

# Assessing First Aid Knowledge and Practice Among Taxi Drivers: A Cross Sectional Study on Road Traffic Accident (RTA) Preparedness in Palestine

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## Abstract

**Background:** Road accidents present significant challenges to the safety of taxi passengers and pedestrians. Taxi drivers, therefore, have a critical role in providing primary care and demonstrating appropriate behavior during emergencies. This responsibility demands specialized skills and quick responses to changing traffic conditions and road scenarios. First aid refers to the immediate assistance or treatment given at the site of an accident to an injured person or someone who has fallen ill suddenly, before the arrival of an ambulance. **Objective:** This study aims to assess the knowledge and practice levels of Palestinian taxi drivers in providing first aid during road traffic accidents, as well as to explore the impact of demographic factors on their knowledge and practices. **Methodology:** This cross-sectional study included a sample of 230 taxi drivers from Ramallah city. The study targeted Palestinian taxi drivers aged 22 years and above. Data was collected using a self-administered questionnaire and analyzed with SPSS software, version 28. **Results:** The findings indicate that slightly more than half of the participants have adequate knowledge (57.4%), while the remainder (42.6%) have inadequate knowledge. Similarly, 56.1% of the participants were found to have adequate practice, as opposed to 43.9% with inadequate practice. There was a statistically significant positive correlation between knowledge and practice ( $r=0.230$ ,  $p=0.001$ ). **Conclusion:** The study highlights that a significant proportion of participants lacks adequate knowledge and practice in administering first aid. This deficiency points to the critical need for comprehensive training and the establishment of first aid protocols among taxi drivers. Enhancing their first aid skills is crucial in reducing preventable deaths and injuries resulting from traffic accidents, underscoring the urgency for intervention.

**Keywords:** Knowledge, Practice, First aid, Taxi Driver.

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## 1.Introduction

First Aid (FA), the immediate and critical care provided to individuals experiencing minor or severe illness or injury, aims to sustain life, prevent deterioration, and promote healing pending professional medical intervention (Everly Jr & Lating, 2022). Typically administered by individuals with basic medical training, it plays a pivotal role in emergency response (De Buck et al., 2015). Accidents, unforeseen sequences of events leading to fatalities, severe injuries, and environmental or systemic damage, are increasingly perceived as avoidable outcomes rather than mere chance occurrences, reflecting the costs of technological advancement (Madkour et al., 2017). Globally, traffic-related injuries and fatalities have surged, with over 1.25 million annual deaths attributed to collisions, ranking second as a cause of death for individuals aged 5-29 and third for those aged 30-44 (Majdan et al., 2013). In developing nations, road traffic accidents (RTAs) account for over 85% of all deaths and 90% of disability-adjusted life years, posing a significant public health challenge (Abegaz & Gebremedhin, 2019). The integration of pre-hospital trauma life support and comprehensive emergency medical systems has substantially reduced morbidity and mortality rates in affluent countries (Yaqub et al., 2022).

In Palestine, RTAs are perceived as dire societal threats, leading to loss of life, social discord, and substantial economic burdens, exacerbating developmental challenges (The week in Palestine, 2021). Each day witnesses a rise in the severity of accidents, contributing to escalating casualties and economic strain. Given their frequent exposure to RTAs, taxi drivers should possess proficient first aid knowledge and skills, yet research in this area remains limited (Singletary et al., 2015). This study endeavors to evaluate the first aid knowledge and practices of taxi drivers in Ramallah city, West Bank, recognizing the critical role they play in emergency response and the need for tailored interventions to enhance their preparedness and effectiveness in managing road traffic accidents.

Road Traffic Injury (RTI) stands as a significant global public health concern, with nearly 1.3 million

annual fatalities reported by the World Health Organization (WHO), predominantly in low- and middle-income nations where vehicle registration is disproportionately low (WHO, 2023a). Without decisive intervention, RTIs are projected to escalate to the fifth leading cause of death worldwide by 2030 (WHO, 2023b). First aid, crucial medical intervention administered promptly to individuals facing sudden illness or injury, aims to preserve life, prevent exacerbation of injuries, and mitigate further harm (Teshale & Alemu, 2017). Despite its paramount importance, the prevalence of trained individuals with first aid knowledge remains notably scarce worldwide, compounded by inadequate practice among those who are trained (Alwawi et al., 2019). Given their ubiquity and the likelihood of being first responders at accident scenes, drivers represent a pivotal demographic for first aid training initiatives. Intercity taxi drivers, in particular, emerge as a strategic focus group due to their substantial presence on roads, extensive routes, and significant contribution to population mobility, presenting an opportune target for interventions aimed at enhancing road traffic accident care.

Data from the Palestinian Central Bureau of Statistics (PCBS) indicates a concerning rise in RTAs, with a stark increase from 10,977 incidents in 2021 to 13544 in 2023 in the West Bank (PCBS, 2023). Furthermore, different studies were conducted in Palestine among lay people shown inadequate knowledge and skills toward first aid (Amro et al., 2022; Amro & Qtait, 2017; Ghayeb et al., 2017). This surge underscores the urgent gravity of the situation, highlighting the imperative to assess the proficiency of car drivers in first aid application in the context of traffic accidents. Effective first aid interventions, administered promptly and correctly, hold the potential to mitigate the risk of fatalities and severe injuries, underscoring the criticality of this investigation in safeguarding lives and minimizing the impact of RTIs.

## 1.2 Aim of the study

This study aims to assess the knowledge and practice levels of Palestinian taxi drivers regarding first aid for road traffic accidents and explore the influence of demographic factors on their knowledge and practice.

## 2. Methodology

### 2.1 Research Design

A cross-sectional research design was employed for this study.

### 2.2 Study Population and Setting

The study population comprised Palestinian taxi drivers aged 22 and above, conducted in Ramallah city, West Bank, from October to November 2023.

### 2.3 Inclusion Criteria

- Adult drivers (aged 22 and above) possessing a valid driving license in Ramallah city.
- Taxi drivers actively operating in the designated area for at least one year.
- Individuals willing to participate in the study and provide informed consent.

### 2.4 Sample Size and Sampling Methods

The study included a sample size of 245 subjects, calculated using the Open Source Epidemiologic Statistics for Public Health (Dean et al., 2013). Convenience sampling was utilized, with 230 subjects included, resulting in a response rate of 94%.

### 2.5 Study Instrument

A self-administered questionnaire consisted of three sections:

#### ***Socio-Demographic Data***

***Knowledge Assessment:*** Comprising 27 items evaluating first aid, respiratory problem recognition and management, bleeding and bone fracture management, victim positioning during road traffic accidents, and victim transportation. Each item had dichotomous responses (yes/no), with correct responses scoring 1 point and incorrect responses scoring 0 points. The median score of 18 out of 27 was considered adequate knowledge (Teshale & Alemu, 2017).

***Practice Assessment:*** Comprising 14 items evaluating practical aspects of first aid implementation, including first aid kit availability and utilization, experience in attending road traffic accident victims, types of first aid provided, and responses to specific injuries. Similar to the knowledge section, correct responses scored 1 point, and incorrect responses scored 0 points. The median score of 8 was considered adequate practice (Awasthi et al., 2019).

#### **Pilot Study**

A pilot study involving 20 taxi drivers in Ramallah city was conducted to assess questionnaire clarity, feasibility, and applicability. The estimated completion time for the questionnaire was 15 minutes. Internal consistency of items was assessed using Cronbach's Alpha, resulting in values of 0.790 for knowledge items and 0.810 for

practice items.

## 2.6 Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) Version 28. Descriptive statistics including frequency, percentages, mean scores, and standard deviation (SD) were employed to describe study variables. Inferential statistics including independent t-tests and One-Way ANOVA were conducted to assess differences between variables.

## 2.7 Ethical Considerations

Written permission was obtained from the Modern University College, and consent forms were obtained from each participant after explaining the study's purpose and ensuring data confidentiality.

## 3. Results

### 3.1 Demographic variables

Among taxi drivers, 35.2% of subjects were aged between 32-41 years old, 26.1% were between 22-31 years old, 21.7% were between 42-50 years old, and the rest were aged more than 50 years old. 48.8% of participants have more than 10 years of experience in driving, while the rest were 10 years or less. More than two-thirds of the participants were married. More than half of participants reported that they transferred more than 4 times per day. The prevalence of car accidents among subjects was 66.6%. Furthermore, 88.7% of participants answered correctly about the number of ambulances, while 11.3% were not.

### 3.2 Knowledge and Practice levels

The bar chart indicates that a majority of the participants possess adequate knowledge of first aid, at 57.4%, whereas 42.6% demonstrate inadequate knowledge. Additionally, 56.1% of participants have adequate practice, in contrast to the 43.9% with inadequate practice

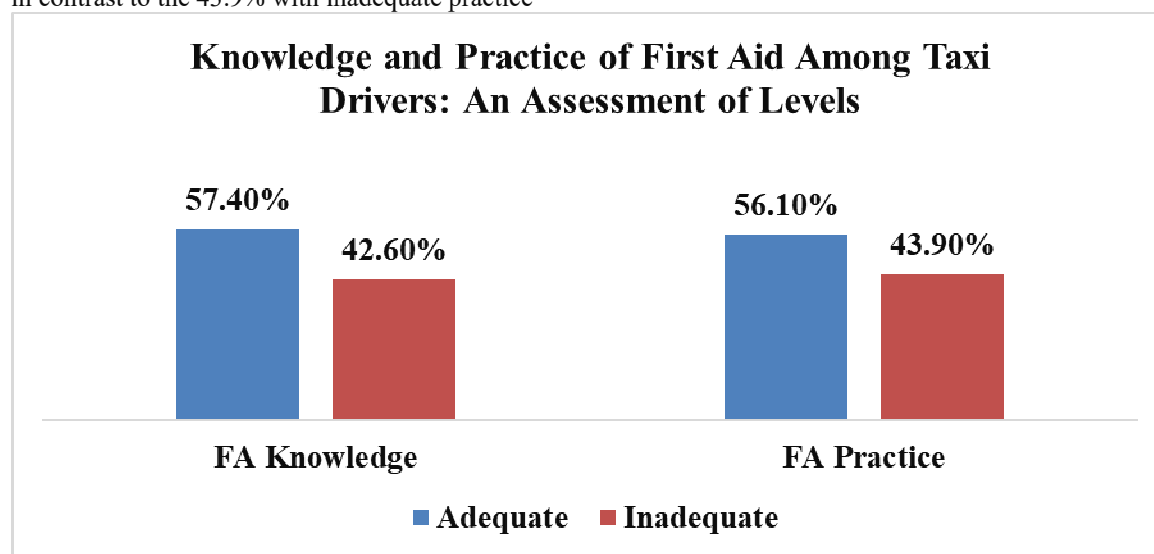


Figure 1. Knowledge and Practice of First Aid Among Taxi Drivers: An Assessment of Levels

### 3.3 Difference between demographic variables in terms of knowledge score

The results from the Independent t-test and One-Way ANOVA revealed significant differences in several variables. Firstly, there was a significant difference in years of experience ( $p=0.008$ ). Post-hoc analysis showed that drivers with 16 years or more of experience ( $M=17.41$ ) exhibited higher first aid (FA) knowledge compared to those with 1 to 5 years of experience ( $M=14$ ). Similarly, marital status showed a significant difference ( $p=0.002$ ), with married drivers ( $M=17.94$ ) demonstrating higher FA knowledge than widowed drivers ( $M=13.50$ ). Moreover, significant differences were observed in previous FA training ( $p<0.001$ ), indicating that drivers who received FA training ( $M=18.80$ ) had superior FA knowledge compared to those who did not ( $M=16.20$ ). Additionally, the number of encountered traffic accidents during driving showed significance ( $p=0.046$ ), with drivers facing one-time accidents ( $M=18.14$ ) exhibiting higher FA knowledge than those experiencing three or more accidents ( $M=16.82$ ). Furthermore, willingness to provide FA was significantly associated with FA knowledge ( $p<0.001$ ), with drivers willing to provide FA ( $M=18.02$ ) displaying higher FA knowledge than those who were not ( $M=16.61$ ). However, no significant differences were found between other variables ( $p>0.05$ ).

Regarding FA practice, significant differences were observed in previous FA training ( $p < 0.001$ ), with trained drivers ( $M=8.99$ ) demonstrating higher FA practice compared to untrained drivers ( $M=7.27$ ). Similarly, willingness to provide FA showed significance ( $p=0.037$ ), with drivers willing to provide FA ( $M=8.85$ ) exhibiting higher FA practice than those who were not ( $M=7.73$ ). Marital status also displayed a significant difference ( $p=0.015$ ), with widowed drivers ( $M=3.5$ ) showing lower FA practice than other drivers. Additionally, the number of transfers exhibited significance ( $p=0.017$ ), with drivers experiencing one-time transfers ( $M=6.56$ ) demonstrating lower FA practice compared to those with two or more transfers.

#### 4. Discussion

In this investigation, Researchers assessed the proficiency of taxi drivers in Road Traffic Accident (RTA) first aid knowledge and practice. The analysis revealed that 42.6% of drivers exhibited insufficient knowledge, while 57.40% demonstrated adequate comprehension of RTA first aid protocols. This finding resonates with a similar study conducted in Uganda, where 40.1% of cab drivers exhibited commendable first aid knowledge (Ssewante et al., 2022). Moreover, our results align with those of Midani et al. (2019), who reported a lack of basic first aid knowledge among over half of the population (54.2%) in the United Arab Emirates. Similarly, Mohamadiyah et al. (2023) found inadequate understanding of first aid protocols in their research on the impact of first aid training programs on road traffic injuries in Port Said, Egypt.

However, our findings indicate that only 56.1% of drivers are acquainted with first aid practices. This contrasts with Mohamadiyah's study, where nearly all participants (94.2%) claimed to understand the concept of "first aid". Furthermore, while 88.7% of our respondents accurately provided information regarding the number of ambulances, 11.3% did not. In contrast, Mohamadiyah et al. (2023) reported that nearly 40% of their participants were unable to provide the correct ambulance number. These discrepancies may stem from inadequate training on emergency procedures for drivers or inadequacies in the first aid training material for RTAs.

Our findings highlight the necessity for first aid training, particularly targeting professional drivers, to equip them with essential knowledge and skills for responding to RTAs while awaiting ambulance arrival. In Palestine, it is recommended that obtaining a driving license be contingent upon completion of first aid training. This approach mirrors requirements in countries like Austria and Switzerland, where a first aid certificate or completion of specific first aid courses is mandatory for obtaining a driving license (Mohamadiyah et al., 2023). In addition, a research has shown that commercial drivers often lack adequate first aid training and awareness in traffic incidents. A study conducted in 2020 revealed inadequate levels of expertise among motorists in this domain (Madkour et al., 2020).

Notably, our results indicate a significant difference in FA knowledge between drivers with 16 years or more of experience and those with 1 to 5 years of experience. Previous researches has demonstrated that training significantly enhances taxi drivers' first aid knowledge and abilities showcased the beneficial effects of training (Alwawi et al., 2019; Amro et al., 2022; Olumide et al., 2015).

#### 5. Conclusion

In conclusion, the study elucidated key demographic characteristics and highlighted the levels of knowledge and practice regarding first aid among taxi drivers. Analysis of knowledge and practice levels revealed a significant proportion of taxi drivers possessing adequate first aid knowledge and practice. Specifically, more than half demonstrated appropriate understanding and skills, while a considerable portion lacked sufficient proficiency in both aspects. Furthermore, the study identified significant associations between demographic variables and first aid knowledge and practice. Factors such as years of experience, marital status, previous first aid training, frequency of traffic accidents encountered, and willingness to provide first aid exhibited notable correlations with both knowledge and practice scores. These findings underscore the importance of targeted interventions aimed at enhancing first aid knowledge and practice among taxi drivers, particularly through tailored training programs and initiatives. By addressing specific demographic factors and providing comprehensive training opportunities, policymakers and stakeholders can effectively improve the ability of taxi drivers to respond to emergencies and contribute to safer road environments.

#### 6. Recommendations

- Implement continuous and structured first aid training programs for taxi drivers. These programs should be designed to reinforce existing knowledge and introduce new concepts and skills.
- Develop tailored training modules specifically focused on common injuries and emergencies encountered in road traffic accidents.
- Organize practical hands-on workshops where taxi drivers can apply first aid skills in simulated scenarios.

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