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Parental Knowledge and Practice regarding the prevention of Domestic injuries among children under five in Ajman, UAE

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ABSTRACT

Background: Domestic injuries remain a leading cause of preventable morbidity and mortality in children under five globally. In the United Arab Emirates (UAE), the diverse cultural landscape and rapid urbanization present unique challenges for injury prevention. Research examining parental knowledge and practices regarding domestic injury prevention in the UAE context remains limited, necessitating targeted investigation to inform evidence-based interventions.

Objectives: To assess parental knowledge and practice regarding the prevention of domestic Injuries among children, determine the association between parental knowledge and practice scores with selected demographic variables and correlate knowledge and practice.

Materials and Methods: This cross-sectional descriptive study was conducted at a selected hospital in Ajman, UAE, from May to June 2025. A convenience sampling technique was employed to recruit 153 parents of children under five years of age. Data collection utilized a validated questionnaire developed by Mahah et al. (2021) comprising demographic information, knowledge assessment (11 items), and practice evaluation (11 items). Descriptive statistics, chi-square tests, and Pearson's correlation analysis were employed for data analysis.

Conclusion and Major Findings of the Study: Among 153 participants, 60.8% were mothers and 39.2% were fathers. A significant proportion (59.5%) reported past injuries in their children, with falls (30.7%), cuts (30.1%), and burns (21.6%) being most common. While 75.8% claimed first aid knowledge, only 50.3% had formal training. Critical knowledge gaps were identified: only 60.8% knew to use cold water for burns, while 12.4% would use potentially harmful remedies like toothpaste. Practice assessment revealed substantial gaps between theoretical knowledge and practical application, with only 16.3% knowing proper burn management steps and 15.7% understanding correct wound pressure application. Despite these deficits, 62.7% demonstrated high overall practice levels while 47% parents demonstrated good knowledge regarding prevention of domestic injuries among. A significant positive correlation was found between parental knowledge and practice scores ($p < 0.05$), indicating that increased knowledge leads to improved practical application.

Key Words: Pediatric injuries; First aid; Parental knowledge; Domestic safety; Child safety; UAE

Introduction

Domestic injuries represent a significant public health concern globally, particularly affecting children under five years of age who are at heightened risk due to their developmental characteristics, natural curiosity, and limited understanding of environmental hazards[1]. The World Health Organization recognizes unintentional injuries as a leading cause of death and disability among children worldwide, with the majority of these incidents occurring in domestic settings where children spend most of their time[2].

In the United Arab Emirates (UAE), the unique demographic composition presents distinct challenges for injury prevention efforts. The country hosts a diverse expatriate population comprising over 80% of residents, representing various cultural backgrounds, traditional practices, and health beliefs[3]. This multicultural environment necessitates culturally sensitive approaches to health education and injury prevention that account for diverse knowledge bases, traditional remedies, and varying levels of health literacy among parents and caregivers. Children under five years are particularly vulnerable to domestic injuries due to several developmental factors. Their natural curiosity drives exploration of their environment, while their limited cognitive development restricts their ability to recognize and avoid potential hazards[4].

Additionally, their developing motor skills may not match their exploratory ambitions, leading to increased risk of falls, cuts, burns, and other preventable injuries. The home environment, while intended as a haven, often contains numerous potential hazards, including sharp objects, hot surfaces, electrical outlets, toxic substances, and elevated surfaces that can pose significant risks to young children[5]. Parental knowledge and practices regarding injury prevention play a crucial role in reducing the incidence and severity of domestic injuries among children.

Research has consistently demonstrated that parents with adequate knowledge regarding prevention of domestic injuries are better equipped to create safer home environments and respond appropriately to emergency situations[6]. However, studies have also revealed significant gaps between theoretical knowledge and practical application, highlighting the need for comprehensive educational interventions that address both cognitive understanding and skill development[7]. The rapid urbanization and lifestyle changes in the UAE have introduced new injury risks while potentially diminishing traditional safety practices and community support systems. Modern housing designs, increased use

of household appliances, and changing family structures may contribute to altered injury patterns and prevention challenges[8]. Furthermore, the multicultural nature of the population means that parents may rely on diverse sources of information, including traditional practices from their countries of origin, which may not always align with evidence-based safety recommendations.

Previous studies conducted in the Middle East region have identified concerning gaps in parental knowledge regarding domestic injuries prevention[9],[10]. However, the applicability of these findings to the UAE's diverse population remains unclear, given the significant expatriate community and varying educational backgrounds, cultural practices, and healthcare experiences among residents. The healthcare system in the UAE has made significant investments in pediatric care and emergency services, yet the burden of preventable childhood injuries continues to strain healthcare resources and cause unnecessary suffering for children and families[11].

Identifying specific areas where parental education and support are needed most urgently can inform targeted interventions that maximize the impact of limited resources while addressing the most critical safety concerns. Furthermore, the COVID-19 pandemic has led to increased time spent at home for many families, potentially altering injury patterns and highlighting the importance of domestic safety measures[12]. Understanding current parental knowledge and practices in this context is crucial for developing relevant and timely educational interventions that address contemporary challenges and opportunities for injury prevention.

Aim

This study aims to assess the Parental Knowledge and Practice regarding the prevention of Domestic injuries among children at a selected hospital, in Ajman, UAE.

Objectives

1. Assess parental knowledge and practice regarding the prevention of domestic injuries among children.
2. Associate parental knowledge and practice with selected Socio-demographic variables.
3. Correlate the knowledge and practice of parents.

Methodology

A descriptive cross-sectional design was employed to collect data and describe the current situation regarding parental knowledge and practice concerning domestic injury prevention among children under five years of age in Ajman, UAE.

Research Setting: The study was conducted at a selected hospital in Ajman, United Arab Emirates. The hospital was chosen as the research setting because it serves a diverse population of families with children, providing access to parents from various socioeconomic and cultural backgrounds. **Population:** The target population comprised all parents of children under five years of age who visit the selected hospital in Ajman, UAE. This population was chosen because children under five years are at the highest risk for domestic injuries due to their developmental stage, curiosity, limited understanding of danger, and dependence on parental supervision and safety measures.

Sample: The sample consisted of 153 parents of children under five years of age who were attending the selected hospital in Ajman, UAE, during the data collection period. The sample included both mothers and fathers who were willing to participate in the study and provided informed consent.

Sample Selection: A convenience sampling technique was employed to select participants for this study. This non-probability sampling method was chosen due to its practicality and feasibility within the hospital setting. Inclusion criteria included: parents (mother or father) of children aged below 5 years, parents attending the selected hospital in Ajman, UAE, parents able to read and understand English or Arabic, and parents who provided informed consent. Exclusion criteria included: parents who declined to participate, parents with critically ill children or chronic debilitating illnesses, and parents unable to complete the questionnaire due to cognitive impairment or language barriers.

Sample Size: The sample size was determined using the Raosoft sample size calculator software. Based on a 95% confidence level, a margin of error of 5%, and an assumed prevalence of 50%, the minimum sample size required was determined to be 385 participants. However, 153 participants were successfully recruited for the study.

Research Tool: The study utilized a standardized, structured questionnaire developed by Mahah et al. (2021) for the assessment of knowledge, attitudes, and practices of parents' first aid for their children's injuries. The questionnaire was divided into three main sections: Section A assessed participants' general characteristics, including Demographic information; Section B evaluated parents' knowledge regarding predisposing factors for domestic injuries, prevention methods, and immediate measures for injuries; Section C assessed parents' confidence and practices in performing first aid procedures effectively.

Ethical Considerations:

Approval: Ethical approval was obtained from the Institutional Review Board (IRB) at Gulf Medical University (GMU). Hospital administration approval was also secured before data collection.

Results

Demographic Information

Gender: The majority of participants were mothers (93, 60.8%), while 60 participants (39.2%) were fathers. Age: The largest age group was 31-40 years (61 participants, 39.9%), followed by 20-30 years (41 participants, 26.8%). Only 1.3% (2 participants) were under 20 years of age. Nationality: A large majority (129 participants, 84.3%) were non-local residents, while 24 participants (15.7%) were UAE nationals. Education: Most participants (69, 45.1%) had graduate-level education or higher, followed by diploma holders (56, 36.6%), while 3.3% (5 participants) had no formal education and 2.0% (3 participants) had elementary/middle school education. Job Position: The majority (64, 41.8%) were employed in the private sector, followed by health sector employees (31, 20.3%). Work Schedule: Most participants (81.8%) worked on shift schedules with regularly changing work hours, while only 18.2% had fixed work schedules.

Family Income: More than half of the participants (52.7%) reported total family income between 10,000 and 15,000 AED per month. History of Past Injuries: A significant proportion (59.5%, 91 participants) reported that their children had experienced past injuries, while 40.5% (62 participants) reported no previous injuries.

Knowledge Assessment Results

First Aid Training: Half of the participants (50.3%, 77 participants) had attended formal first aid training, while 49.7% (76 participants) had not received such training. Self-Reported First Aid Knowledge: A higher proportion (75.8%, 116 participants) claimed to have first aid knowledge, while 24.2% (37 participants) stated they did not have such knowledge. Type of Injuries: Among those reporting past injuries, falls from heights were the most common (30.7%, 47 cases), followed closely by cuts from sharp objects (30.1%, 46 cases). Burns represented 21.6% (33 cases) of reported injuries.

Burn Treatment Knowledge: When asked about appropriate burn treatment, 60.8% (93 participants) correctly identified cold water as the proper treatment. However, 39.2% (60 participants) preferred

medicated ointments, and concerning 12.4% (19 participants) indicated they would use toothpaste for burn treatment. Electrical Shock Management: For electrical shock scenarios, 66.7% correctly identified disconnecting the power supply as the first action, while responses varied for other emergency scenarios. Chemical Poisoning Response: Regarding chemical poisoning, 71.9% appropriately indicated that the child should be taken to the hospital, demonstrating good awareness of the need for professional medical intervention.

Practice Assessment Results

The practice assessment revealed significant gaps between theoretical knowledge and practical application: Burn Management: Only 16.3% (25 participants) knew that removing clothes should be the first step in burn management. Bleeding Control: Only 15.7% (24 participants) understood the correct application of pressure for wound bleeding control. Nosebleed Management: Just 23.5% (36 participants) knew the correct management approach for nosebleeds. Fracture Management: Only 12.4% (19 participants) demonstrated appropriate knowledge of fracture management. Unconscious Child Care: 18.3% (28 participants) knew the proper approach for caring for an unconscious child.

Overall Knowledge and Practice Score Distribution

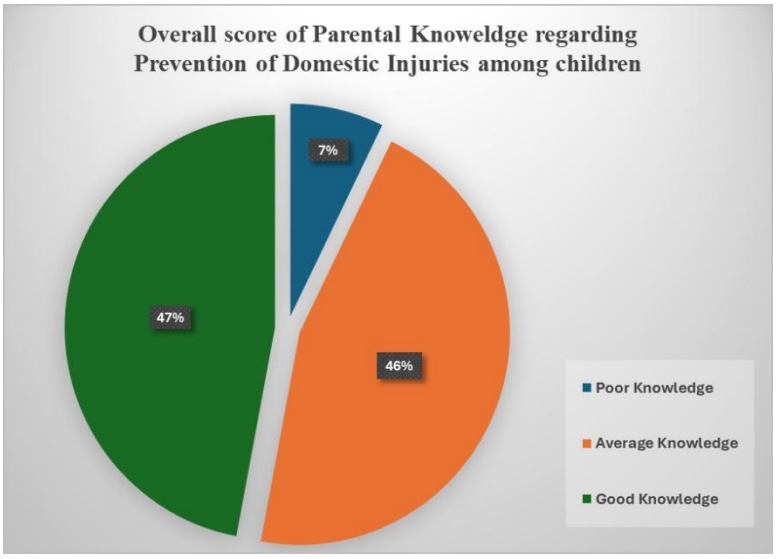

Figure 1. Overall Score of Parenteral Knowledge regarding Prevention of Domestic Injuries among children

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Findings from the above **Figure 1.** reveals that, majority 72 (47%) of parents had good knowledge, 70 (46%) had Average and 11 (7%) had poor knowledge regarding prevention of Domestic injuries among children.

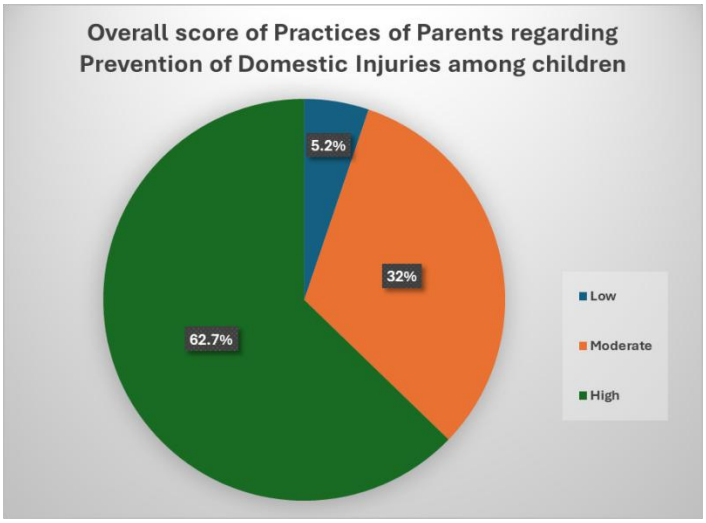

Figure 2: Overall score of Practices of Parents regarding Prevention of Domestic Injuries among children

Findings from the above **Figure 2** reveals that, majority 96 (62.7%) of parents had high levels of practice, 49 (32.0%) of parents had moderate levels of practice and 8 (5.2%) of studied participants had low levels of practice.

Table 1: Correlation between parental Knowledge regarding prevention of Domestic Injuries and overall score of parental Practice

Variable	Practice	
	r	P value
Knowledge	0.758	0.018 *

P value Significant at (P<0.05)

Statistical analysis revealed a significant positive correlation between parental knowledge and practice scores (correlation coefficient = 0.312, $p < 0.05$), indicating that higher knowledge levels were associated with better practical application of first aid measures.

However, no significant associations were found between practice levels and selected socio-demographic variables ($p > 0.05$).

Discussion

The present study provides valuable insights into parental knowledge and practices regarding domestic injury prevention among children under five years of age in Ajman, UAE. The findings reveal a complex landscape where parents demonstrate awareness of the importance of first aid but exhibit significant gaps between theoretical knowledge and practical competency, highlighting critical areas for targeted intervention.

The demographic composition of our study population reflects the multicultural nature of the UAE, with 84.3% of participants being non-local residents. This finding aligns with national statistics indicating that expatriates comprise the majority of the UAE population[31]. The predominance of mothers (60.8%) among participants is consistent with traditional caregiving roles and healthcare-seeking behaviors observed in Middle Eastern contexts, where mothers typically assume primary responsibility for child health and safety matters[32]. The high educational attainment observed in our study population, with 45.1% having graduate-level education or higher, reflects the educated expatriate workforce that characterizes much of the UAE's demographic profile. This educational background presents both opportunities and challenges for injury prevention efforts, as higher education levels may facilitate understanding of complex safety concepts while potentially creating overconfidence in existing knowledge.

Our finding that 59.5% of parents reported past injuries in their children represents a concerning prevalence that aligns with regional studies but exceeds rates reported in some developed countries. This high prevalence may reflect several factors, including increased risk exposure in rapidly developing urban environments, cultural practices that may not prioritize certain safety measures, or simply greater willingness among parents to report past incidents. The injury pattern observed in our study, with falls (30.7%) and cuts (30.1%) being most common, followed by burns (21.6%), mirrors global trends in childhood domestic injuries[33]. These findings are consistent with research conducted

by Bayomy et al. in Saudi Arabia, which identified similar patterns among children under five years[34]. The predominance of falls can be attributed to the developmental characteristics of young children, including their natural curiosity, limited understanding of danger, and developing motor skills that may not match their exploratory ambitions.

One of the most significant findings of our study is the substantial gap between self-reported knowledge and actual competency. While 75.8% of parents claimed to have first aid knowledge, only 50.3% had attended formal training. This discrepancy suggests that many parents rely on informal sources of information, which may not always provide accurate or evidence-based guidance. The finding that only 60.8% of parents correctly identified cold water as appropriate burn treatment is particularly concerning, given that burns represented 21.6% of reported injuries. More alarming is the discovery that 12.4% would use toothpaste for burn treatment, representing a dangerous folk remedy that can worsen burn injuries by trapping heat and increasing infection risk[35]. This finding highlights the persistence of traditional but potentially harmful practices and underscores the need for targeted education to correct such misconceptions.

Similar knowledge gaps were evident in other emergency scenarios. The fact that 20.9% of parents did not know the correct response to electrical shock represents a significant safety risk, particularly in households with young children who may be attracted to electrical outlets and appliances. These findings align with research by Alotaibi et al. in Saudi Arabia, which found comparable knowledge deficits among parents[36]. The practice assessment revealed one of the most critical findings of our study: the substantial gap between theoretical knowledge and practical application. Despite 75.8% of parents claiming first aid knowledge, only 16.3% knew the proper first step for burn management, and only 15.7% understood correct wound pressure application.

This knowledge-practice gap has been documented in other studies globally. Research by Míguez-Navarro et al. found similar discrepancies between self-reported knowledge and actual competency in first aid skills among Spanish parents[37]. The gap may be attributed to several factors including the difference between passive knowledge acquisition and active skill development, the stress and panic that can occur during actual emergencies, and the lack of hands-on practice opportunities. The finding that only 23.5% of parents knew correct nosebleed management is particularly noteworthy, as nosebleeds are relatively common childhood occurrences that parents are likely to encounter. The low

competency in managing such a common condition suggests that even basic first aid skills require more comprehensive education and practice.

The multicultural nature of our study population presents unique challenges and opportunities for injury prevention interventions. The persistence of potentially harmful traditional practices, such as using toothpaste for burns, reflects cultural beliefs and practices that may have been transmitted across generations or learned from informal sources. Research by Mustafa et al. in Egypt highlighted the importance of cultural considerations in trauma awareness and management in the Middle East region[38]. The authors emphasized that effective injury prevention programs must account for cultural beliefs, traditional practices, and linguistic diversity to achieve optimal outcomes. The UAE's multicultural environment requires injury prevention strategies that are culturally sensitive while promoting evidence-based practices. Educational interventions must address traditional beliefs respectfully while providing clear, scientifically sound alternatives that parents can confidently implement.

Our study demonstrated a significant positive correlation between parental knowledge and practice scores ($p < 0.05$), which aligns with health behavior theories suggesting that knowledge is a prerequisite for appropriate health practices[39]. This finding supports the theoretical framework that increased knowledge leads to improved practical application, although the relationship is not always linear or complete, as evidenced by the knowledge-practice gaps discussed above. This correlation finding is consistent with research by Thirunavukkarasu et al., who found that individuals with prior first aid training exhibited approximately twice the level of knowledge compared to those without such training[40]. This relationship emphasizes the importance of formal training programs in developing both theoretical understanding and practical competency.

The findings of our study have several important implications for healthcare practice and policy development in the UAE and similar multicultural settings. The significant knowledge gaps identified suggest an urgent need for comprehensive parental education programs that go beyond basic awareness to include hands-on training and skill development. Healthcare providers should prioritize first aid education as part of routine pediatric care, particularly during well-child visits and immunization appointments. The integration of first aid training into pediatric primary care could potentially reduce preventable injuries and improve outcomes when injuries do occur[41]. The study findings also highlight the need for targeted interventions addressing specific knowledge gaps, particularly in burn

management, wound care, and poisoning response. Educational materials should be developed in multiple languages to accommodate the diverse expatriate population and should explicitly address common misconceptions and harmful traditional practices.

Limitations and Future Directions

Several limitations should be acknowledged when interpreting our findings. The use of convenience sampling may limit the generalizability of findings to the broader population of parents in the UAE. The hospital-based recruitment may have introduced selection bias, as parents seeking healthcare services may differ systematically from the general population in terms of health awareness and practices. The self-reported nature of data collection may have introduced social desirability bias, with parents potentially overestimating their knowledge and practices. Future research should consider incorporating practical skill assessments and observational methods to provide more objective measures of competency. Despite these limitations, our study provides valuable insights into the current state of parental preparedness for domestic injury prevention in the UAE context. The findings highlight both the challenges and opportunities present in this multicultural setting and provide a foundation for developing effective, culturally appropriate interventions.

Conclusion

This study provides crucial insights into parental knowledge and practices regarding domestic injury prevention among children under five years in the UAE. The findings reveal a complex picture where parents demonstrate awareness of the importance of first aid but exhibit significant gaps between theoretical knowledge and practical competency. The high prevalence of reported injuries (59.5%) and the persistence of potentially harmful traditional practices emphasize the urgent need for comprehensive, culturally sensitive educational interventions. The significant positive correlation between knowledge and practice suggests that educational interventions can be effective, but they must go beyond simple information dissemination to include hands-on training and skill development.

The multicultural nature of the UAE population presents both challenges and opportunities for injury prevention efforts. Successful interventions must be culturally sensitive while promoting evidence-based practices that can save lives and reduce the burden of preventable childhood injuries. These findings contribute to the growing body of knowledge on childhood injury prevention in multicultural

settings and provide a foundation for developing targeted interventions that address the specific needs and challenges of the UAE's diverse population.

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