

# First Aid Literacy among Different Demographics in the Kingdom of Saudi Arabia

**Waad Yahya Shaibah<sup>1</sup>, Suleman Amjbar Al-Abdali<sup>2</sup>, Alaa Mohammed Aqeel<sup>3</sup>, Abdulaziz Mohammed Sahari<sup>4</sup>, Meshal Atallah Alanazi<sup>5</sup>, Mansour Atiah WALEED<sup>6</sup>, Halilah Ghoneem Thubali<sup>7</sup>, Hadeel Mohammed Jaafari<sup>8</sup>**

*Affiliate, to Faculty of Medicine & King Abdulaziz University Hospital and Armed Forces Hospital in Jazan □ Armed Force Hospital in Sharurah*

## Introduction

First aid literacy is an important element in the health infrastructure system of any population, which is the intricacy of summoning knowledge, skills, and the confidence to care for people in a moment of emergency time before the arrival of professional medical help. In the Kingdom of Saudi Arabia, a rapidly developing country in the context of the vision to 2030, with the population in a condition of socio-economic and demographic transformation, the role of literacy in knowledge of first aid among the population of various demographic groups is gaining popularity nowadays in terms of national health security and resilience of the population.

A distinct demographic structure of the Kingdom, a significant population of the expatriate labor force, a transition of generations with new educational and technology adaptation perspectives, and uneven urban-rural division in the vastness of its territory pose complicated patterns of preparedness capabilities in emergency scenarios. Such wide analysis looks into how the aspects of geography, gender, age, education, occupation, nationality, regional location, socioeconomic status, parental responsibilities, and digital literacy impinge on first aid knowledge and skills in the population of Saudi Arabia. With the presence and recognition of such disparities in demographics, health authorities and policymakers can create specific interventions to facilitate future emergency responses in all societal sectors, which in the end, may result in a decrease in morbidity and mortality rates in relation to the occurrence of emergency situations and may improve the country-wide healthcare preparedness system.

## First Aid Knowledge Levels Among Urban Versus Rural Populations

The urban-rural divide in first aid literacy within Saudi Arabia reflects broader patterns of healthcare access and educational infrastructure distribution across the Kingdom. A high concentration of healthcare facilities, higher education facilities, and emergency services are found in big cities (Metropolitan cities like Riyadh, Jeddah, Dammam, etc.) which automatically provide more chances for first aid training and awareness. The knowledge of basic life support measures i.e. simple cardiopulmonary resuscitation procedures, wound handling, and identification of general medical emergencies like heart attack and stroke is usually greater in urban populations.

The urban environment with the existence of hospitals, medical colleges, and occupational safety programs results in an environment where information about first aid travels faster due to training in the workplace, community, and publicity campaigns (Alotaibi et al., 2025). A rural community, on the other hand, tends to be rather problematic in terms of providing access to formal first aid education about geographical isolation, paucity of the healthcare system, and a small number of trained personnel. Nevertheless, classical knowledge systems in rural communities do occasionally bridge the lack of formal training as communities come to have informal systems of experience-based networks of emergency response skills that are built over generations. Mobile

health technologies and telemedicine projects have started to close this gap, although large disparities still exist in overall literacy of first aid in major cities and remote areas in the Kingdom.

### **Gender Differences in First Aid Training Participation and Competency**

Gender dynamics in Saudi Arabia's first aid training landscape reflect a complex interplay between traditional cultural frameworks and contemporary social transformation. Traditionally, women as the exclusive caregivers in the household received unstructured training on the basic concepts of medical care, child safety, and emergency response as it occurred in the home environment and much of this went unmeasured relative to structured entry-level training requirements. The male-and-female separated educational and professional space of the kingdom, however, provided different opportunities to be given instructions in first aid, and these opportunities could largely depend on the availability of programs and their cultural adequacy. Recent social reformation series, such as Vision 2030 plans and the employment of more women in the workforce, have radically transformed this situation, introducing women to new professions, mostly in the sphere of healthcare, educational services, and emergency response (Alanazy et al., 2024).

The developments have not only brought about unprecedented freedom to formal first aid certification and skill enhancement among the female population but have also come to disrupt the traditional undertones regarding the roles of each sex in the emergency response circle. Studies prove that females have excellent theoretical knowledge retention and empathy in communication skills in emergencies and tend to be highly proficient in patient evaluation, psychological support, and response structure which necessitates emotional intelligence and procedural intelligence.

The development of training methodology has started to appreciate and harness these gender differences in strength and at the same time deal with the differing competency profiles. Men have the tendency to perform more competently in physical intervention skills, heavy lifting, mechanical rescue strategies, and when faced with high-stress decision-making instances where physical activity is urgent to take place. Nevertheless, modern first aid courses are placing an increasing amount of focus on the comfort of the complementary skill sets as the provision of emergency services cannot be effective without the combination of physical ability and emotional intelligence (Alshahrani et al., 2022). The emphasis of proposing community-wide coordination of child safety, household emergency preparedness, and community response has become an effective means of promoting women to tune in to their family-focused training programs.

Such culturally familiar models not only embrace conventional mores; but also, develop professional skills, forming a bridge between informal community caregivers and officially accredited first aid practitioners. An organized introduction to a professional development program that supports women workers with first aid training, especially the ones that take place in healthcare and education, has been gradually narrowing the historical participation disparity gap and developing new principles related to the practice of first aid preparedness on an inter-gender basis that respects the wisdom of the past and practical aspects of professional demands.

### **Age-Related Variations in First Aid Literacy Across Generational Cohorts**

Generational differences in first aid literacy across Saudi Arabia's population reflect varying educational experiences, technology adoption patterns, and exposure to modern emergency response methodologies. It is common that younger demographics, especially the 18-

35-year-old range, have a higher theoretical understanding of modern first aid methods because of the new curricula in the field of study, access to the Internet, and exposure to the subject of emergency response on social media. The current generation tends to be more accustomed to the current guidelines of cardiopulmonary resuscitation, the use of automated external defibrillators, and emergency messaging systems introduced on smartphones.

The balance is also found in the 35-55-year-old adult students who have the experience gained during workplace safety training, the experience of raising a child, and the talents instilled in professional development courses and having a background consistent with both theory and practice (Alqahtani, 2015). Nevertheless, they might want to be updated on the changing best practices and emerging technologies. The old age generations (55 +) tend to use more traditional systems of knowledge and might not be equally conversant with present-day methods, but actually have the most experience in the community in responding to emergencies and community health practices.

The use of technology influences the learning preferences of different age groups in a significant way where younger members will be more inclined towards traditional mobile applications and video learning and older adults can require a face-to-face demonstration and a hard copy tutorial. The intergenerational training programs that assist in harnessing the available strengths of people of various age cohorts whose unique learning needs are identified have proven to be a promising area to develop a network of holistic community preparedness in emergencies in the Kingdom of Bahrain.

### **Educational Attainment Impact on First Aid Knowledge Retention**

Educational background serves as a significant predictor of first aid literacy levels throughout Saudi Arabia, influencing both knowledge acquisition and practical skill retention. Those people who have higher education levels usually exhibit better knowledge of anatomical principles, physiological phenomena, and scientific concepts behind emergency medical procedures. The University graduates demonstrate an increased potential to cope with complicated first aid procedures, being aware of the reasons why a treatment is contraindicated, and making proper choices in case of an emergency. They are also more likely to use continuing medical education opportunities as well as revised guidelines available through medical organizations. The secondary education completers do not have the worst literacy skills because they should understand the written first aid instruction and basic emergency techniques, but it might take them more practice and training to become competent in practical skills (Al Anazi et al., 2022). People who receive primary education and those who have limited schooling have more difficulties in obtaining material on traditional first aid education but usually overcome them by using visual learning, acceptance of education through peers, and community knowledge transactions.

The education aspect of correlating with knowledge and retention of first aid extends not only to short-term encompassing education to familiarizing well with a particular practice but also to long-time maintaining of skills since most highly learned individuals often participate in customary updates and remain up to date with the current best practices. The feasible way to close the educational gap in the field of first aid literacy involves culturally ethnically competent teaching strategies, multilingual materials, and acknowledging the fact that various educational background creates distinctive power in community emergency preparedness plans.

### **Occupational-Based First Aid Preparedness in High-Risk Industries**

The Highest-risk industries in the Saudi Arabian economy under construction, oil and gas extraction, manufacturing, and healthcare industries show exclusive problems and opportunities for first aid literacy development. The construction industry whose millions of employees work on various infrastructure construction sites in the developmental process in place in the Kingdom is prone to a higher risk of traumatic injuries, falls, and accidents that may involve equipment usage, which would require effective emergency procedures amongst the employees. Oil and gas industries, which form the core element of the economy of Saudi Arabia, need special training in first aid given to matters related to chemical exposures, confined space emergencies, and industrial accidents in regional and remote areas where professional help may take longer to arrive.

The manufacturing plants come across various risks such as hardware mishances, appointments, and breathing exigencies, requiring workers who have extensive first aid skills. In addition to being professionally trained under medical interventions, healthcare workers need special first aid skills in terms of workplace violence, needle stick injuries, and other non-clinical emergency cases (Alshahrani et al., 2022). Legal regulations too are in the process of requiring occupational first aid training but this has been implemented widely in different industries and on the scale of company sizes. Global companies usually enforce a strong emergency response system with frequent training adjustments, whereas small businesses are barely able to provide sufficient training resources to cover thorough first aid training. Occupational first aid preparedness effectiveness relies on frequent skills testing and scenario training and embedding them into the wider safety cultures of the workplace environment in regard to emergency preparedness and employee health.

### **First Aid Literacy among Expatriate Communities Versus Saudi Nationals**

The Kingdom of Saudi Arabia's substantial expatriate population, comprising approximately 38% of the total population, creates complex dynamics in first aid literacy distribution and emergency preparedness capabilities. The expatriate populations introduce different health knowledge regimes, training levels, and cultural patterns of responding to an emergency, which can enhance the general environment of first aid literacy. Healthcare professionals from countries such as India, the Philippines, Egypt, and Pakistan, usually have a high level of clinical knowledge that can be easily used in first aid applications, but they should be oriented to the local regulations of emergency medical services and legal frameworks. Nonetheless, there is the issue of the language barrier that contributes a lot to first aid literacy among expatriate workers, especially the workers in the manual labor sector who may be weak in Arabic or even English.

This complicates the process of learning about the system of emergency communication, the possibility of accessing training manuals, and organizing effective cooperation with local emergency workers (Bashekah et al., 2023). Medical decision-making, traditional remedies, and family entanglements in cases of emergency can affect the styles of first aid applications because of cultural considerations. Saudi nationals tend to be more integrated with local emergency services systems and culturally comfortable with community-based emergency response but might be less exposed to various medical practices and international best practices. The solution to overcoming such disparities should include the use of multilingual training materials, culturally appropriate design of programs, and acknowledgment of the fact that the literacy of first aid can be successfully developed with references to a wide range of knowledge systems, at the same time

considering the conformity with the emergency response system of the country and their cultural convictions.

### **Regional Variations in Emergency Response Capabilities Across Saudi Provinces**

Saudi Arabia's vast geographical expanse and diverse regional characteristics create significant variations in emergency response capabilities and first aid literacy across the Kingdom's thirteen administrative provinces. The Central Province which is centered in Riyadh, enjoys the advantages of a high concentration of government resources, large medical facilities, and educational institutions that can feed a well-developed first-aid training system. The province of West Mecca and Medina is the area most affected by the problems linked to the Hajj and Umrah pilgrimage, thus calling for special preparation for emergencies in mass gatherings and multinational populations.

The concentration of the oil industry in the Eastern Province results in certain industrial emergency response requirements and often has higher standards of occupational first aid training. There is a possibility of such provinces in the south having similar issues about infrastructure but also border security issues which influence emergency response procedures (Shaheen et al., 2021). Provinces along the coast also handle sea emergencies and environmental risks that need special knowledge of first aid at hand, whereas desert lands located way inland have harsh weather conditions to face and logistics of distance to overcome.

### **Socioeconomic Factors Influencing Access to First Aid Education**

Socioeconomic status significantly determines access to comprehensive first aid education throughout Saudi Arabia, creating disparities that affect emergency preparedness capabilities across different income and social class levels. The more an individual earns, the more opportunities to avail of private first aid training services, safety in the workplace programs, and selective healthcare services that also offer emergency preparedness training. They are frequently at a point to afford first aid equipment, go to special training workshops, and preserve certificate by continuing education programs. Middle-income earning families can receive basic first aid trainings via employer-sponsored programs, community health programs or institutions, whereby they could encounter financial hindrances to obtaining further or special training. On many occasions, people in the low income heavily face challenges of getting formal first aid training due to cost of the programs, difficulties of transportation and the clash of working schedules coupled with other essential financial needs. Yet, CBOs and health programmes sponsored by the state become more and more aware of such differences and implement specific programs with the aim of covering the underserved population.

### **First Aid Knowledge among Parents and Caregivers of Children**

The demographic of the caregivers and parents of children is a crucial one in terms of developing first aid literacy since they are most likely to come across pediatric emergencies that need to be taken care of instead of professional help in time. Many of the common childhood emergencies such as choking, falls, burns, poisoning, and allergic reactions require specialized knowledge and skills as opposed to adult-oriented first aid training. It is observed that Saudi families are highly motivated especially mothers who are usually caregivers to learn some skills in responding to Pediatric emergency cases but due to other factors may not have the whole-body training that can fit into the specific cases of children.

Parents have cultural differences in responding to emergencies, and some of them are willing to travel without interim care, using traditional treatments or seeking emergency services in the care facility premises, instead of trying first aid measures (Al-Dosary et al., 2022). The emergence of dual-career families and expatriate caregivers makes the pediatric emergency preparation issue even more complicated because caregivers can have different relationships in terms of preparedness. Parental and caregiver education interventions should correct some of the most frequently held myths regarding childhood emergencies and should include direct practice with training equipment representing the sizing of a child as well as fostering some confidence in the emergency decisions made. Social media, online websites, and digital platforms have become a significant source of information during parental emergency preparation, however, the quality and correctness of that information are widely varied. Curriculum development in pediatric first aid should be considered within the framework of the overall child safety education, in collaboration with the pediatric healthcare providers, and the acknowledgment of the various family dynamics and caregiver patterns.

### **Digital Literacy Impact on Modern First Aid Learning and Emergency Communication**

The intersection of digital literacy and first aid education represents a rapidly evolving landscape that significantly influences emergency preparedness capabilities across Saudi Arabia's diverse population. The high level of smartphone penetration (more than 95%) leaves unmatched opportunities for mobile-based first-aid learning schemes, emergency communications, and immediate access to medical instructions in the way of the crisis. The younger population groups have been found to have better digital literary skillsets that can be used to effectively use first aid mobile apps, video-based learning services, and social media emergency groups. The benefits of these technologies are the fast exchange of up-to-date rules, the ability to use graphic means of illustrating them, and the ability to use GPS to organize an immediate response.

Nevertheless, age gaps, education gaps, and socioeconomic gaps result in unequal access to technology-tuned first aid resources. App-based learning systems or emergency features by the use of a smartphone might not be effective in the case of older adults and other people who have problems with technological experience, and other types of education and support systems have to be offered. The availability of language-based content and resources is a factor in access to digital first aid between Saudi nationals and expatriates of the country. Digital platforms are getting more and more popular in emergency communication systems, so digital literacy is becoming a vital factor in coordinating emergency response and community alert systems.

### **Conclusion**

This comprehensive analysis of first aid literacy among different demographics in the Kingdom of Saudi Arabia shows that a multifaceted picture of emergency preparedness abilities inundates the nation due to urbanization regimes, societal patterns, intergenerational challenges, education gaps, workforce demands, nationality issues, regional diversities, socioeconomic factors, family obligations, and technological use. The results indicate that although much has been done to increase access to first aid education among the various population groups, much can be done regarding enhancing the ability to respond to emergencies by carrying out specific interventions and formulating policies. The level of knowledge of first aid in an urban dweller is shown to be higher on average than in rural communities, but this competitive strength of urban populations is not equal to the traditional knowledge systems of the remote population. The nature of gender in emergency accident response is still changing due to social transformations that allow

women to be involved in the official emergency response educations keeping the cultural values and family duties in mind.

## References

- Al Anazi, R., Mureh, B., Al Sulimani, H., Al Arfaj, G., Habeeb, K., & Kofi, M. (2022). Impact of health education on maternal knowledge regarding choking prevention and first aid in children, Riyadh, Saudi Arabia. *Age (Mean, SD)*, 30, 5-18.
- Alanazy, A., Alruwaili, A., Al-Hassan, H. H., Almulhim, A., Altaher, N. A., Alhomoud, A. S., ... & Alanazi, T. M. (2024). Awareness of first aid among adults in Al-Ahsa City, Saudi Arabia: A cross-sectional study. *Journal of Family Medicine and Primary Care*, 13(9), 3658-3664.
- Al-Dosary, A. S., AlGhamdi, F. M., Almutairi, B. F., Alquwaiz, I. A. I., Alsomali, A. M., Algarni, S. A., ... & Albarrak, A. M. (2022). Public awareness of first-aid management of seizures in Saudi Arabia. *Epilepsy & Behavior*, 129, 108634.
- Alotaibi, O., Alrayya, S., Alotaibi, S., & Algoraini, Y. (2025). Parental awareness and knowledge of first aid for children in Saudi Arabia: a multiregional cross-sectional study. *Frontiers in Pediatrics*, 13, 1575783.
- Alqahtani, J. M. (2015). Knowledge and practice of schoolteachers towards students with epilepsy in Khamis Mushate, Southern Saudi Arabia. *Journal of Family and Community Medicine*, 22(3), 163-168.
- Alshahrani, N. Z., Alzahrani, F., Alarifi, A. M., Algethami, M. R., Alhumam, M. N., Ayied, H. A. M., ... & Sah, R. (2022). Assessment of knowledge of monkeypox viral infection among the general population in Saudi Arabia. *Pathogens*, 11(8), 904.
- Bashekah, K. A., Alqahtani, R., Aljifri, A. M., Ashram, S. Y., Alghamdi, E., Khallaf, A. M., ... & Banaja, A. (2023). The knowledge, attitudes, and associated factors regarding first aid among the general public in Saudi Arabia. *Cureus*, 15(7).
- Shaheen, R., AlShulayyil, M., Baseer, M. A., Saeed Bahamid, A. A., AlSaffan, A. D., & Al Herbisch, R. (2021). Self-reported basic oral health knowledge of primary school students and teachers in rural areas of Saudi Arabia. *Clinical, Cosmetic and Investigational Dentistry*, 521-529.