DSE | DEMOGRAPHY AND SOCIAL ECONOMY

Cite: Touhami, Mohamed, Ben Lahbib, Sidahmed, Boukhalkhal, Ali, & Djaafoura, Mousab, & Mah d-joudi, Hamza (2025). Determinants of Accidents Among Children Under Five in Algeria: An Analytical Study Based on the 2019 Multiple Indicator Cluster Survey (MICS6). *Demohrafiia ta sotsialna ekonomika — Demography and Social Economy*, 4 (62), 133—150. https://doi.org/10.15407/dse2025.04.133

https://doi.org/10.15407/dse2025.04.133
UDC [338.45+504]:[330.341:332.12]
JEL Classification: M21, O13, O18, R58

MOHAMED TOUHAMI[1], Dr. Sci. (Demography), Prof., University of Laghouat Laghouat, 03000, Algeria; e-mail: med.touhami@lagh-univ.dz
ORCID: 0009-0000-1787-5178
SIDAHMED BEN LAHBIB[1], Dr. Sci. (Sociology), Prof., University of Laghouat Laghouat, 03000, Algeria; e-mail: si.benlahbib@lagh-univ.dz
ORCID: 0009-0006-6391-9569
ALI BOUKHALKHAL[1], Dr. Sci. (Demography), Prof., University of Laghouat Laghouat, 03000, Algeria; e-mail: ali.boukhalkhal@lagh-univ.dz
ORCID: 0000-0002-5422-0784
Scopus ID: 59703045800
MOUSAB DJAAFOURA[1], Dr. Sci. (Demography), Prof., University of Laghouat Laghouat, 03000, Algeria; e-mail: m.djaafoura@lagh-univ.dz
ORCID: 0009-0006-7196-0246
HAMZA MAHDJOUDI, Dr. Sci. (Econ), Prof., University of Laghouat Laghouat, 03000, Algeria; e-mail: hm.mahdjoubi@lagh-univ.dz
ORCID: 0009-0006-7685-6907

DETERMINANTS OF ACCIDENTS AMONG CHILDREN UNDER FIVE IN ALGERIA: AN ANALYTICAL STUDY BASED ON THE 2019 MULTIPLE INDICATOR CLUSTER SURVEY (MICS6)

This article uses data from the 2019 Multiple Indicator Cluster Survey (MICS6) to investigate the key determinants of accidents among children under the age of five in Algeria. It examines how a combination of demographic, social and economic factors influences the frequency and

[1] Labratory of Social Empowerment and Sustainable Development in the Desert Environment

severity of accidents involving children. The study addresses the increasing recognition of the vulnerability of young children to unintentional injuries due to their limited risk perception, underdeveloped motor skills, and exploratory behaviour. Nevertheless, child accidents have not received sufficient attention in the public health policies of many countries in the Global South, including Algeria. Adopting a descriptive-analytical approach, the article relies on secondary data collected through MICS6 and supported by UNICEF, which was implemented by the Algerian Ministry of Health. The sample comprises over 15,000 children, with 852 reported cases of serious accidents. The analysis focuses on several explanatory variables, including the child's gender, age, place of residence, their mother's educational level and employment status, and the household's standard of living. Statistical analysis combined with sociological interpretation was employed to reveal the relationships between these variables.

The findings show that gender plays a notable role: male children accounted for 55.63% of accidents, compared to 44.37% for females. This aligns with existing research linking higher accident rates among boys to greater engagement in physical and risk-taking behaviours, often reinforced by cultural norms around masculinity. Additionally, age was a critical factor. Children aged one and two experienced the highest accident rates (30.05% and 30.28%, respectively). This is a stage marked by increased mobility and curiosity, but lacking the cognitive and motor coordination necessary to avoid harm. By contrast, infants under one year old had a lower rate (21.25%), while children aged three and four experienced a gradual decrease, likely due to improved self-regulation and awareness. Place of residence also influenced accident risk: urban children accounted for 59.27% of cases, compared to 40.73% in rural areas. This may reflect the hazards of urban environments, such as dense populations, high traffic levels, limited play areas, and constrained parental supervision due to work commitments. Although the rate is lower in rural areas, children there face other dangers, such as exposure to agricultural work and unsafe household infrastructure. Furthermore, rural homes often serve as workplaces, increasing the likelihood of contact with hazardous tools and materials. A particularly intriguing aspect of the study was the non-linear relationship between maternal education and accident rates. Contrary to expectations, the lowest accident rate (8.69%) was observed among children whose mothers had no formal education. This rate then increased among those with primary (16.55%) and middle school (33.22%) education, before declining at secondary (22.53%) and university (19.01%) levels. These findings suggest that education alone does not ensure better safety outcomes, especially if it is not accompanied by sufficient supervision. Mothers without formal education may be more likely to be full-time homemakers, whereas semi-educated mothers may combine household duties with informal work, resulting in inconsistent child supervision. Conversely, educated and professionally active mothers may possess stronger planning skills and a greater awareness of safety practices. In terms of economic factors, two key variables were assessed: maternal employment and household wealth. Notably, 87.44% of accident cases involved children of unemployed mothers, compared to 12.56% involving employed mothers. While one might assume that unemployed mothers would be more present and attentive, this finding indicates that associated factors, such as poverty, limited access to information, and psychological stress, may diminish the quality of child supervision. Household living standards also demonstrated a clear pattern. Accident rates were highest among children from very poor households (23.47%), followed by those from poor (22.06), average (20.43), rich (19.37), and very rich families (14.67%). These figures reinforce the idea that material deprivation is a major contributor to risk. Poor families often live in unsafe or overcrowded housing near busy roads or degraded infrastructure and typically lack the financial capacity to provide safer alternatives. Furthermore, poverty often coincides with limited access to health education, community support services, and safety equipment. A key finding of the study is that child accidents are not random events, but rather the result of overlapping structural and contextual vulnerabilities. Risk is shaped by the interaction of multiple dimensions, including gender, age, geography, education,

and income. For example, a child living in a congested urban area, born to an uneducated, unemployed mother and residing in a low-income household, is significantly more exposed than a child from a well-educated, high-income family in a secure neighbourhood. Based on these findings, the article presents several recommendations. Firstly, there is an urgent need to raise public awareness of child safety through educational campaigns on various platforms, such as the media, schools, religious centres, and community spaces. These campaigns should emphasise the importance of supervision, accident prevention strategies, and household safety. Secondly, urban infrastructure, especially in low-income areas, must be improved. This could include safer roadways, protected playgrounds, and building codes that incorporate child-friendly designs. Thirdly, greater investment is needed in maternal education, including not only formal schooling, but also practical training in parenting, safety and child development, especially in rural and underprivileged areas. Furthermore, social protection measures should target vulnerable families by providing financial support for housing improvements and access to safety equipment, such as safety gates and locks, as well as essential services, including healthcare and early childhood support. Lastly, cross-sector collaboration is essential. Government bodies, NGOs, schools and local institutions must collaborate to develop sustainable, context-sensitive frameworks that protect children from preventable harm.

In conclusion, the study highlights the complex interplay of demographic, social, and economic factors in shaping the risk of accidents among young children in Algeria. By identifying these determinants and understanding how they overlap, the study provides a basis for evidence-based, multisectoral policies aimed at reducing childhood injuries and promoting safer developmental environments. Ultimately, a shift towards proactive, integrated strategies is required to ensure that child safety becomes a national priority within Algeria's health and social planning agendas.

Keywords: *determinants, child accidents, injury, under-five children, socioeconomic factors, MICS6, Algeria.*

Description of the research problem. Childhood is a critical and formative stage in social and human development. It is a period during which a child's personality is shaped and their sense of individual identity and collective belonging is fostered. This phase is particularly sensitive as children undergo rapid cognitive and emotional development, making them susceptible to environmental influences. From a sociological perspective, childhood is a dynamic period of social construction, marked by flexibility and a capacity for education, learning and personality development through cultural and familial interaction (Chali & Zougaie, 2023, p. 4).

Due to the central role of childhood in shaping human development, many researchers and specialists have devoted their efforts to exploring its dimensions in depth. They aim to better understand its complexities and identify the most effective strategies for ensuring adequate care. Stanley Hall, recognised as a pioneer in child development studies in the early 20th century, emphasised the importance of understanding the stages of child development in order to provide appropriate care and support (E. Schell & Hall, 1979, p. 25). Similarly, Bayram (2011, p. 377) highlights that this phase lays the foundation for lifelong identity and behavioural orientation, as children are heavily reliant on family or institutional caregivers during this period.

Childhood should not be viewed merely as a transitional phase, but as a cornerstone that influences societal trajectories. Investment in this stage yields significant positive outcomes in terms of national stability and progress. In the modern era, there has been a growing awareness of the importance of improving the quality of services and care provided to children. Reliance on scientific principles has become a defining characteristic of contemporary child welfare approaches. In order to empower children to integrate effectively into society and contribute meaningfully to social development and service improvement, it is necessary to have a comprehensive understanding of their psychological, physical, educational, and social dimensions. Moreover, familiarity with the various stages of development is essential in order to provide services and care that are tailored to each stage (Al-Duwaibi, 1988, p. 8).

In this context, early childhood requires particular attention, protection, and careful supervision. During these years, children primarily explore the world through experiential learning, exposing them to risks that could endanger their health and safety. This highlights the importance of close monitoring and heightened awareness of potential dangers. Algerian law explicitly defines a child as any individual who has not reached the age of eighteen (Official Gazette, 2015, p. 5), and for the purposes of this study, the operational focus is limited to children under the age of five.

Among these risks, child accidents have become a prevalent concern across many societies. A growing body of research indicates that such accidents are a leading cause of mortality and disability among children in this age group. These incidents have been closely linked to multiple factors related to the familial and parental environment. In this context, an accident is defined as any sudden or unexpected external event that results in physical harm, such as a wound, fracture or burn (Abdel-Moula, 1984, p. 12; Ikbal, 2005, p. 30). Such occurrences, particularly in domestic or social settings, can have long-term consequences for children's physical and psychological development.

For example, a study by Ahmed Mohamed Gad Allah indicated that children under one year of age are at greater risk of serious injuries. The study identified three primary causes of death: traffic and road accidents, falls, and drowning (Gad Allah, 2019). Similarly, research by Shaimaa El-Husseini Mohamed Saqr revealed statistically significant differences between working and non-working mothers in terms of their awareness of how to manage domestic accidents and the level of home safety for children. Working mothers performed better in both areas (El-Husseini, 2018).

In light of these findings, this study aims to investigate the relationship between demographic, social and economic factors and differing accident rates among children under five in Algeria. Safeguarding the health and safety of children requires a clear understanding of the underlying factors that contribute to the prevalence of accidents within this age group. Accordingly, the following central question is posed:

What are the most significant factors contributing to accidents among children under five in Algeria?

Sub-questions:

• To what extent do demographic factors (such as the child's gender and age) influence the variation in accident rates among children under five in Algeria?

• How do social determinants (such as place of residence and the mother's educational level) affect the variation in accident rates among children under five in Algeria?

• What is the role of economic factors (such as the mother's employment status and the household's standard of living) in influencing accident rates among children under five in Algeria?

Relevance of the theme. This article addresses a highly relevant issue within the contexts of public health, social development, and child protection, particularly in low- and middle-income countries such as Algeria. Accidents among children under the age of five are a significant, yet frequently overlooked, cause of mortality, morbidity, and long-term disability. Despite global advances in maternal and child health, unintentional injuries continue to pose a significant threat to early childhood development, particularly in environments characterised by poverty, inadequate supervision, and substandard safety infrastructure. In Algeria, there is limited national data and academic literature on the sociological and demographic determinants of child accidents, which highlights the urgent need for targeted research on this topic. By identifying the key factors contributing to accidents, this study will address a critical knowledge and policy gap, offering data-driven insights to inform national prevention strategies, family-based interventions, and evidence-based public health planning. This issue is medically and socially significant and has long-term implications for human capital development and the overall well-being of future generations.

Analysis of the recent studies and publications. Several studies have examined childhood accidents in relation to demographic, social, and environmental factors. Gad Allah (2019) demonstrated that traffic accidents, falls, and drowning were the leading causes of death among children, with household conditions playing a critical role in exposure to risk.

Similarly, Saqr (2018) revealed notable disparities in accident awareness and safety practices between working and non-working mothers, with the former exhibiting greater preparedness and safety awareness. This suggests that maternal employment may be linked to enhanced knowledge and vigilance.

In another study, Ghadhban (2023) concluded that falls were the most common form of household injury among children under six, with the highest risk occurring at the age of one. Likewise, Hammadi (2009) highlighted gender-based behavioural differences, showing that boys are more likely than girls to engage in aggressive and risk-prone behaviours, which could partly explain their higher accident rates. Together, these findings affirm the importance of consider-

ing demographic, social, and behavioural factors when analysing childhood accident patterns.

At the national level, Chellai (2023) analysed data from the Algerian *MICS6* survey to investigate the epidemiology of home accidents among children under five. The study found that 5.5% of children had experienced accidents, with falls (62.6%) and burns (13.4%) being the most frequent causes. Significant disparities were observed, as boys were at higher risk than girls, and rural children faced greater vulnerability than their urban counterparts. Moreover, maternal education and employment status emerged as strong protective factors, reducing the likelihood of accidents. These findings underscore the importance of addressing socioeconomic and demographic determinants in designing effective prevention strategies.

At the regional level, recent evidence highlights the demographic significance of adolescents in the Middle East and North Africa (MENA) region, where individuals aged 10—19 years constitute 17% of the population, and nearly half of the population is younger than 30. This demographic structure offers both opportunities for economic growth and challenges for public health. However, progress in advancing adolescent health has been relatively slow, with considerable disparities across and within countries. The literature emphasizes that investing in adolescent health generates a "triple dividend," improving health outcomes for today's adolescents, future adults, and subsequent generations. Therefore, timely interventions are critical to harnessing this unique window of opportunity (AlBuhairan et al., 2023).

On a global scale, the burden of unintentional injuries among children remains alarming, with an estimated 830,000 deaths annually, the majority occurring in low- and middle-income countries. The *World Report on Child Injury Prevention* identified drowning, burns, road traffic accidents, falls, and poisoning as the leading causes, while emphasizing that integrated and large-scale prevention strategies could substantially reduce both mortality and disability (Peden et al., 2008). More recently, the World Health Organization (2022) highlighted that road traffic injuries alone account for nearly 220,000 deaths annually among children and adolescents aged 0—19 years, equivalent to more than 600 preventable deaths each day. The report stresses the need for evidence-based interventions and systematic policy actions to improve child and adolescent road safety.

Innovative character. This article's innovative character lies in its comprehensive, multidimensional approach to analysing the determinants of accidents among children under five in Algeria. Unlike previous studies, which often focused on isolated variables or were limited to small samples, this research uses nationally representative data from the MICS6. This ensures a broad and reliable empirical foundation. Furthermore, the study combines statistical analysis with sociological interpretation to provide a nuanced understanding of how demographic, social and economic factors interact to influence accident risk. This dual methodological framework enables the identification of direct and contextual

contributors to child injuries. Additionally, the article sheds light on previously under-explored aspects, such as the non-linear relationship between maternal education and accident incidence and the paradoxical role of maternal employment in child safety. By addressing these gaps and combining data-driven insights with policy-oriented recommendations, the study makes an original contribution to the fields of child health and injury prevention in Algeria and beyond.

Setting of the article's goal and tasks. This article aims to investigate the underlying factors contributing to accidents involving children under five in Algeria, using nationally representative data from the MICS6. The study aims to understand how demographic, social and economic factors influence the frequency and distribution of childhood accidents. To achieve this, the article sets out three key tasks. First, it will assess the relationship between the child's gender and age, and variation in accident rates. Second, it will examine the impact of the place of residence and the mother's educational level on the likelihood of accidents. Third, it will explore the effect of maternal employment and household living conditions on children's exposure to injury. By completing these tasks, the study will develop a comprehensive understanding of the structural and behavioural determinants of child safety, providing a basis for preventive interventions and policy development.

Research methods. This study uses a demographic and analytical research design that relies exclusively on secondary data obtained from MICS6, which was conducted in Algeria. The study aimed to identify and interpret the key factors contributing to serious accidents among children under five. A descriptive analysis was performed to identify patterns within the dataset, focusing on the relationships between accidents involving children and selected demographic, social, and economic variables.

Data were collected through the MICS6 programme, which was conducted by the Ministry of Health, Population and Hospital Reform in cooperation with the Directorate of Population. Financial and technical assistance was provided by UNICEF, alongside additional funding from the United Nations Population Fund (Enquête par grappes à indicateurs multiples [MICS], 2019 Rapport final des résultats, 2020, p. 2).

The variable "serious accident" in the 2019 MICS6 Algeria survey was measured through the Children Under 5 Questionnaire, administered to the mother or primary caregiver. Respondents were asked whether the child had experienced any serious accident in the 12 months preceding the survey. Serious accidents include incidents such as falls, burns, traffic accidents, or other events posing a significant health risk. This approach ensures consistent reporting and allows analysis of demographic, social, and economic determinants.

The sampling frame divided Algeria into seven major geographic regions: Central North, Northeast, Northwest, Central Highlands, Eastern Highlands, Western Highlands, and South. Cluster sampling was employed to ensure the

national sample was proportionally distributed and representative of the population. This approach involves segmenting the overall study population into distinct groups or clusters. This technique is particularly useful when dealing with large, widely dispersed populations where compiling a complete list of individual sampling units is impractical (Brou, 2014, p. 189).

The study population consisted of 852 children under the age of five who were identified as victims of serious accidents, drawn from a total of 15,224 children surveyed in MICS6 in Algeria. To ensure methodological rigour and national representativeness, the analysis incorporated the complex survey design features, including the application of design weights, stratification by geographical regions, and clustering at the primary sampling unit level.

Table 1 presents the proportional distribution of the study sample across the seven geographical regions, reflecting the stratified design adopted by MICS to capture regional variations in child well-being and accident exposure.

With regard to the study's variables — specifically, the determinants of accidents among children under five in Algeria, as identified in the 2019 survey — 15,224 children were included. Of these children's mothers or primary caregivers, 14,873 were interviewed, resulting in a response rate of 97.7%. Of the total sample, 852 children under the age of five were recorded as having been victims of a serious accident.

The main findings of the study. A statistical and sociological analysis of data extracted from MICS6 yielded significant findings that deepen our understanding of the factors influencing serious accidents among children under five in Algeria. These findings emphasise the intricate relationship between demographic, social and economic factors and reveal significant disparities among different population groups and living environments. The results confirm certain

Table 1. **Sample Size by Selected Geographical Regions**

Region	Sample Percentage (%)
Central North (NC)	32.7
Northeast (NE)	14.3
Northwest (NO)	16.5
Central Highlands (HPC)	7.5
Eastern Highlands (HPE)	14.0
Western Highlands (HPO)	5.1
South (SUD)	9.9
Total	100

Source: prepared by the researchers based on the results of the 2019 Multiple Indicator Cluster. Note. The table presents the proportional distribution of the study sample across the seven geographical regions of Algeria, as stratified in MICS6 (2019), ensuring national representativeness and capturing regional variations in child accident exposure.

trends identified in previous literature and uncover context-specific patterns that are particularly relevant to Algerian society. The most salient outcomes of the study are summarised below:

Demographic Determinants. Of the various dimensions explored in this study, demographic factors such as the child's gender and age at the time of the accident were found to be the main variables influencing accident occurrence. Understanding how these variables correlate with the likelihood of serious accidents sheds light on vulnerable age groups and behavioural differences that may increase the risk of injury. The following table shows how accident cases are distributed according to these demographic characteristics:

Statistical Interpretation. Table 2 presents the relationship between demographic determinants — specifically, gender and age at the time of the accident — and the incidence of serious accidents among children under five.

Regarding gender, male children account for 55.63% (474 cases) of accidents, while female children represent 44.37% (378 cases).

Concerning the child's age at the time of the accident, the highest incidence is observed among two-year-olds (30.28%, 258 cases), followed closely by one-year-olds (30.05%, 256 cases). Children under one year account for 21.25% (181 cases), three-year-olds 13.73% (117 cases), and four-year-olds 4.34% (37 cases), with a small proportion (0.35%, 3 cases) missing age information.

These findings indicate that male children and those aged one to two years are most frequently involved in serious accidents, highlighting age- and gender-related risk patterns that may inform preventive strategies.

Table 2. **The Relationship Between Demographic Determinants (Gender, Age at Time of Accident) and the Rate of Serious Accidents Among Children Under Five**

Variables	Percentage (%)	Frequency
	Gender	
male	55.63	474
female	44.37	378
Total	100	852
	Child's Age at Accident	
0 years old	21.25	181
1 year old	30.05	256
2 years old	30.28	258
3 years old	13.73	117
4 years old	4.34	37
No answer	0.35	03
Total	100	852

Source: prepared by the researchers based on the results of MICS6.

Sociological Analysis. The statistical data indicate that male children are more susceptible to accidents compared to females. This may be attributed to behavioral differences between the sexes. Males often display more assertive and risk-prone behavior, increasing their exposure to injuries, especially when engaging in physical or dangerous play activities, which are frequently designed with boys in mind.

During the early years (ages 0—5), children are highly impressionable and tend to imitate what they observe. Many mimic the actions of superheroes or characters encountered in games or television programs, placing themselves at risk during such imitative play.

Children under the age of one generally exhibit limited mobility due to the underdevelopment of their motor systems. At this stage, most are not yet able to walk and are heavily dependent on their caregivers for movement and safety. This natural restriction in mobility reduces their exposure to physical accidents.

In contrast, once a child reaches the one-to-two-year range, their motor abilities begin to develop, and they actively explore their surroundings. This phase is characterized by heightened curiosity and imitation, leading children to interact with their environment in potentially hazardous ways. However, due to an underdeveloped sense of balance and insufficient control over bodily movements, the risk of falls and injuries is elevated. At this stage, children also lack the cognitive maturity to distinguish between safe and unsafe behavior.

After the age of three, notable progress occurs in both motor coordination and cognitive ability. Children become more adept at controlling their movements and avoiding falls, resulting in a decline in injury rates. Their cognitive development enables them to comprehend environmental dangers and adopt safer behaviors. They begin to understand basic safety rules and refrain from actions that could cause harm. This developmental trajectory illustrates how biological, educational, and social factors contribute to shaping motor behavior and reducing accident risk.

These developmental stages thus reflect the interaction between the child's biological growth and the surrounding social environment. As motor and cognitive maturity increase, the likelihood of accidents decreases, provided that the child is raised in a safe setting with appropriate educational guidance.

Social Determinants. In addition to demographic characteristics, the study examined key social factors that could explain the variation in accident rates among children. Specifically, the analysis focused on place of residence (urban vs. rural) and mother's level of education, as these are commonly linked to child supervision, environmental safety, and parental awareness. The following table shows how accidents are distributed statistically in relation to these social variables:

Statistical Interpretation. Table 3 presents the relationship between social determinants — specifically, place of residence and mother's educational level — and the incidence of serious accidents among children under five.

Regarding place of residence, 59.27% (505 cases) of children involved in accidents live in urban areas, while 40.73% (347 cases) reside in rural areas.

Concerning the mother's educational level, the relationship with accident incidence appears non-linear. Children whose mothers have a middle school education account for the highest proportion of accidents (33.22%, 283 cases), followed by secondary education (22.53%, 192 cases), university (19.01%, 162 cases), primary education (16.55%, 141 cases), and no formal education (8.69%, 74 cases).

These findings indicate that children from urban areas and those whose mothers have attained middle school or secondary education are most frequently involved in serious accidents, highlighting the potential influence of social determinants that may require deeper investigation.

Sociological Analysis. The data indicate that children living in urban areas are more frequently exposed to accidents, primarily due to high traffic density, congestion, and speeding. Urban parental employment may also limit supervision time, increasing accident risk. In rural areas, although overall accident rates are lower, children face different hazards, including exposure to unsafe work environments and dual-use home-work spaces. Rural mothers' combined household and agricultural responsibilities may limit consistent child supervision, elevating risk.

The relationship between maternal education and child accidents is non-linear. The lowest incidence occurs among children of mothers with no formal education, potentially reflecting constant supervision in traditional caregiving roles. Accident rates peak at intermediate maternal education levels but decline at se-

Table 3. **Relationship Between Social Determinants (Place of Residence, Mother's Educational Level) and the Rate of Serious Accidents Among Children Under Five**

Variables	Percentage (%)	Frequency
Place of Residence		
urban	59.27	505
rural	40.73	347
Total	100	852
Mother's Educational Level		
no education	8.69	74
primary	16.55	141
middle school	33.22	283
secondary	22.53	192
university	19.01	162
Total	100	852

Source: prepared by the researchers based on the results of MICS6.

condary and university levels, likely due to greater awareness of safety measures and better management of childcare alongside professional responsibilities.

It is important to exercise caution when interpreting these patterns. For example, the lower incidence of accidents among children of mothers with no formal education, or the higher rates among children of unemployed mothers, may not reflect direct causal relationships. These patterns could be influenced by reporting bias, limited child mobility, or other unmeasured contextual factors. While the data provide valuable insights into associations between demographic, social, and economic determinants and child accidents, these findings should be interpreted carefully, avoiding simplistic causal inferences. Further analysis using multivariate models or longitudinal data may help clarify the underlying factors influencing these outcomes.

Economic Determinants. Economic conditions play a crucial role in shaping the daily environment in which children live and grow up. For example, factors such as the mother's employment status and the household's overall living standard can significantly affect supervision quality, housing safety, and access to preventive resources. The following table summarises the distribution of cases based on these two variables, in order to assess the impact of these economic determinants on the occurrence of serious accidents among children under five.

Statistical Interpretation. Table 4 illustrates the relationship between economic determinants — specifically, mothers' employment status and household living standard — and the incidence of serious accidents among children under five.

Regarding mothers' employment, the majority of children involved in accidents have unemployed mothers (87.44%, 745 cases), compared to a smaller proportion whose mothers are employed (12.56%, 107 cases).

Table 4. **Relationship Between Economic Determinants (Mother's Employment Status, Household Living Standard) and the Rate of Serious Accidents Among Children Under Five**

Variables	Percentage (%)	Frequency
Mother's Employment Status		
employed	12.56	107
unemployed	87.44	745
Total	100	852
Household Living Standard		
very poor	23.47	200
poor	22.06	188
average	20.43	174
rich	19.37	165
very rich	14.67	125
Total	100	852

Source: prepared by the researchers based on the results of MICS6.

With respect to household living standards, the highest incidence of child accidents is reported among very poor families (23.47%, 200 cases), followed by poor (22.06%, 188 cases), average (20.43%, 174 cases), rich (19.37%, 165 cases), and very rich households (14.67%, 125 cases).

These findings suggest that children from economically disadvantaged households, as well as those with unemployed mothers, are at greater risk of experiencing serious accidents, underscoring the role of economic vulnerability as a determinant of child safety.

Sociological Analysis. The findings suggest that children of unemployed mothers face a higher risk of serious accidents. This association may be explained by limited child-rearing experience, which potentially reduces the implementation of preventive practices and safety measures.

Furthermore, unemployment often corresponds with constrained financial resources, limiting the family's capacity to provide a secure environment for children, whether through safe toys, home modifications, or protective equipment. This condition is inherently linked to the overall economic situation of the household, which also plays a significant role in children's exposure to injuries and accidents.

With regard to the household's standard of living, the data demonstrate that accident rates are highest among children from very poor families, while the lowest rates are recorded in very wealthy households. From this, it is evident that an inverse relationship exists between household living standards and accident rates: as the standard of living increases, the likelihood of child injuries decreases; conversely, as the standard declines, the risk increases. This pattern can be attributed to a variety of factors, the most prominent being environmental safety.

Low-income families frequently reside in unsafe environments, which inherently heighten the risk of accidents. Such environments often include old or deteriorated housing structures that pose constant hazards to children. Additionally, the geographical settings of these homes, frequently located near congested roads, decaying infrastructure, or rugged and hazardous terrain, further elevate the risk.

Poverty is also frequently accompanied by low levels of awareness or education, a condition that can prove more harmful than financial hardship itself. A lack of awareness may lead to negligence and the failure to implement even basic preventive measures, even within environments that are not inherently dangerous.

On the other hand, a poor household possessing a certain level of awareness can, despite financial constraints, still provide children with a minimum standard of safety. As the saying aptly puts it: "Ignorance is deadlier than poverty," as it eliminates the capacity for protective action, regardless of the available resources.

Conclusions and prospects of future studies in the field. Based on the demographic, social and economic analyses presented in previous sections, the study identified a number of key findings that clarify the multifactorial nature of childhood accidents in Algeria. These findings reflect the statistical correlations observed across different variables, as well as their deeper social and behavioural

implications. Together, they provide a comprehensive understanding of how structural and personal factors interact to influence accident risk among children under the age of five.

This study set out to examine the determinants of childhood accidents among children under five in Algeria, with specific attention to demographic, social, and economic variables. The objectives were to identify the main factors influencing accident occurrence, assess their relative contributions, and propose evidence-based recommendations. The findings of the study are directly consistent with these stated objectives, as outlined below:

• **Demographic determinants:** The results confirmed that male children are more vulnerable to accidents (55.63%) compared to females (44.37%), which corresponds to behavioral differences observed in previous studies. Age also proved critical, with children aged one to two years showing the highest incidence of accidents (30.28% and 30.05%), reflecting developmental traits of curiosity and exploratory behavior. Furthermore, children in urban areas experienced more accidents (59.27%) than their rural counterparts (40.73%), underscoring the influence of residential environments.

• **Social determinants:** Maternal education and employment status were both found to shape childhood accident risks. Interestingly, children of mothers with no formal education experienced lower accident rates, likely due to mothers' greater time commitment to childcare. Conversely, children of unemployed mothers recorded significantly higher accident rates (87.44%) compared to those of employed mothers (12.56%), confirming the protective role of maternal awareness and safer home management practices among working mothers.

• **Economic determinants:** Household living standards emerged as a decisive factor. Accident rates increased as living standards declined, with the highest prevalence (23.47%) among very poor families. This finding highlights the role of material deprivation and unsafe housing conditions in shaping child vulnerability.

• **Integrated interpretation:** These results demonstrate that childhood accidents cannot be reduced merely to parental negligence or awareness. Instead, they are the outcome of interrelated demographic, social, and economic conditions. The study thereby achieves its overarching objective of clarifying how structural inequalities and contextual factors collectively determine child safety.

In light of these conclusions, it is recommended that policymakers adopt comprehensive public health strategies that go beyond awareness campaigns to include tangible improvements in housing, infrastructure, and social support systems.

Looking ahead, future research should build upon these findings by employing longitudinal and mixed-methods designs to better capture the evolving nature of childhood accident risks. Comparative studies across Algerian regions could further identify localized patterns, while exploring institutional and policy-level factors—such as legal protections, service provision, and community safety regulations—would enrich the national child protection framework. Ultimately,

addressing childhood accidents requires an interdisciplinary approach that links data-driven research with socially grounded and context-sensitive solutions.

REFERENCES

1. Al-Duwaibi, A. S. B. (1988). Introduction to Child Care. Libya: Al-Jamahiriya Publishing, Distribution, and Advertising House.
2. Bayram, A. (2011). Human Rights and Public Freedoms: An Approach Between Text and Reality. Beirut: Al-Manhal Al-Lubnani Publishing.
3. Bhattacherjee, A. (2012). Social Science Research: Principles, Methods, and Practices. Florida: Global Text Project. https://digitalcommons.usf.edu/oa_textbooks/3
4. Brou, M. (2014). Guide to Methodology in Social Sciences (Psychology — Sociology — Education Sciences). Tizi Ouzou, Algeria: Al-Amal for Printing, Publishing, and Distribution.
5. Chali, K., & Zougaie, M. (2023). Family sociological function in raising children from Internet addiction. *Social Empowerment Journal*, 5(2), 02—12. https://doi.org/10.34118/sej.v5i2.3431
6. El-Husseini, C. M. (2018). Housewives' awareness of how to deal with domestic accidents and its relation to children's home safety. *Journal of Home Economics*, 27(1).
7. Gad Allah, A. M. (2019). Incidence and causes of injury deaths among children under five years of age in El-Giza, Egypt. *Journal of Medical and Pharmaceutical Sciences*, 3(4).
8. Ghadhban, R. S. (2023). Mothers' knowledge and practices regarding domestic accidents in children under five years of age. Tishreen University Journal, 45(5).
9. Hammadi, F. (2009). Gender differences in aggressive behavior. *Journal of Human Sciences*, A (32).
10. Ikbal, M. M. (2005). Psychoanalysis of Work Injuries. Jordan: Safa Publishing and Distribution.
11. Mahmoud, A. M. (1984). Sociology in the Field of Industrial Work. Cairo: Al-Dar Al-Arabiya Al-Kubra.
12. *Ministry of Health, Population, and Hospital Reform. (2020).* Multiple Indicator Cluster Survey (MICS) 2019: Final report of results, Algeria. *UNICEF.* https://www.unicef.org/algeria/media/1441/file/Enqu%C3%AAte%20par%20Grappes%20%C3%A0%20Indicateurs%20Multiples%20%28MICS6%29%202019.pdf
13. Official Gazette. (2015). Law No. 12—15 on Child Protection, Article 02. Issue No. 39. Algeria: People's Democratic Republic of Algeria.
14. Schell, R. E., & Hall, E. (1979). Developmental Psychology Today. California.
15. Chellai, F. (2023). Epidemiology of home accidents among children aged under-five years in Algeria: An application of negative binomial regression models. *Pakistan Pediatric Journal*, 47(1), 28—35. https://www.ppj.org.pk/index.php/ppj/article/view/94
16. AlBuhairan, F., Abdel-Tawab, N., Nar, M., Hamad, B., Dabis, J. & Feteha, F., et al. (2023). Adolescent health in the Middle East and North Africa region: Leaving no one behind. *Eastern Mediterranean Health Journal*, 29(2). https://doi.org/10.26719/emhj.23.008
17. Peden, M., Oyegbite, K., Ozanne-Smith, J., Hyder, A. A., Branche, C. & Rahman, A. F. et al. (2008). *World report on child injury prevention*. World Health Organization & UNICEF. https://medbox.org/document/world-report-on-child-injury-prevention
18. World Health Organization (WHO). (2022, November 17). *Child and adolescent road traffic injury prevention*. World Health Organization. https://www.who.int/publications/i/item/9789240063606

Стаття надійшла до редакції журналу 20.01.2025

Мохамед Тухамі, доктор наук (демографія), професор,
Університет Лагуата, Лабораторія соціального зміцнення
та сталого розвитку в умовах пустельного середовища
Лагуат, 03000, Алжир
e-mail: med.touhami@lagh-univ.dz
ORCID: 0009-0000-1787-5178

Сідахмед Бен Лахбіб, доктор наук (соціологія), професор,
Університет Лагуата, Лабораторія соціального зміцнення
та сталого розвитку в умовах пустельного середовища
Лагуат, 03000, Алжир
e-mail: si.benlahbib@lagh-univ.dz
ORCID: 0009-0006-6391-9569

Алі Бухалхал, доктор наук (демографія), професор,
Університет Лагуата, Лабораторія соціального зміцнення
та сталого розвитку в умовах пустельного середовища
Лагуат, 03000, Алжир
e-mail: ali.boukhalkhal@lagh-univ.dz
ORCID: 0000-0002-5422-0784
Scopus ID: 59703045800

Мусаб Джаафура, доктор наук (демографія), професор
Університет Лагуата, Лабораторія соціального зміцнення
та сталого розвитку в умовах пустельного середовища
Лагуат, 03000, Алжир
e-mail: m.djaafoura@lagh-univ.dz
ORCID: 0009-0006-7196-0246

Хамза Махджубі, доктор наук (економіка), професор,
Університет Лагуата, Лабораторія соціального зміцнення
та сталого розвитку в умовах пустельного середовища
Лагуат, 03000, Алжир
e-пошта: hm.mahdjoubi@lagh-univ.dz
ORCID: 0009-0006-7685-6907

ВИЗНАЧАЛЬНІ ФАКТОРИ НЕЩАСНИХ ВИПАДКІВ СЕРЕД ДІТЕЙ ВІКОМ ДО П'ЯТИ РОКІВ В АЛЖИРІ: АНАЛІТИЧНЕ ДОСЛІДЖЕННЯ НА ОСНОВІ ДАНИХ БАГАТОІНДИКАТОРНОГО КЛАСТЕРНОГО ОБСТЕЖЕННЯ (MICS6) ЗА 2019 рік

У цій статті на основі даних багатоіндикаторного кластерного обстеження (MICS6) за 2019 р. досліджено основні чинники, що визначають нещасні випадки серед дітей віком до п'яти років в Алжирі. Аналізується, як поєднання демографічних, соціальних та економічних факторів впливає на частоту та тяжкість нещасних випадків із дітьми. Розглянуто питання про все більше визнання вразливості маленьких дітей до ненавмисних травм через їх обмежене сприйняття ризику, недорозвинені рухові навички та дослідницьку поведінку. Проте дитячі нещасні випадки не отримують достатньої уваги в політиці охорони здоров'я багатьох країн Південної півкулі, включаючи Алжир. Використовуючи описово-аналітичний підхід, стаття базується на вторинних даних, зібраних за допомогою MICS6 та за підтримки ЮНІСЕФ, які були реалізовані Міністерством охорони здоров'я Алжиру. Вибірка охоплює понад 15 000 дітей, з яких 852 випадки серйозних нещасних випадків були зареєстровані. Аналіз зосереджено на

кількох пояснювальних змінних, зокрема статі дитини, віці, місці проживання, рівні освіти та зайнятості матері, а також рівні життя домогосподарства. Для виявлення взаємозв'язків між цими змінними було використано статистичний аналіз у поєднанні з соціологічною інтерпретацією.

Результати показують, що гендер відіграє значну роль: 55,63 % нещасних випадків припадає на хлопчиків, порівняно з 44,37 % на дівчаток. Це узгоджується з наявними дослідженнями, які пов'язують вищий рівень нещасних випадків серед хлопчиків з більшою схильністю до фізичної активності та ризикованої поведінки, що часто підсилюється культурними нормами щодо маскулінності. Крім того, критичним фактором був вік. Найвищий рівень нещасних випадків спостерігався серед дітей віком один і два роки (30,05 % та 30,28 % відповідно). Цей вік характеризується підвищеною рухливістю та цікавістю, але відсутністю когнітивних навичок та координації рухів, необхідних для уникнення травм. Натомість у дітей віком до одного року рівень травматизму був нижчим (21,25 %), а у дітей віком три-чотири роки спостерігалося поступове зниження, ймовірно, завдяки покращенню саморегуляції та усвідомленості. Місце проживання також впливало на ризик нещасних випадків: 59,27 % випадків припадало на дітей, які проживали в містах, проти 40,73 % у сільській місцевості. Це може свідчити про низку причин небезпеки міського середовища, як-от щільність населення, інтенсивний дорожній рух, обмежені місця для ігор та обмежений нагляд працюючих батьків. Хоча рівень нижчий у сільській місцевості, діти там стикаються з іншими небезпеками — роботою на фермі та небезпечною побутовою інфраструктурою. Крім того, сільські будинки часто є ще й робочим місцем, що збільшує ймовірність контакту з небезпечними інструментами та матеріалами.

Особливо цікавим аспектом дослідження став нелінійний зв'язок між освітою матері та рівнем нещасних випадків. Усупереч очікуванням, найнижчий рівень нещасних випадків (8,69 %) був зафіксований серед дітей, чиї матері не мали формальної освіти. Потім цей показник зріс серед матерів з початковою (16,55 %) та середньою (33,22) освітою, а потім знизився серед матерів з середньою (22,53) та вищою (19,01 %) освітою. Ці результати свідчать про те, що освіта сама по собі не гарантує кращих результатів у сфері безпеки, особливо якщо вона не супроводжується достатнім наглядом. Матері без формальної освіти, як правило, є домогосподарками, натомість матері з неповною освітою можуть поєднувати домашні обов'язки з неформальною роботою, що призводить до нерегулярного нагляду за дітьми. І навпаки, освічені та професійно активні матері можуть мати кращі навички планування та бути більш обізнаними з правилами безпеки. У дослідженні було оцінено дві ключові змінні економічних факторів: зайнятість матерів та матеріальний стан домогосподарств. Примітно, що 87,44 % нещасних випадків сталися з дітьми безробітних матерів, порівняно з 12,56 % випадків з дітьми зайнятих матерів. Хоча можна припустити, що безробітні матері будуть більш присутніми та уважними, цей висновок свідчить про те, що супутні фактори, як-от бідність, обмежений доступ до інформації та психологічний стрес можуть погіршувати якість нагляду за дітьми. Рівень життя домогосподарств також продемонстрував чітку закономірність. Найвищий рівень нещасних випадків був серед дітей з дуже бідних домогосподарств (23,47 %), за ними йшли діти з бідних (22,06), середніх (20,43), заможних (19,37) та дуже заможних сімей (14,67 %). Ці цифри підтверджують думку, що матеріальна скрута є одним з основних факторів ризику. Бідні сім'ї часто живуть у небезпечних або переповнених будинках поблизу жвавих доріг або в районах із занедбаною інфраструктурою і, як правило, не мають фінансових можливостей створити безпечнішу альтернативу. Крім того, бідність часто супроводжується обмеженим доступом до освіти в галузі охорони здоров'я, послуг соціальної підтримки та засобів безпеки.

Ключовим висновком дослідження є те, що дитячі нещасні випадки не є випадковими подіями, а результатом перетину структурних та контекстуальних вразливостей. Ризик формується під впливом взаємодії багатьох факторів, зокрема статі, віку, географічного положення, освіти та доходу. Наприклад, дитина, яка живе в перенаселеному міському районі, народилася від неосвіченої безробітної матері та проживає в сім'ї з низьким доходом, значно більше наражається на ризик, ніж дитина з освіченої сім'ї з високим доходом, яка проживає в безпечному районі. У статті наведено кілька рекомендацій. По-перше, необхідно терміново підвищити обізнаність громадськості про безпеку дітей за допомогою освітніх кампаній на різних платформах: ЗМІ, школи, релігійні центри та громадські простори. Ці кампанії повинні наголошувати на важливості нагляду, стратегій запобігання нещасним випадкам та безпеки в побуті. По-друге, необхідно покращити міську інфраструктуру, особливо в районах з низьким рівнем доходів. Це може включати безпечніші дороги, захищені ігрові майданчики та будівельні норми, що враховують інтереси дітей. По-третє, необхідні більші інвестиції в освіту матерів, включаючи не тільки формальну освіту, але й практичну підготовку з питань виховання дітей, безпеки та розвитку дітей, особливо в сільських та неблагополучних районах. Крім того, заходи соціального захисту повинні бути спрямовані на вразливі сім'ї шляхом надання фінансової підтримки для поліпшення житлових умов та доступу до засобів безпеки, наприклад, захисні огорожі та замки, а також основних послуг, включаючи охорону здоров'я та підтримку в ранньому дитинстві. Нарешті, надзвичайно важливою є міжгалузева співпраця. Державні органи, НУО, школи та місцеві установи повинні співпрацювати з метою розробки стійких, адаптованих до місцевих умов механізмів захисту дітей від запобіжних травм.

У дослідженні підкреслюється складний взаємозв'язок демографічних, соціальних та економічних факторів, що впливають на ризик нещасних випадків серед дітей молодшого віку в Алжирі. Визначивши ці визначальні фактори та зрозумівши, як вони перетинаються, дослідження створює основу для науково обґрунтованої багатосекторальної політики, спрямованої на зменшення травматизму серед дітей та створення безпечніших умов для їхнього розвитку. Зрештою, для того щоб безпека дітей стала національним пріоритетом у програмах охорони здоров'я та соціального планування Алжиру, необхідний перехід до проактивних, інтегрованих стратегій.

***Ключові слова**: визначальні фактори, дитячі нещасні випадки, травматизм, діти віком до п'яти років, соціально-економічні фактори, MICS6, Алжир.*