the first aid kit and fire extinguisher that must be found in vehicles on the highway. For this purpose, 101 vehicles randomly selected among the vehicles stopped at Bucak Region Traffic Point on the Burdur - Antalya highway between 15-20 December 2019 were examined. The data were obtained by asking the vehicle users one-on-one and making observations. In the observation form, there are 24 questions consisting of first aid kit and fire extinguisher standards and 6 questions containing demographic information.

In the answers given to the questions about the first aid kit standards, it is seen that the contents of the first aid kits in the vehicles comply with the standards at the level of 50-60% on average. The presence of fire extinguishers and the standards of the tubes found is even more negative than the average values. It was observed that 36.6% of the vehicles did not have a fire extinguisher, 55.4% of the tubes in the vehicles with fire extinguishers had expired, and again 2% of the tubes had cracks, leaks and roughness on the outer surface. The data were evaluated statistically, and more positive values were found in the vehicles of single vehicle drivers in the first aid kit and fire extinguisher standards compared to the married ones.

It is believed that urgent measures should be taken to eliminate the inadequacy of first aid kits and fire extinguishers in vehicles in a geography with a high rate of occurrence of traffic accidents.

As a result, the deficiencies of the first aid kit and fire extinguisher in the vehicles were determined and the drivers were warned before there was a possible emergency.

INTRODUCTION

First aid is practices aimed at preventing the current situation of people from worsening in various accidents and injuries, until the patients and the injured are taken to the health institution. Conscious and correct first aid can help reduce the impact of injuries significantly. Therefore, it is important to always have a first aid kit with adequate supplies with us and places.

First aid kit is a obligatory rather than a necessity, especially when traveling with the various traffic vehicles offered by modern life. In our country, according to the Highways Traffic Law and related regulations, it is obligatory to have a first aid kit in all motor vehicles (excluding motorcycles, motorcycles, work machines). In this Regulation, there is a

statement that "drivers who do not comply with the specified provisions are punished according to the relevant provisions of the Highway Traffic Law No. 2918" (T.C.S.B., 2006: 26301).

One of the other materials that must be present in the vehicle are fire extinguishers. Whether it is commercial vehicles or private vehicles, they all have a risk of fire. Especially in our country, auto gas conversion of vehicle owners using different fuels in recent years has led to an increase in vehicle fires. Again, changes such as the increase in the rate of plastic material use in vehicle technology increase the risk of fire. In addition, in large buses, trucks and trucks carrying passengers or freight, we see that vehicles burn down due to overheating of the linings or various engine problems, and the health of both

drivers and passengers is endangered. Therefore, vehicles must have fire extinguishing systems that work well. Legally, according to the relevant regulations, it is mandatory to have fire extinguishing systems in the vehicles. Fire extinguishers, which are considered severe defects in vehicle inspections, reveal the necessity of this.

Fire extinguishers are pressurized devices that cut the connection between heat and oxygen with the help of the materials they contain. These devices, which can be produced in many different sizes and features, are of great importance especially in extinguishing fires during their occurrence. Therefore, the presence of fire extinguishers, such as first aid kits, in vehicles is a necessity for a healthy life beyond legal obligation Karamercan ve ark., (2007), Yılmaz (2018).

Depending on the developing living conditions in the world and in our country, there is an increase in the studies for the use of first aid kits and fire extinguishers in traffic vehicles and in all areas such as homes, schools and hospitals.

Karamercan et al (2007) have worked on the carbon dioxide poisoning occurring during the destruction of fire extinguishers. Kılıçmaz and Arısoy (2002) have given information about finding a first aid kit in his work on home accidents and first aid. Oduncu et al. (2018). studied on a group of 600 people on Current Developments in Fire Awareness, it was determined that 144 of the participants had cars and 139 of them had a fire extinguisher in the vehicle. It was determined that 317 of the participants knew how to use the fire extinguisher and 6 people had their extinguishers serviced on time.

Rızalar ve Öztürk (2015) have studied on the characteristics of the patients / injured who apply to the Emergency Health Center 112 and the Health Team also give information about the first aid kit in their studies where they give information about the First Aid until Arrival. Yılmaz, (2018) worked on safe working conditions in compressed gas cylinders. Dandil (2016) worked on provides information on first aid package application for mobile devices.

Similar studies are frequently encountered around

the world on first aid kits and fire extinguishers. Vijayaraghavan, et al (2020) have studied on convenient first aid kit for chemical and biological agents and for radiation exposure. Otaki et al (2020) have studied on shaping the future-ready doctor: a first-aid kit to address a gap in medical education. Iqbal (2016) worked on design, development, and fabrication of airdrop mechanism for first aid kit drop in Unmanned Disaster Relief Helicopter. Pancratz, N. (2020) has studied on dealing with (pre-) conceptions: introduction of a "first aid kit" for "learning doctors" in computer science classes.

This study investigates whether there are first aid kits and fire extinguishers in cars passing through Antalya Burdur highway with heavy traffic; again, to determine the level of compliance with their standards.

1. MATERIAL AND METHOD

The universe of this study consists of 425 vehicles and users stopped at Bucak Regional Traffic Point on the Burdur - Antalya highway between 15-20 December 2019. The material of the research consists of 101 vehicles and users selected randomly and randomly, stopped at the Burdur-Antalya Traffic Point. While filling out the observation forms, face-to-face communication was established with all vehicle users. SPSS program was used to analyze the data. The study started after the permits obtained from the District Police Department and the District Governorship. The research was collected by the observation method in December 2019. The fire extinguisher and first aid kit standards were determined by the researchers and consisted of 30 questions, 24 of which were standard observation table and 6 were demographic questions. In both standard tables, they are evaluated as "YES" and "NO". Two of the participants were women and 99 of them were men.

2. RESULTS AND DISCUSSION

This study was carried out between 15-20 December 2019 at Bucak District Traffic Point on the Burdur - Antalya highway in order to determine the suitability

of the first aid kit and fire extinguisher that must be found in vehicles on the highway. A total of 425 vehicles were stopped at the traffic point, and 101 vehicles and drivers randomly selected from them were analyzed for the purpose of the study. The data were obtained by asking the vehicle users one-on-one and making observations. Observation form related to demographic information of drivers 6; It also includes a total of 24 questions about first aid kit standards and fire extinguisher.

It has been determined that the participant drivers demographic characteristics are 88.1% (n = 89) are registered in the Akdeniz region, while 11.9% (n = 12) are registered in other regions. When examined in terms of gender, 98% (n = 99) of the drivers are male while 2% (n = 2) of the drivers are female. When we look at the age of the drivers among the demographic features, the rate of those aged between 18-40 is 38.6% (n = 39), while the rate of those aged 41 and over is 61.4%. (n = 62) When the education level of the drivers is examined, the rate of primary school graduates is 33.7% (n = 34), 26.7% (n = 27) of high school graduates, 39.6% of those with undergraduate and

shows the results of the first aid kit and the materials that should be in the bag in 101 vehicles we examined in our study.

In the answers given to the questions about the first aid kit standards, it is seen that the first aid kits in the vehicles comply with the standards at 50-60%. Doubt that this is insufficient and dangerous. Because the first material required in case of any accident is the first aid kit. For example, triangle bandages and automatic tourniquets, which are absolutely necessary to prevent blood loss in an injury, are not found in approximately 40 percent of vehicles. In a geography where the occurrence rate of traffic accidents is high, it is of vital importance that the first aid kit is at a level that complies with the standards.

Unfortunately, a similar negative picture was encountered in fire extinguishers (Table 2). It has been determined that 36.6% of the vehicles do not have a fire tube. It has been observed that 55.4% of the cylinders in vehicles with fire extinguishers have expired. It was also observed that 2% of the tubes had cracks, leaks and roughness on the outer surface.

Table 1. Demographic characteristics of participating drivers

DEMOGRAPHIC FEATURES	N	%
Male	99	98
Female	2	2
Married	87	86.1
Single	14	13.9
AGE		
18-40	39	38,6
41+	62	61.4
EDUCATION		
Primary School	34	33.7
Collage	27	26.7
Undergraduate –Postgraduate	40	39.6

postgraduate education = 40) (Table 1).

In general, the materials that should be in the first aid kit of every vehicle in traffic are as follows: 1 automatic turnstile, 1 piece of plaster, 2 Large bandages, 3 triangle bandages, 10 hook pins, 1 stainless scissors, 10 band-aids, 2 pieces of medical gloves, a first aid booklet, an antiseptic solution (50 ml), an aluminum burn cover, a flashlight, 1 elastic bandage. Table 2

A statistically significant difference was found as a result of the t test performed to compare the content and quality levels of the materials used by the participants in their first aid kits ($t = -2.142$; $p < .05$). Accordingly, it was observed that the content and quality levels of the materials ($X^{\bar{}} = 7967$) of the single participants in their vehicles for Fire extinguisher were higher than the married ones ($X^{\bar{}} = 5402$) (Table 3).

A statistically significant difference was found as a result of the t-test performed to compare the content and quality levels of the materials used by the participants in their fire fighting vehicles ($t = -2.263$; $p < .05$). Accordingly, the content and quality levels ($X^{\bar{}} = 6548$) of the materials used by the single participants in their fire fighting vehicles are higher than the content and quality levels ($X^{\bar{}} = 4454$) of the materials that married participants have in their fire fighting vehicles (Table 4).

Table 2. Searching questions and results.

QUESTIONS	YES	NO
FIRST AID KIT STANDARDS		
1. Is there at least 1 automatic turnstile?	58 (57.4 %)	43 (42.6 %)
2. Is there at least 1 piece of plaster?	59 (% 58,4)	42 (41,6 %)
3. Are there at least 2 Large bandages?	61 (% 60,4)	40 (39,6 %)
4. Are there at least 3 triangle bandages?	61 (% 60,4)	40 (39,6 %)
5.Are there at least 10 hook pins?	55 (54,5 %)	46 (45,5 %)
6.Is there at least 1 stainless scissors	57 (56,4 %)	44 (43,6 %)
7.Are there at least 10 band-aids?	62 (61,4 %)	39 (38,6 %)
8.Are there at least 2 pieces of medical gloves?	58 (57,4 %)	43 (42,6 %)
9.Is there a first aid booklet?	59 (58,4 %)	42 (41,6 %)
10.Is there an antiseptic solution (50 ml)?	56 (55,4 %)	45 (44,6 %)
11.Is there an aluminum burn cover?	58 (57,4 %)	43 (42,6 %)
12. Is there a Flashlight	55 (54,5 %)	46 (45,5 %)
13. Is there at least 1 elastic bandage?	57 (56,4 %)	44 (43,6 %)
FIRE EXTINGUISHER STANDARDS		
14. Is there at least 1 fire extinguisher in the vehicle?	64 (63,4 %)	37 (36,6 %)
15. Is the device conforming to TS 862 EN3 standards or CN approved?	64 (63,4 %)	37 (36,6 %)
16. Is it suitable for A-B-C type fires?	50 (49,5 %)	51 (50,5 %)
17. Is the weight of the fire extinguisher at least 1 kg?	64 (63,4 %)	37 (36,6 %)
18. Does the device have a manufacturing year and serial number?	63 (62,4 %)	38 (37,6 %)
19. Is the fire extinguisher suitable for the expiration date	45 (44,6 %)	56 (55,4 %)
20. Is the fire extinguisher has on the sealed safety pin?	60 (59,4 %)	41 (40,6 %)
21. Is the fire extinguisher pressure gauge in the green area?	51 (50,5 %)	49 (49,5 %)
22. Is it on the control label of the fire extinguisher?	56 (55,4 %)	45 (44,6 %)
23.Are there maintenance dates on the control label?	56 (55,4 %)	45 (44,6 %)
24.Are there any cracks, leaks, roughness on the outer surface of the fire extinguisher?	2 (2,0 %)	99 (98,0 %)

Table 3.Content and Quality Levels of the Materials Held by Participants in First Aid Kits

Point	Group	N	X̄	Ss	t	Sd	P
First Aid Scores	Married	87	,5402	,47447	-2,142	19,219	0,04
	Single	14	,7967	,40548			

Table 4. Content and Quality Levels of the Materials Held by the Participants in their Fire Fighting Vehicles

Point	Group	N	X̄	Ss	t	Sd	p
Fire extinguisher Scores Average	Married	87	,4454	,38458	-2,263	20,059	0,03
	Single	14	,6548	,30984			

Table 5. Level of fire extinguishers and standards that participants should have in their vehicles according to their age

Score	Group	N	X̄	Ss	t	sd	p
Fire Extinguishers Average	18-40	39	,6047	,33482	2,916	89,447	0,00
	41+	62	,3925	,38747			

When evaluated in general, about fifty percent results were obtained in terms of first aid kit and necessary materials in vehicles. Undoubtedly, there are legal obligations in terms of the first aid kit and the materials to be found in all vehicles. A complete first aid kit is of vital importance for both humans and animals that will be encountered in traffic. That is why vehicle owners should pay close attention to this.

3. CONCLUSION AND SUGGESTIONS

Although there has been a certain decrease in traffic accidents with the improvement of highways and the updates in traffic laws in our country, it still continues at a serious level. Death and injury incidents are frequently encountered in these accidents. Undoubtedly, the most urgent material in the event of an accident is the first aid kit. Again, it is vital to have a fire extinguisher suitable for the standards against fires that may occur in vehicles. However, in this cross-sectional study, the first aid kit is insufficient in approximately one third of the vehicles in traffic. Approximately 3/1 of the vehicles in traffic do not have a fire extinguisher. It has been observed that a significant part of the fire extinguishers found in vehicles are non-standard.

As a result, training and efforts to create a social sensitivity in terms of first aid kits and fire extinguishers, which are compulsory to have in vehicles and which are in compliance with vital standards, are an urgent necessity. Regarding the subject, special attention should be given to the trainings on the subject both within schools and in the media. It is also believed that the traffic control teams should examine the vehicles sensitively in terms of these materials and warn the drivers who lack them.

ACKNOWLEDGEMENTS

We would like to thank the Bucak District Governorship, Burdur Provincial Police Directorate, Bucak District Traffic Control Station and the participants who answered the questions sincerely for their interest and assistance during the study.

REFERENCES

- Dandil, E. (2016). Mobil Cihazlar İçin İlk Yardım Paketi Uygulaması. *APJES III-I* 16-20.
- Iqbal, (2016). Design, Development and Fabrication of Airdrop Mechanism for First Aid Kit Drop in Unmanned Disaster Relief Helicopter. *3rd International Conference on Engineering and Emerging Technologies (ICEET)*, Lahore, Pakistan.
- Karamercan, M.A., Çelik, G., Kales, A., Demircan, A. (2007). Yangın Söndürme Tüplerinin İmhası Sırasında Oluşan Karbondioksit Zehirlenmesi; 5 Olgu Sunumu.
- Kirilmaz, A. Y. ve Arisoy, M. (2002). Ev Kazaları ve İlk Yardım. *Sağlık ve Toplum Dergisi*, Ekim-Aralık, 2002, 12.4: 27-32.
- Oduncu, O., Kayış, V., Kamal, H., Soykan, H. S. (2018). Yangın Bilincinde Güncel Gelişmeler. *In: 2nd International Symposium on Natural Hazards and Disaster Management*, Sakarya University Culture and Congress Center, Sakarya-Turkey 04-06 May 2018.
- Otaki, et al. (2020). Shaping the future-ready doctor: a first-aid kit to address a gap in medical education. *International Journal of Medical Education*. 11:248-249.
- Pancratz, N. (2020). Dealing with (pre-)conceptions: introduction of a "first aid kit" for "learning doctors" in computer science classes. *WiPSCE '20: Proceedings of the 15th Workshop on Primary and Secondary Computing Education* October 2020 Article No.: 30 Pages 1-2.
- Rızalar, S., Öztürk, E.A. (2015). Acil Sağlık Merkezi 112'ye Başvuran Hasta/ Yaralıların Özellikleri Ve Sağlık Ekibi Gelineye Kadar Yapılan İlk Yardım Girişimleri. *Balıkesir Sağlık Bilimleri Dergisi*, 2015 4.3: 131-136.
- Şenol ve Ark., (1999). Otobüs Ve Kamyon Şoförlerinin İlk Yardım Konusundaki Bilgi Tutum Ve Davranışları. *Ulus Travma Acil Cerrahi Derg.* 1999; 5(1): 19-23
- T.C.S.B. (2006). Araç İçi Zorunlu İlk Yardım Çantası Yönetmeliği, Resmî Gazete, Sayı : 26301.
- Vijayaraghavan, R., Bhaskar, A. S. B., Gautam, A., Gopalan, N., Singh, A. K., Singh, B., Flora, S. J. S., (2020). A convenient first aid kit for chemical and biological agents and for radiation exposure. *Journal of Environmental Biology; Lucknow* Vol. 33, Iss. 3.
- Yılmaz, R. (2018). Basıncılı Gaz Tüplerinde Güvenli Çalışma Koşulları. *OHS Academy*, 1.2: 74-82.