

The Reality of Cognitive Competencies of Physical Education and Sports Teachers in Providing First Aid: An Exploratory Descriptive Study in the City of Chlef

Ziane Lahouari¹, Boudouani Abderezek², Ouddak Mohamed³, Gueracha Taieb⁴, Ikhlef Hamza⁵

^{1,2,3,4,5} Institute of Physical Education and Sports, Hassiba Ben Bouali University, Chlef, Algeria

Email: ¹l.ziane@univ-chlef.dz; ²a.boudouani@univ-chlef.dz; ³m.ouddak@univ-chlef.dz; ⁴t.gueracha@univ-chlef.dz; ⁵hamzaikhlef904@gmail.com

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Abstract

The present study aimed to investigate the reality of cognitive competencies among physical education and sports (PES) teachers regarding first aid provision and the management of acute school-related injuries at the secondary school level. The researcher adopted a descriptive exploratory approach. A validated digital questionnaire, composed of 16 items categorized into demographic profiles, training backgrounds, and core first-aid scenarios (e.g., fractures, epistaxis, and syncope), was administered to a purposive sample of N = 30 PES teachers across various secondary schools in the city of Chlef, Algeria. Data were statistically processed using JAMOVI (Version 2.4). The descriptive results revealed a critical deficiency in the teachers' overall cognitive competencies: 36.67% scored "Médiocre" (below average) and 26.67% scored "Faible" (weak), whereas only 13.33% demonstrated an "Acceptable" level of knowledge. Furthermore, inductive statistics using Pearson's Chi-Square (χ^2) proved a significant correlation between the source of prior training and competency levels ($p = 0.005$), while Spearman's correlation showed that teaching experience does not prevent cognitive decay ($p = 0.556$). These findings highlight an urgent need to integrate mandatory, certified first-aid modules into the university training curriculum for PES students, particularly at the local university level.

Keywords: Cognitive Competencies; Physical Education Teacher; First Aid; Secondary Education; JAMOVI.

1. Introduction

Physical education and sports (PES) sessions represent a dynamic environment within the school ecosystem where the risk of musculoskeletal injuries and acute health emergencies significantly increases compared to theoretical classrooms. During intense physical exertion, students are highly vulnerable to injuries such as fractures, muscle tears, joint dislocations, and sudden syncopes (Al-Riyami & Al-Tawil, 2021; Al-Samari et al., 2023; Bahr et al., 2020). In these critical moments, the PES teacher stands as the first line of defense and the immediate first responder (Tariq & Al-Qaisi, 2024).

The ultimate outcome of an injury often depends entirely on the "Golden Hour"—the initial minutes following the trauma (Adonis & Smith, 2023). Thus, possessing high cognitive and behavioral competencies in first aid is not merely a professional asset for a PES teacher, but a

vital legal and ethical obligation to ensure student safety (Abelairas-Gómez et al., 2021; Olympia et al., 2020). Despite its importance, preliminary observations indicate a substantial gap between teachers' academic background and their applied field readiness during emergencies. Consequently, this study utilizes the JAMOVI statistical software to evaluate the true reality of cognitive competencies regarding first aid among secondary school PES teachers in the city of Chlef, Algeria, and identify the key underlying variables.

2. Methodology

Research Approach: A descriptive exploratory design was utilized to quantitatively analyze the cognitive status of the participants.

Participants and Sampling: The study population consisted of $N = 30$ secondary school PES teachers active during the academic year 2020/2021. The sample was selected via a purposive sampling method from various public secondary schools operating within the educational sector of Chlef city (Directorate of Education of Chlef). This geometric limitation ensures a precise diagnostic view of the local pedagogical and logistical challenges regarding emergency first-response.

Research Instrument: Data were collected using a structured digital questionnaire engineered by the researcher. To ensure its face and content validity, the tool was reviewed, modified, and officially validated by an expert panel of five senior professors (4 PhDs and 1 Full Professor) in the field of Sports Science (STAPS) (Suleiman & Harous, 2023; Zhang & Wang, 2023). The instrument includes 16 items tracking demographic parameters, prior theoretical/practical training, and situational first-aid knowledge.

Statistical Analysis: Raw data were coded and analyzed using JAMOVI software. Frequencies and percentages were calculated for descriptive analysis. For inductive statistics, Pearson's Chi-Square (χ^2), Fisher's exact test, and Spearman's rank correlation (r_s) were performed to test the hypotheses and relationships between variables.

3. Results and Discussion:

Table 01: Distribution of PES Teachers According to Their Cognitive Competency Levels (N=30)

Competency Level	Frequency (n)	Percentage (%)	Structural Rank
Below Average (Médiocre)	11	36.67%	1st Rank
Weak (Faible)	8	26.67%	2nd Rank
Average (Moyen)	6	20.00%	3rd Rank
Acceptable	4	13.33%	4th Rank
Very Weak (Très faible)	1	3.33%	5th Rank
Total	30	100%	—

As displayed in Table 01, the descriptive outputs present a concerning reality regarding the emergency readiness of secondary school PES teachers. The vast majority of the surveyed sample falls under negative proficiency echelons, where **36.67%** of the teachers demonstrated a "Médiocre" (below average) cognitive competency, followed immediately by **26.67%** scoring a "Faible" (weak) level. Cumulatively, over **66.6%** of the participants lack the critical

baseline knowledge required to properly execute basic life support protocols. Conversely, only a minor fraction (13.33%) displayed an "Acceptable" grasp of first aid. This significant cognitive deficiency is highly attributed to the lack of systematic, continuous professional development workshops (Benmohamed & Chaoui, 2022; Bouasla, 2024; El-Haddad, 2020; Ghrayeb et al., 2019).

Table 02: Chi-Square Test (χ^2) for the Association Between Prior First-Aid Training and Cognitive Competency Levels

Statistical Test	Value	df	p-value
Pearson χ^2	14.82	4	0.005**
Fisher's Exact Test	13.15	-	0.008**

Note: **Statistically significant at $p < 0.01$

The inductive statistical analysis compiled via JAMOVI (Table 02) establishes a highly significant correlation between the teachers' prior training background and their actual cognitive competencies ($\chi^2 = 14.82, p = 0.005$). The data strictly proves that teachers who relied solely on university academic lectures scored significantly lower ("Médiocre" and "Faible") compared to those who underwent continuous field training supervised by the National Civil Protection Services. This statistically supports the argument that standard academic curriculums in sports science lack the intense, practical simulation required to anchor emergency competencies (Pellegrino et al., 2022; Veloso & Castro, 2021).

Table 03: Spearman's Rank Correlation (r_s) Between Teaching Experience and First-Aid Cognitive Scores

Variables compared	Spearman's r_s	p-value
Years of experience vs Cognitive level	0.112	0.556 (NS)

Note : NS = Non-Significant ($p > 0.05$)

To test the effect of professional seniority, Spearman's rank correlation was computed (Table 03). The statistical output indicates a weak, positive, and non-significant correlation ($r_s = 0.112, p = 0.556$). This cross-tabulation reveals an important academic fact: seniority in teaching physical education does not automatically upgrade first-aid knowledge. Without routine retraining and mandatory operational recycling, both novice and expert teachers remain equally vulnerable to cognitive decay regarding acute injury management (Haddad & Mansour, 2021; Karajeh, 2022; Morais et al., 2025; Zinchenko & Petrov, 2023).

4. Conclusion and Recommendations

The empirical data processed in this study via JAMOVI confirms that secondary school physical education teachers suffer from a severe deficiency in their cognitive competencies regarding first aid administration. To bridge this alarming gap, the study outlines the following executive recommendations:

1. **Curriculum Reform:** Integrating a mandatory, certified first-aid course with substantial practical credits within the core bachelor's and master's programs at STAPS institutes.

2. **Professional Partnerships:** Launching periodic training campaigns for active teachers in absolute coordination with the National Civil Protection Services.
3. **School Infrastructure:** Providing school sports facilities with standardized, fully equipped first-aid kits (Youssef & Zein, 2022).

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