Research Article

Comparison of First Aid Knowledge Levels and Self-Efficacy Between Healthcare Workers and Sports Sciences Students

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ABSTRACT

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This study aimed to comparatively examine the first aid knowledge levels and first aid self-efficacy of healthcare professionals and sports science students. The research was conducted using a descriptive and cross-sectional survey model. A total of 574 volunteer individuals participated in the study, including 304 healthcare professionals working in Samsun province and 270 students studying at the Faculty of Sports Sciences of Ondokuz Mayıs University. Research data were collected using a Personal Information Form, a First Aid Knowledge Level Scale, and a First Aid Self-Efficacy Scale. Descriptive statistics and Independent Groups t-test were used in the analysis of the data, and the significance level was accepted as $p < .05$. The research findings showed that the first aid knowledge level scores of healthcare professionals were significantly higher than those of sports science students ($p < .001$). In both groups, it was found that the knowledge levels of individuals who had received first aid training were significantly higher than those who had not received training ($p < .001$). While first aid training positively affected self-efficacy levels in sports science students ($p < .001$), no significant difference was found in self-efficacy scores among healthcare professionals based on whether they received training ($p > .05$). In conclusion, it was determined that healthcare professionals have higher first aid knowledge and self-efficacy levels compared to sports science students. These findings suggest that first aid course content in sports science education programs should be strengthened, practical training should be increased, and simulation-based teaching methods should be widely adopted.

Keywords: *Healthcare worker, Sports, Student, First aid*

ÖZET

Bu çalışma, sağlık çalışanları ile spor bilimleri öğrencilerinin ilk yardım bilgi düzeyleri ve ilk yardım öz-yeterliliklerinin karşılaştırmalı olarak incelenmesini amaçlamıştır. Araştırma, tanımlayıcı ve kesitsel tarama modelinde gerçekleştirilmiştir. Çalışmaya Samsun ilinde görev yapan 304 sağlık çalışanı ile Ondokuz Mayıs Üniversitesi Spor Bilimleri Fakültesi'nde öğrenim gören 270 öğrenci olmak üzere toplam 574 gönüllü birey katılmıştır. Araştırma verileri; Kişisel Bilgi Formu, İlk Yardım Bilgi Düzeyi ve İlk Yardım Öz-yeterlilik Ölçeği kullanılarak toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler ve Bağımsız Gruplar t-testi kullanılmış, anlamlılık düzeyi $p < .05$ olarak kabul edilmiştir. Araştırma bulguları, sağlık çalışanlarının ilk yardım bilgi düzeyi puanlarının spor bilimleri öğrencilerine göre anlamlı derecede daha yüksek olduğunu göstermiştir ($p < .001$). Her iki grupta da ilk yardım eğitimi almış bireylerin bilgi düzeylerinin eğitim almayanlara göre anlamlı düzeyde daha yüksek olduğu saptanmıştır ($p < .001$). Spor bilimleri öğrencilerinde ilk yardım eğitimi öz-yeterlilik düzeyini olumlu yönde etkilerken ($p < .001$), sağlık çalışanlarında eğitim alma durumuna göre öz-yeterlilik puanlarında anlamlı bir farklılık bulunmamıştır ($p > .05$). Sonuç olarak, sağlık çalışanlarının ilk yardım bilgi düzeyi ve öz-yeterliliği açısından spor bilimleri öğrencilerine göre daha yüksek yeterliliğe sahip olduğu belirlenmiştir. Elde edilen bulgular, spor bilimleri eğitim programlarında ilk yardım ders içeriklerinin güçlendirilmesi, uygulamalı eğitimlerin artırılması ve simülasyon temelli öğretim yöntemlerinin yaygınlaştırılması gerektiği düşünülmektedir.

Anahtar Kelimeler: *Sağlık çalışanı, Spor, Öğrenci, İlk yardım*

INTRODUCTION

Unexpected accidents, cardiac arrests, and sudden traumas are among the most significant public health problems increasing morbidity and mortality rates worldwide (Kiguchi et al., 2020; World Health Organization [WHO], 2021). When an emergency occurs, the time until professional medical support arrives at the scene is called the "golden minutes" (Hasselqvist-Ax et al., 2015). It is known that basic first aid and life support interventions applied during this critical time increase the chances of survival two to three times and significantly prevent permanent neurological damage (American Heart Association [AHA], 2020). However, the successful functioning of the first aid chain in emergencies depends not only on the theoretical knowledge level of the responder but also on their capacity to translate this knowledge into action under high stress (Gülmez Dağ and Çapa Aydın, 2018). In the literature, first aid competence is explained through two fundamental concepts: "objective knowledge" and "self-efficacy perception" (Kanstad et al., 2011). Self-efficacy is a central concept in Bandura's (1997) Social Cognitive Theory, expressing an individual's belief in their ability to successfully organize and perform a specific task. When evaluated in the context of first aid, self-efficacy is the most fundamental psychological driving force required for an individual to take initiative without panicking in the face of an emergency, overcome the fear of "causing harm," and initiate life-saving intervention (Dobbie et al., 2018; Gülmez Dağ and Çapa Aydın, 2018). Even if an individual has complete theoretical knowledge, a low self-efficacy perception delays or completely prevents the intervention action (Cheng et al., 2015).

Healthcare professionals are considered natural practitioners of first aid in society due to their professional medical training and practice (Källestedt et al., 2012). The expectation is that healthcare professionals should possess both high levels of knowledge and high self-efficacy in emergency situations. However, comprehensive literature reviews show that even healthcare professionals experience significant "knowledge and skill decay" when they do not receive periodic refresher training and regularly put their knowledge into practice (Hamilton, 2005). Therefore, it is important to examine the extent to which experience gained in-hospital practice is reflected in self-efficacy in out-of-hospital emergencies (Riggs et al., 2019).

On the other hand, sports fields and athletic organizations are dynamic environments with a very high risk of sudden cardiac arrest, head trauma, and spinal cord injuries (Andersen et al., 2002; Harmon et al., 2015). Coaches, physical education teachers, and sports specialists working in these fields are the "first responders" responsible for the lives of athletes and participants until a medical team arrives at the scene (Ransone and Dunn-Kellett, 1999; Drezner et al., 2007). This reality reveals that the level of first aid knowledge and self-efficacy in applying this knowledge in the field among students studying in sports science faculties is at least as critical as that of professional healthcare workers (Källestedt et al., 2012). This study is unique in that it comparatively evaluates two different groups that play a critical role in first aid applications: healthcare professionals and students in sports science faculties. While there are studies in the literature on first aid knowledge levels and self-efficacy, studies that address both healthcare professionals and sports science students, who have the potential to work in risky field environments, within the same research scope are limited. Determining the competency levels of individuals who will provide first aid in sudden cardiac events, traumas, and injuries that may occur in sports settings is a crucial necessity. Accordingly, this study aims to contribute to the comparative analysis of first aid knowledge levels and self-efficacy in both groups. Furthermore, it is believed that the findings will contribute to the improvement of first aid training in health and sports science fields and to the planning of application-oriented training strategies.

METHOD

Research Model

This research was designed using a descriptive and cross-sectional survey model to comparatively examine the first aid knowledge levels and self-efficacy of healthcare professionals and sports science faculty students. Survey models are research approaches that aim to describe a past or present situation, event, or object within its own conditions and as it exists (Karasar, 2017). Furthermore, the research utilized a comparative research approach due to the comparison of first aid knowledge levels and first aid self-efficacy between two independent groups.

Population and Sample

In research methodology, the population refers to the entire group of individuals or elements that are the focus of the study, while the sample is a specific subset selected from this population to collect representative data (Karasar, 2017). Based on these concepts, the population of this study consisted of healthcare professionals actively working in Samsun province and students studying at the Faculty of Sports Sciences of Ondokuz Mayıs University. In the sample selection process, the convenience sampling method, a non-probability sampling technique, was preferred due to its practicality in reaching accessible and willing participants. The study sample ultimately consisted of a total of 574 individuals who voluntarily participated in the study, 304 of whom were healthcare professionals and 270 were students from the Faculty of Sports Sciences.

Data Collection Tools

Research data were collected through a questionnaire consisting of three sections measuring the demographic characteristics of the participants and their first aid skills:

Personal Information Form: This form consists of questions aimed at determining the demographic characteristics of the participants, such as gender, age, status of receiving first aid training, and the time elapsed since the training.

First Aid Knowledge Level Questionnaire: The "First Aid Knowledge Level Questionnaire" used by Karaçetin (2021) was used to objectively measure the theoretical knowledge of the participants on basic first aid topics. The questionnaire consists of a total of 30 statements, and participants were asked to answer each statement as "True", "False", or "I don't know". The questionnaire contains 19 questions with true answers and 11 questions with reverse answers. Analyses were performed based on the total score. Within the scope of reliability analyses of the scales, Cronbach's Alpha coefficients calculated were found to be 0.870 for the First Aid Knowledge Level Scale.

First Aid Self-Efficacy Scale: To evaluate participants' self-confidence in applying first aid in an emergency situation, the "First Aid Self-Efficacy Scale" developed by Gülmez Dağ and Çapa Aydın (2018) was used. The scale consists of a total of 25 items and is rated on a 9-point Likert scale (1 = inadequate to 9 = very adequate). The scale consists of two sub-dimensions: "Life Support First Aid Self-Efficacy" (8 items) and "Basic First Aid Self-Efficacy" (17 items). The total score that can be obtained from the scale ranges from 25 to 125. An increase in the score indicates that the individual's perception of intervention self-efficacy is high. The Cronbach's Alpha coefficients calculated as part of the reliability analyses of the scales were found to be 0.968 for the First Aid Self-Efficacy Scale.

Data Analysis

Statistical analysis of the obtained data was meticulously performed using the SPSS (Statistical Package for the Social Sciences) software package. Prior to the main analyses, the data set was screened for missing values and outliers to ensure the reliability of the findings. Since the sample sizes for both groups were larger than 50, the normality of the data distribution was evaluated using the Kolmogorov–Smirnov test. The results indicated that the data met the assumptions of normal distribution required for parametric tests. Additionally, the homogeneity of variances was confirmed. Descriptive statistics, including frequencies (n), percentages (%), means ($\bar{X}$), and standard deviations (SD),

were used to present the demographic characteristics of the participants and to summarize scale scores. To test the research hypotheses and compare the continuous variables (first aid knowledge levels and self-efficacy scores) between the two independent groups, the Independent Samples t-test was applied. The significance level was accepted as $p < .05$ for all statistical analyses, and interpretations were made within a 95% confidence interval.

Limitations of the Study

This study has a few limitations. First, due to its cross-sectional design, it cannot determine cause-and-effect relationships. Second, the research was conducted only with healthcare workers in Samsun and students at Ondokuz Mayıs University. Therefore, the findings may not apply to all healthcare workers or sports science students in other regions. Third, the study relied on self-reported surveys. We measured participants' theoretical knowledge and what they think about their own skills, rather than observing their actual physical reactions in a real emergency. Additionally, the specific occupational subgroups of the healthcare professionals (e.g., nurse, doctor, paramedic) were not categorized during the data collection process, preventing a more detailed comparative analysis based on professional titles.

RESULTS

Table 1. Demographic Characteristics of Participants.

Variables	Group	Healthcare Workers (n)	Healthcare Workers (%)	Sports Science Students (n)	Sports Science Students (%)
Gender	Female	190	62.5	104	38.5
	Male	114	37.5	166	61.5
Age (years)	18-25	231	76	263	97.4
	26-30	34	11.2	7	2.6
	31-35	21	6.9	-	-
	36-40	18	5.9	-	-
Status of receiving first aid training	Yes	243	79.9	132	48.9
	No	61	20.1	138	51.1
Time elapsed since first aid training	Less than 1 year	96	39.5	69	52.3
	1-4 years ago	109	44.9	57	43.2
	5-9 years ago	38	15.6	6	4.5
Total		304	100	270	100.0

Table 1 shows that the majority of healthcare workers are women (62.5%), while the majority of sports science students are men (61.5%). Regarding age distribution, it is noteworthy that a large proportion of participants in both groups are between 18-25 years old (76.0% of healthcare workers, 97.4% of sports science students). When evaluating participants' first aid training status, it was found that the vast majority of healthcare workers (79.9%) had previously received this training; however, among sports science students, the ratio of those who had received training (48.9%) to those who had not (51.1%) was quite close. When examining the time elapsed since first aid training, the highest percentage among healthcare workers (44.9%) was found among those who received training 1-4 years ago, while among sports science students, the highest percentage (52.3%) was among those who received training less than one year ago.

Table 2. Findings on first aid knowledge and first aid self-efficacy of healthcare professionals and sports science students.

Sub-dimensions	Group	n	Average	SS	t	p
First aid knowledge level	Healthcare Workers	304	18.17	4.14	12.412	.000
	Sports Sciences	270	12.53	6.59		
-Total first aid self-efficacy	Healthcare Workers	304	91.62	16.66	4.789	.000
	Sports Sciences	270	83.90	21.86		
-Life support self-efficacy	Healthcare Workers	304	30.67	4.56	4.634	.000
	Sports Sciences	270	27.93	7.14		
- Basic first aid self-efficacy	Healthcare Workers	304	60.94	12.99	4.759	.000
	Sports Sciences	270	55.96	15.44		

According to Table 2, a statistically significant difference was found between the first aid knowledge level and first aid self-efficacy scores of healthcare professionals and sports science students (p<0.001).

Table 3. Findings on Healthcare Workers' First Aid Knowledge and Self-Efficacy According to Variables.

Variable	Group	n	First aid knowledge level (X̄±SS)	p	Self-efficacy (X̄±SS)	p
Gender	Female	190	17.75±3.56	.267	90.06±17.12	.031
	Male	114	17.19±4.60		94.22 ±15.59	
Status of receiving first aid training	Yes	243	18.18±3.88	.000	92.22 ± 16.49	.210
	No	61	15.00±3.31		89.22 ± 17.22	

Table 3 shows that while there was no significant difference in first aid knowledge levels among healthcare workers based on gender (p>.05), self-efficacy scores were significantly higher in men (p<.05). Healthcare workers who received first aid training had significantly higher knowledge level scores (p<.001). Furthermore, there was no significant difference in self-efficacy scores based on whether or not they received first aid training (p<.05).

Table 4. First aid knowledge and self-efficacy findings of Sports Science Students according to Variables.

Variable	Group	n	First aid knowledge level (X̄±SS)	p	Self-efficacy (X̄±SS)	p
Gender	Female	104	11.82 ±6.27	.769	82.59 ± 21.75	.439
	Male	166	12.06 ± 6.37		84.70 ± 21.96	
Status of receiving first aid training	Yes	132	14.04 ± 5.77	.000	91.36 ± 19.95	.000
	No	138	9.98 ± 6.21		76.74 ± 21.28	

Table 4 shows that there was no significant difference in first aid knowledge level and self-efficacy scores among sports science students based on gender (p>.05). However, it was determined that students who received first aid training had significantly higher first aid knowledge levels and self-efficacy scores compared to those who did not receive training (p<.001).

DISCUSSION

This research aimed to comparatively examine the first aid knowledge levels and self-efficacy of healthcare professionals and sports science faculty students. Based on the findings, it was determined that healthcare professionals had a higher level of both theoretical first aid knowledge and self-efficacy in responding to emergencies compared to sports science students. This difference may be a natural consequence of the intensive training that healthcare professionals undergo during their undergraduate education and professional practice. A review of the literature reveals studies showing that the current basic life support knowledge levels of healthcare professionals are significantly higher than those of other professional groups and students (Çelikli et al., 2012). Research comparing vocational and civilian student groups at the high school/university level has also confirmed that vocational

training is a key determining factor in knowledge levels (Bakar & Maral, 2010). However, considering the high risk of accidents and acute injuries in sports fields, the low knowledge levels of sports science students, who will be the first responders in these fields in the future, is a finding that should be taken into account. Indeed, the study by Çaylak et al. (2024) also emphasized that the knowledge levels of students coming from sports high schools regarding first aid and basic life support applications were quite insufficient.

In the analyses conducted according to the gender variable in the study, while no difference was observed in the knowledge level of healthcare workers, it was determined that self-efficacy scores were higher in male employees. The tendency of men to see themselves as more psychologically competent in taking initiative and managing panic in stressful crisis situations may have led to this situation. On the other hand, no difference was found in terms of knowledge or self-efficacy according to gender in sports science students. In similar studies conducted on university students, it is clearly stated that gender is not always a determining factor in the knowledge level, and the main factor is the academic or practical education received (Büyükkayacı Duman et al., 2013).

The effect of having received first aid training on the variables examined constitutes one of the important findings of the research. As expected, having previously received first aid training definitely increased the objective knowledge level in both groups. This undeniably positive effect of first aid training on knowledge acquisition is also supported by studies conducted in various professions, from law enforcement to civilian groups (Altıntop et al., 2000). When evaluated specifically for sports science students, it was found that students who received first aid training had significantly higher self-efficacy perceptions compared to those who did not. In clinically-based groups such as nursing students, it has been reported in the relevant literature that first aid courses significantly reinforce individuals' self-efficacy beliefs (Karazeybek and Özdemir, 2023).

However, the study findings show that having received first aid training did not have a statistically significant effect on self-efficacy scores in the healthcare worker sample ($p>.05$). This can be explained by the fact that healthcare professionals already have a high level of basic self-confidence in emergency response thanks to their basic clinical training and routine in-hospital practices. In other words, even if healthcare workers have not recently participated in a specific "first aid" certification program, they continue to feel competent in responding to crises thanks to their confidence in their general medical competence. However, the significantly higher theoretical knowledge scores of healthcare workers who received training prove that regular training is needed to support this professional self-confidence with up-to-date and accurate first aid information.

CONCLUSION

In conclusion, the study showed that healthcare workers had significantly higher scores than sports science students in both theoretical first aid knowledge and self-efficacy levels. Furthermore, it was determined that having received first aid training increased the knowledge level in both groups. While it was determined that sports science students who had received first aid training had higher levels of self-efficacy, it was found that having received first aid training did not have a similarly significant effect on self-efficacy among healthcare professionals.

The results show that individuals with the potential to provide first aid, especially in sports settings, need to be supported not only in terms of theoretical knowledge but also in terms of practical skills and crisis self-efficacy. Accordingly, it is recommended to increase practical first aid training in sports science curricula, to expand the use of simulation-based teaching methods, and to continue regular refresher training for healthcare professionals. It is believed that this will contribute to developing a more effective and safe response capacity to emergencies in both health and sports fields.

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