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Knowledge, Attitudes, Self-efficacy, and Intention to Use Automated External Defibrillators Among Law Enforcement Officers: A Cross-sectional Survey

Medine Akkan Öz[1], Hüseyin Mutlu[2], Uğur Şakar[3], Yunus Yatmaz[4], Murat Tuğra Kösa[5], Müge Yenigün[6], Murat Genç[7], Ayşenur Gür[6], Esma Kır[1], Lukasz Szarpak[8]

[1]University of Health Sciences Türkiye, Ankara Gülhane Training and Research Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[2]Aksaray Training and Research Hospital, Clinic of Emergency Medicine, Aksaray, Türkiye
[3]Dışkapı Yıldırım Beyazıt Training and Research Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[4]Yenimahalle Training and Research Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[5]University of Health Sciences Türkiye, Ankara Etlik City Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[6]Etimesgut Şehit Sait Ertürk State Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[7]Ankara Training And Research Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
[8]The John Paul Ii Catholic University of Lublin, Institute of Medical Science, Lublin Poland

Abstract

Aim: This study aimed to evaluate the knowledge, attitudes, perceived self-efficacy, intention to use automated external defibrillators (AEDs), and perceived barriers among law enforcement personnel (LEP) working within the Ankara Provincial Police Department. Additionally, the relationship between self-efficacy and intention to use AEDs was examined.

Materials and Methods: This single-center, cross-sectional study was conducted between January and February 2026 with 525 LEP. Data were collected via an anonymous, structured online questionnaire including sociodemographic items, a 10-item AED knowledge test, and Likert-type scales assessing attitudes, perceived self-efficacy, intention to use AEDs, and perceived barriers. Descriptive statistics, correlation, and regression analyses were performed.

Results: Participants demonstrated high AED knowledge and generally positive attitudes toward AED use. Perceived self-efficacy and intention-to-use scores indicated adequate readiness for intervention. A strong positive correlation was identified between self-efficacy and intention to use AEDs ($r=0.776$, $p<0.001$), with self-efficacy explaining a substantial proportion of the variance in intention. Personnel who had received AED-specific training showed significantly higher scores across all measured domains compared with untrained personnel. The most frequently reported barriers were lack of knowledge regarding AED location and uncertainty about device operation.

Conclusions: Although LEP showed favorable knowledge and attitudes toward AED use, AED-specific training and device accessibility remain essential for effective intervention. Perceived self-efficacy was the strongest predictor of intention to use an AED. Integrating targeted AED training, improving device visibility, and clarifying legal protections may enhance early defibrillation and improve out-of-hospital cardiac arrest outcomes.

Keywords: Automated external defibrillator, law enforcement personnel, self-efficacy, out-of-hospital cardiac arrest, first responder

Corresponding Author: Medine Akkan Öz MD, University of Health Sciences Türkiye, Ankara Gülhane Training and Research Hospital, Clinic of Emergency Medicine, Ankara, Türkiye
E-mail: drakkanoz@gmail.com **ORCID ID:** orcid.org/0000-0002-6320-9667

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Introduction

Out-of-hospital cardiac arrest (OHCA) remains one of the leading causes of death worldwide, and the decisive impact of early recognition and timely intervention on survival is well established (1-3). The use of automated external defibrillators (AEDs), which constitute a critical link in the chain of survival, can substantially increase the likelihood of survival in shockable rhythms such as ventricular fibrillation and pulseless ventricular tachycardia, in which the probability of survival declines with each passing minute (2-5). In this context, considering that ambulance response times typically range from six to twelve minutes, the vital importance of early defibrillation performed by first responders at the scene becomes clearly evident (3,4). In the United States, the rate of cardiopulmonary resuscitation (CPR) initiation by police and fire personnel has been reported to be 31.8%, and survival was shown to increase by 1.4-fold in cases where an AED was applied (1). Similarly, a study conducted in Vienna evaluating a police-based AED first-responder system confirmed that police officers, with appropriate training, were able to provide high-quality basic life support and deliver effective intervention during the critical pre-ambulance interval (2).

Law enforcement personnel (LEP) occupy a strategic position as potential first responders in cases of OHCA due to their high visibility within the community, wide geographic distribution, and capacity for rapid response to emergencies (5-7). In many countries, AED devices have been installed in police vehicles, and LEP have been trained and authorized to provide first response care (2,7). However, in the United States, the level of knowledge regarding AED use was measured at only 31.9 out of 100, and merely 11.3% of LEP were found to have received AED training (3). In Europe, studies have reported low levels of first aid knowledge among LEP, noting that 61.7% of personnel encountered situations requiring intervention but did not know how to act. Additionally, it has been shown that LEP have insufficient knowledge of basic life support, with only about half of the personnel feeling competent in this regard (4,5). These findings underscore the need for targeted educational interventions directed at police populations.

Training programs specifically focused on AED use have been shown in various studies to positively influence LEP's knowledge, confidence, and intervention performance (6,7). In Amsterdam, a targeted three-hour training program provided to LEP increased their confidence in using an AED from 12% to 99% (6). Furthermore, in the United States, it has been reported that 96% of LEP with ten years of service agreed that AED use is beneficial for victims of cardiac arrest, and that these positive attitudes were sustained over the long term (7). These findings suggest that even short, targeted training interventions can produce lasting effects on self-efficacy and attitudes. However, a substantial gap persists between knowledge and actual intervention behavior, even among trained individuals (8). Behavioral science theories offer an important framework for explaining this knowledge–behavior gap (9). Rather than focusing solely on knowledge transfer, a CPR performance model centered on intention proposes that self-efficacy and behavioral intention are the primary determinants of intervention behavior (9). According to the Theory of Planned Behavior, attitudes, subjective norms, and perceived behavioral control (self-efficacy) jointly shape behavioral intention, which in turn influences actual behavior. Large-sample studies have validated this theoretical framework and demonstrated that perceived behavioral control is a significant predictor of the intention to use an AED (10,11). Moreover, several studies have shown that training can significantly increase confidence in AED use, thereby confirming that self-efficacy is a modifiable construct (11,12).

To date, no study in Türkiye has comprehensively evaluated LEP's knowledge, attitudes, self-efficacy, and intention to use AEDs using quantitative scales. This study aims to assess the level of knowledge, attitudes, perceived self-efficacy, intention to use AEDs, and perceived barriers among LEP working within the Ankara Provincial Police Department; to examine the relationship between self-efficacy and intention to use AEDs; and to identify the sociodemographic and occupational factors associated with self-efficacy and intention to use AEDs. The study hypothesis is that higher perceived self-efficacy regarding AED use will be associated with a higher intention to use an AED among LEP.

Materials and Methods

Study Design and Participants

This study was designed as a single-center, cross-sectional, descriptive, and analytical survey to evaluate the knowledge level, attitudes, perceived self-efficacy, intention to use AEDs, and perceived barriers among LEP working within the Ankara Provincial Police Department. The study was approved by the Non-Interventional Clinical Research Ethics Committee of the Ankara Provincial Health Directorate of the Ministry of Health (approval no: 2025-12-7, date: 30.12.2025). The research was conducted in accordance with the principles of the Declaration of Helsinki. The study was carried out between January and February 2026 at the First Aid Training Unit affiliated with the Ankara Provincial Health Directorate. The first page of the online questionnaire included a participant information text and an electronic informed consent statement. Participation was entirely voluntary, and informed consent was obtained from all

participants before they proceeded to the survey. LEP aged 18 years and older who were actively working within the Ankara Provincial Police Department and who voluntarily agreed to participate in the study were eligible for inclusion. Participants who refused to complete the questionnaire, wished to withdraw during data collection, or left more than 50% of the questionnaire unanswered were excluded from the study.

Data Collection Instrument

A self-report, structured questionnaire developed by the researchers based on relevant literature was used as the data collection tool. The questionnaire was distributed online through Google Forms. No personally identifiable information was collected, and responses were analyzed anonymously. Participants were informed about the study's purpose and told that their responses would be used solely for research purposes and that no individual evaluation would take place. They were also told they could leave any question blank or withdraw at any time. The dataset was stored securely and only accessible to the research team.

The questionnaire consisted of two main sections:

Section 1: Sociodemographic and occupational characteristics. This section included a total of 12 items assessing participants' age, sex, educational level, duty unit, years of service, work schedule, prior first aid training and the timing of the most recent training, previous AED-specific training, experience of encountering or witnessing a cardiac arrest event, performance of CPR during duty, prior exposure to an AED device, and level of knowledge regarding the location of AEDs within their duty area. In this study, "first aid training" and "AED-specific training" referred to training that participant had previously received; no educational intervention was delivered as part of the study.

Section 2: AED knowledge test and Likert-type scales. This section comprised five subdimensions:

Knowledge test: This component consisted of 10 multiple-choice questions addressing the indications for AED use, steps of application, safety precautions, and integration with basic life support. Each question provided five options, of which only one was accepted as the correct answer. Correct responses were coded as 1 and incorrect responses as 0, and the total knowledge score was calculated on a scale ranging from 0 to 10. Knowledge levels were categorized as high (8-10 points), moderate (5-7 points), and low (0-4 points).

Attitude scale: This scale consisted of 8 items assessing attitudes toward AED use. The items were rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Item 2 ("AED use is solely the responsibility of healthcare personnel"), item 4 ("using an AED is unnecessary; it is better to wait until the ambulance arrives"), and item 7 ("using an AED interferes with my duties at the scene") were negatively worded and were reverse-coded during analysis. The mean item score was calculated, with higher scores interpreted as reflecting a more positive attitude.

Self-efficacy scale: This scale consisted of 6 items measuring perceived self-efficacy related to AED use. The items assessed competencies including recognizing the need for an AED in an unconscious patient, turning on the device and following voice prompts, correctly placing the pads, ensuring scene safety, using the device under stress, and coordinating role allocation within the team. Responses were rated on a 5-point Likert scale, with higher scores indicating greater perceived self-efficacy.

Intention to use scale: This scale consisted of 4 items evaluating the intention and willingness to use an AED. The items measured willingness to use an AED when appropriate, efforts to learn the device location, intention to encourage colleagues to use the device, and determination to participate in the intervention without hesitation. Responses were rated on a 5-point Likert scale.

Perceived barriers scale: This scale consisted of 10 items assessing perceived barriers that may hinder AED use. The items covered dimensions including fear of incorrect application and causing harm, concerns about legal liability, fear of infection transmission, difficulty providing medical intervention under potential safety risks at the scene, lack of knowledge about AED location, tendency to wait for healthcare teams, fear of making mistakes under crowd pressure, uncertainty about the operating principles of the AED, the influence of whether the victim is familiar or unfamiliar on the decision to intervene, and perceiving AED use as outside the scope of duty. Responses were rated on a 5-point Likert scale, with higher scores indicating greater perceived barriers.

The total number of items in the questionnaire, including the sociodemographic section, was 50. The internal consistency reliability of the Likert-type scales was evaluated using Cronbach's alpha coefficient. Cronbach's alpha was calculated as 0.810 for the attitude scale, 0.907 for the self-efficacy scale, 0.897 for the intention to use scale, and 0.785 for the perceived barriers scale. All values were above the acceptable threshold for reliability.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA). A p-value of <0.05 was considered statistically significant for all analyses. For descriptive statistics, continuous variables were presented as mean $\pm$ standard deviation, median, and minimum-maximum values,

whereas categorical variables were expressed as frequency (n) and percentage (%). The normality of continuous variables was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests. When the assumption of normal distribution was not met, both parametric and non-parametric tests were applied and the consistency of the results was verified. The internal consistency reliability of the scales was evaluated using Cronbach's alpha coefficient, with values of ≥0.70 considered indicative of acceptable reliability. For comparisons between two independent groups (AED training status, prior first aid training, sex, and witnessing a cardiac arrest), the independent samples t-test and the Mann-Whitney U test were used. For comparisons involving more than two independent groups (years of service, educational level, and duty unit), ANOVA and the Kruskal-Wallis H test were employed. Pearson and Spearman correlation analyses were conducted to examine relationships among the main variables. Correlation coefficients were interpreted as follows: 0.10-0.29, weak; 0.30-0.49, moderate; 0.50-0.69, strong; and ≥0.70, very strong correlation. Binary logistic regression was performed to identify factors associated with high intention to use an AED. For this analysis, the intention-to-use score was dichotomized as high intention (mean score ≥4.0) versus lower intention (mean score <4.0). Age, sex, prior first aid training, prior AED-specific training, witnessing a cardiac arrest, prior exposure to an AED device, knowledge of AED location, knowledge score, attitude score, self-efficacy score, and perceived barriers score were entered into the model. Odds ratios (ORs) with 95% confidence intervals (CIs) were reported.

Results

A total of 525 LEP participated in the study. The mean age of the participants was 36.9±8.5 years, and 78.9% (n=414) were male. Regarding educational level, 66.5% (n=352) held a bachelor's degree and 18.9% (n=100) had an associate degree. In terms of years of service, the largest group consisted of personnel with 6-10 years of experience (23.1%). It was found that 68.8% (n=361) of the personnel had previously received first aid training; however, only 15.5% (n=82) had received AED-specific training. A total of 18.5% (n=98) reported having previously encountered a cardiac arrest event, while only 3.2% (n=17) had performed CPR during duty. The proportion of participants who reported having previously seen an AED device was 29.9% (n=158), and 19.5% (n=103) stated that they knew the location of an AED in their duty area; 21.7% (n=115) were unsure of the location, and 58.0% (n=307) reported that they did not know. Detailed sociodemographic characteristics of the participants are presented in Table 1.

Table 1. Sociodemographic characteristics of the participants (n=525)

Variable	Category	n	%
Age, years	Mean ± SD	36.9±8.5	
	Median (min-max)	37 (20-68)	
Age group, years	18-25	49	9.3
	26-30	66	12.6
	31-35	121	23
	36-40	126	24
	41-45	76	14.5
	46-50	54	10.3
	≥51	33	6.3
Sex	Male	414	78.9
	Female	106	20.2
	Prefer not to specify	5	0.9
Educational level	High school	11	2.1
	Associate degree	100	19
	Bachelor's degree	352	67.1
	Postgraduate degree	62	11.8
Years of service	0-5	104	19.8
	6-10	122	23.2
	11-15	76	14.5
	16-20	102	19.4
	21-25	45	8.6
	>25	76	14.5
Duty unit	Special operations unit	141	26.9
	Office/administrative	115	21.9
	Riot police	58	11.0
	Public order/police station	55	10.4
	Narcotics/protection/intelligence	46	8.8
	Traffic/patrol	34	6.5
	Other	76	14.5
Work schedule	Day shift	248	47.2
	Variable shift	155	29.5
	Shift work	122	23.2
First aid training	Received	361	68.8
	Not received	164	31.2
AED training	Yes	82	15.6
	No	443	84.4
Witnessing a cardiac arrest	Yes	98	18.6
	No	427	81.3
CPR performed during duty	Yes	17	3.2
	No	508	96.8
Prior exposure to an AED device	Yes	158	30.1
	No	367	69.9
Knowledge of AED location	Yes	103	19.6
	No	307	58.5
	Not sure	115	21.9

SD: Standard deviation, AED: Automated external defibrillator, CPR: Cardiopulmonary resuscitation

The mean number of correct responses in the AED knowledge test among LEP was 8.49±1.64 (84.9% out of 100). When knowledge levels were categorized, 81.3% of participants (n=427) were found to have a high level of knowledge (8-10 correct answers). For the attitude scale (8 items, Cronbach's α=0.810), the mean item score was 4.08±0.58. The highest attitude score was observed for the item "when used correctly, AED use is a life-saving intervention in the field" (4.25±0.89), whereas the lowest score was recorded for the reverse-coded item "AED use is solely the responsibility of healthcare personnel" (3.89±0.92). These findings indicate that LEP generally have a positive attitude toward AED use. On the self-efficacy scale (6 items, Cronbach's α=0.907), the mean item score was 3.77±0.77. The highest self-efficacy score was observed for the item "I can ensure scene safety and confirm that no one is in contact before delivering a shock" (4.14±0.89), while the lowest score was obtained for the item "I can recognize the need for an AED in a person who is unconscious and not breathing normally" (3.42±0.98). For the perceived barriers scale (10 items, Cronbach's α=0.785), the mean item score was calculated as 3.04±0.55. All scale scores and detailed subdimension results are summarized in Table 2.

Table 2. Descriptive statistics of the scales and subdimension analysis (n=525)

Subdimension/item	Mean	SD	Min-Max	α
Knowledge test (0-10 points)	8.49	1.64	0-10	
Percentage of correct responses	84.9%			
High knowledge (8-10 points)	n=427	81.3%		
Moderate knowledge (5-7 points)	n=84	16%		
Low knowledge (0-4 points)	n=14	2.7%		
Attitude scale (mean item score)	4.08	0.58	1-5	0.810
Having basic knowledge is necessary	4.05	0.92	1-5	
It is the responsibility of healthcare personnel (R)	3.89	0.92	1-5	
Voice prompts facilitate use	4.14	0.86	1-5	
Unnecessary; wait for the ambulance (R)	4.11	0.86	1-5	
Visibility in public areas	4.17	0.88	1-5	
It is a life-saving intervention	4.25	0.89	1-5	
It interferes with my duties (R)	3.92	0.90	1-5	
Proper use can be taught	4.08	0.88	1-5	
Self-efficacy scale (mean item score)	3.77	0.77	1-5	0.907
I can recognize the need for an AED	3.42	0.98	1-5	
I can follow voice prompts	3.78	0.93	1-5	
I can correctly place the pads	3.85	0.95	1-5	
I can ensure scene safety	4.14	0.89	1-5	
I can use the device under stress	3.68	0.92	1-5	
I can coordinate role allocation within the team	3.74	0.95	1-5	
Intention to use scale (mean item score)	3.74	0.83	1-5	0.897
I am willing to use an AED	3.71	0.90	1-5	
I try to learn the device location	3.66	0.97	1-5	
I encourage my colleagues	3.77	0.94	1-5	
I intervene without hesitation	3.81	0.98	1-5	
Perceived barriers (mean item score)	3.04	0.55	1-5	0.785
Fear of making a mistake and causing harm	2.90	0.95	1-5	
Concerns about legal liability	3.16	0.95	1-5	
Fear of infection transmission	2.85	0.94	1-5	
Providing medical intervention under safety risk	3.33	0.96	1-5	
Not knowing the AED location	3.81	0.92	1-5	
Belief that waiting for the healthcare team is appropriate	2.63	0.94	1-5	
Fear of making mistakes due to crowd pressure	2.79	0.93	1-5	
Uncertainty about the operating principles of the AED	3.76	0.88	1-5	
Influence of familiarity with the victim (known vs unknown)	2.44	0.98	1-5	
Feeling that AED use is outside the scope of duty	2.73	0.97	1-5	

T: Reverse-coded item, α: Cronbach's alpha reliability coefficient, SD: Standard deviation, AED: Automated external defibrillator

A statistically significant, strong, and positive correlation was found between self-efficacy and intention to use AEDs (Pearson r=0.776; Spearman rs=0.779; p<0.001 for both). Self-efficacy alone explained 60.3% of the variance in intention to use (R^2=0.603). In the simple linear regression analysis, higher self-efficacy scores were associated with higher intention-to-use scores; specifically, each one-point higher self-efficacy score corresponded to a 0.832-point higher intention-to-use score (β=0.832; standard error=0.030; t=28.173; p<0.001). The Pearson correlation matrix among all main variables is presented in Table 3.

In the comparison based on AED training status, personnel who had previously received AED training (n=82) demonstrated significantly higher knowledge scores (9.35±1.15 vs 8.40±1.48; t=5.54; p<0.001), attitude scores (4.30±0.54 vs 4.03±0.58; t=3.94; p<0.001), self-efficacy scores (4.07±0.70 vs 3.71±0.78; t=3.85; p<0.001), and intention to use scores (4.06±0.72 vs 3.68±0.84; t=3.87; p<0.001) compared with those who had not received AED training. When evaluated according to prior first aid training status, no statistically significant differences were observed between trained and untrained groups in terms of knowledge scores (8.56±1.73 vs 8.31±1.43; t=1.64; p=0.102), self-efficacy scores (3.80±0.76 vs 3.71±0.81; t=1.17; p=0.240), or intention to use scores (3.76±0.81 vs 3.69±0.87; t=0.87; p=0.384). These findings suggest that prior general first aid training may not be associated with better AED-specific knowledge, self-efficacy, or intention-to-use scores in this sample.

Binary logistic regression was performed to identify factors associated with high intention to use an AED. High intention was defined as a mean intention-to-use score of ≥4.0. In univariable analyses, prior AED-specific training, knowledge score, attitude score, self-efficacy score, and perceived barriers score were significantly associated with high intention. In the multivariable model, higher self-efficacy scores remained strongly associated with high intention to use an AED (adjusted OR=11.00, 95% CI=6.35-19.08, p<0.001). More favorable attitudes were also independently associated with high intention (adjusted OR=3.32, 95% CI=1.68-6.55, p=0.001), whereas higher perceived barriers were independently associated with lower odds of high intention (adjusted OR=0.44, 95% CI=0.24-0.80, p=0.007). Age, sex, prior first aid training, prior AED-specific training, witnessing a cardiac arrest, prior exposure to an AED device, knowledge of AED location, and knowledge score were not independently associated with high intention after adjustment (Table 4).

Table 3. Pearson correlation matrix among the main variables

	Knowledge	Attitude	Self-efficacy	Intention	Barriers
Knowledge	1	0.332***	0.230***	0.260***	-0.105*
Attitude		1	0.690***	0.722***	-0.281***
Self-efficacy			1	0.776***	-0.291***
Intention				1	-0.345***
Barriers					1

*p<0.05, **p<0.01, ***p<0.001

Table 4. Univariable and multivariable binary logistic regression analyses of factors associated with high intention to use an automated external defibrillator

Variables	Univariate logistic regression		Multivariate logistic regression	
	OR (95% CI)	p	OR (95% CI)	p
Age	0.98 (0.96-1.00)	0.135	0.99 (0.96-1.02)	0.500
Female sex	0.85 (0.55-1.31)	0.468	0.96 (0.53-1.75)	0.906
Prior first aid training	1.21 (0.84-1.76)	0.304	1.27 (0.76-2.12)	0.366
Prior AED-specific training	1.87 (1.16-3.02)	0.010	0.90 (0.46-1.76)	0.761
Witnessing a cardiac arrest	0.92 (0.59-1.42)	0.697	0.86 (0.47-1.57)	0.628
Prior exposure to an AED device	1.35 (0.93-1.96)	0.115	0.93 (0.55-1.56)	0.772
Knowledge of AED location	1.40 (0.91-2.16)	0.128	0.91 (0.51-1.64)	0.762
Knowledge score	1.24 (1.09-1.42)	0.001	1.01 (0.83-1.23)	0.899
Attitude score	16.01 (9.19-27.88)	<0.001	3.32 (1.68-6.55)	0.001
Self-efficacy score	19.90 (11.86-33.41)	<0.001	11.00 (6.35-19.08)	<0.001
Perceived barriers score	0.32 (0.22-0.48)	<0.001	0.44 (0.24-0.80)	0.007

High intention was defined as a mean intention-to-use score of ≥4.0. In the multivariable model, female sex was compared with male sex, and knowledge of AED location was coded as yes versus no/not sure. The multivariable model included 520 complete cases
OR: Odds ratio, CI: Confidence interval, AED: Automated external defibrillator

Discussion

Worldwide, CPR and AED training is provided to the general public and various professional groups to enable early recognition of OHCA, ensure timely intervention, and ultimately improve survival rates; increasing the availability of such training is strongly recommended (1,7). However, debates persist regarding the extent to which the knowledge acquired during training is effectively translated into real-life practice (5,9). In this study, we evaluated knowledge, attitudes, perceived self-efficacy, and intention to use AEDs among LEP in Türkiye. To the best of our knowledge, this is the first study on this topic conducted in Türkiye. Overall, the findings suggest that participants had generally favorable levels of knowledge, attitudes, and willingness regarding AED use, and that prior AED-specific training was associated with more favorable outcomes across multiple domains. In addition, prior AED-specific training was associated with more favorable scores across multiple domains, and self-efficacy showed a strong positive association with intention to use an AED. In light of these findings, AED-specific training that includes simulation-based components and periodic refresher sessions may help strengthen preparedness and willingness to intervene among LEP.

In a cross-sectional study conducted by Mohd Hashim et al. (11) in Malaysia with 217 community volunteers, self-efficacy was reported to be among the most influential factors determining willingness to perform CPR and use an AED. Similarly, Liaw et al. (12) reported that improved confidence regarding AED use was accompanied by greater willingness to use the device, while Gao et al. (13) demonstrated that higher self-efficacy was associated with improved CPR-related knowledge, attitudes, and practices with these studies, our findings also showed a strong positive association between self-efficacy and intention to use an AED.

In our study, the knowledge level regarding AED use appeared comparatively high. This proportion is markedly higher than the values reported for police populations in the international literature. In a reference study conducted by Groh et al. (3) in the United States with 929 law enforcement officers, the mean knowledge score was only 31.9 out of 100, and only 11.3% of the personnel had received AED training. In Greece, Tzenetidis et al. (4) found that the correct response rate to first aid and CPR questions among 520 police officers was 34.8%, while the proportion who had received AED-specific training was only 6.5%. In Spain, a study conducted with local police officers by Angulo-Menéndez et al. (5) reported that only 11% correctly identified the appropriate chest compression depth and 24.4% correctly identified the appropriate compression rate. Although the comparatively high level of knowledge observed in our sample may partly reflect the growing emphasis on first aid training in law enforcement training programs in recent years, this finding should nevertheless be interpreted with caution. Several methodological factors may have contributed to the high scores observed. First, because the survey was administered online, it was not possible to fully control whether participants consulted external resources while answering the knowledge items. Second, some of the questions may have addressed relatively basic or easily recognizable aspects of AED use, thereby increasing the likelihood of correct responses. Third, given the voluntary nature of participation, selection bias cannot be excluded; individuals who were more motivated, more confident, or more interested in first aid-related issues may have been more likely to participate. In addition, the multiple-choice format itself may have facilitated correct responses independent of actual procedural competence. Taken together, these considerations suggest that the knowledge scores reported here may reflect performance under survey conditions rather than actual field readiness.

Our findings suggest that LEP generally held favorable attitudes toward AED use. In a study by Papson and Mosesso (7) evaluating ten-year police AED programs in the United States, 96% of personnel acknowledged that police use of AEDs benefits victims of cardiac arrest, and 89% considered this practice appropriate. In a national survey conducted in the United Kingdom with 2,084 participants, Hawkes et al. (14) also found that prior training experience was most strongly associated with willingness to use an AED. Consistent with previous studies, personnel with prior AED training in our sample also exhibited more favorable attitudes toward AED use. This consistency is in keeping with an association between AED-related training exposure and more favorable attitudes toward AED use.

One notable finding of our study was that prior AED-specific training was associated with more favorable outcomes across several domains, whereas prior general first aid training alone did not show the same pattern. This finding may indicate that prior general first aid training alone is not necessarily associated with stronger AED-specific competencies. In a landmark study conducted with the Amsterdam police, Kooij et al. (6) demonstrated that following a three-hour AED-specific training program, personnel's confidence in using the device increased from 12% to 99%, while their motivation rose from 73% to 94%. This dramatic improvement indicates that even short, targeted training interventions can have a strong impact on self-efficacy.

In the perceived barriers domain, the most prominent concerns were related to lack of knowledge about AED location and uncertainty regarding device operation. These findings suggest that reluctance to intervene may be more closely associated with infrastructural and informational barriers than with individual

fear or attitudinal resistance. In a nationwide telephone survey conducted in Taiwan, Huang et al. (15) reported that only 15.2% of the public were able to recognize public AED devices and only 5.3% knew how to use them. Moreover, although willingness to use an AED was high (86.6%), only 37.3% of participants were able to identify the location of a nearby AED (16). In our sample as well, awareness of AED location within the duty area was limited, supporting the view that accessibility and visibility remain important practical barriers. Similarly, in a cross-sectional study conducted in Hong Kong, Chow demonstrated that unguided AED placement and concerns about legal liability were among the primary barriers (17). Concerns about legal liability were also among the barriers identified in our sample.

When the overall pattern of relationships was considered, attitude and self-efficacy were positively associated with the intention to use an AED, whereas perceived barriers were inversely associated with these constructs. This pattern is consistent with the network of relationships proposed by the Theory of Planned Behavior (9) and parallels the knowledge–attitude correlation (r=0.782) reported in Chow's study conducted in Hong Kong (17). Given the observed associations among these variables, intervention programs may benefit from addressing perceived barriers in addition to improving knowledge and skills.

In the logistic regression analysis, self-efficacy emerged as the variable most strongly associated with high intention to use an AED after adjustment for demographic, training-related, and other scale variables. Attitude also remained independently associated with high intention, whereas perceived barriers showed an inverse association. Taken together, these findings suggest that willingness to use an AED may be more closely related to confidence, attitudinal orientation, and perceived obstacles than to demographic characteristics alone.

One of the strengths of our study is the relatively large sample size (n=525 LEP). However, several situations should be acknowledged. First, the study was designed as a cross-sectional investigation; therefore, causal relationships between variables cannot be established, and only associative inferences can be made. Second, the study was conducted in a single province (Ankara), and thus caution should be exercised when generalizing the findings to all LEP. Finally, due to the online administration of the questionnaire, it was not possible to fully control whether participants consulted external sources while responding. Overall, our findings suggest that Turkish LEP have a generally favorable orientation toward AED use, although important gaps remain regarding AED-specific training and practical readiness.

Study Limitations

Nevertheless, limited AED-specific training and restricted awareness of device accessibility appear to be associated with an important gap between favorable attitudes and readiness to intervene.

Conclusion

In this cross-sectional study, LEP generally demonstrated positive knowledge, attitudes, and willingness regarding AED use. Among the measured aspects, perceived self-efficacy showed the strongest link to the intention to use an AED. Prior AED-specific training and limited awareness of device locations were identified as clinically relevant findings that could inform future training and implementation strategies. Incorporating AED-specific, simulation-based training into routine first aid programs and enhancing the visibility and accessibility of AEDs in duty areas may help improve preparedness for early intervention. Future multicenter, interventional studies are needed to further explore these relationships and assess the impact of targeted educational strategies.

Ethics

Ethics Committee Approval: Ankara Provincial Police Department. The study was approved by the Non-Interventional Clinical Research Ethics Committee of the Ankara Provincial Health Directorate of the Ministry of Health (approval no: 2025-12-7, date: 30.12.2025).

Informed Consent: This single-center, cross-sectional study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: M.A.Ö., H.M., Y.Y., M.T.K., M.Y., M.G., E.K., Concept: M.A.Ö., H.M., U.Ş., Y.Y., M.Y., M.G., E.K., Design: M.A.Ö., H.M., U.Ş., M.T.K., M.G., A.G., E.K., L.S., Data Collection or Processing: M.A.Ö., H.M., U.Ş., Y.Y., M.T.K., A.G., L.S., Analysis or Interpretation: M.A.Ö., H.M., Y.Y., M.T.K., M.Y., M.G., L.S., Literature Search: M.A.Ö., H.M., Y.Y., M.T.K., M.Y., M.G., L.S., Writing: M.A.Ö., H.M., U.Ş., Y.Y., M.T.K., M.G., L.S.

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