Scientific Research Publishing

Advances in Aging Research, 2025, 14(6), 123-134
https://www.scirp.org/journal/aar
ISSN Online: 2169-0502
ISSN Print: 2169-0499

Predictors of Mortality and Clinical Profiles of Elderly Patients Admitted through the Emergency Department in Somalia

Hussein Hassan Mohamed*, Salad Mohamud Mohamed, Nasteho Mohamed Sheikh, Mohamed Abdi Ahmed, Hassan Adan Ali

Department of Emergency Medicine, Mogadishu Somali Turkish Training and Research Hospital, Mogadishu, Somalia
Email: *abuucabdalla44@gmail.com

How to cite this paper: Mohamed, H.H., Mohamed, S.M., Sheikh, N.M., Ahmed, M.A. and Ali, H.A. (2025) Predictors of Mortality and Clinical Profiles of Elderly Patients Admitted through the Emergency Department in Somalia. *Advances in Aging Research*, **14**, 123-134.
https://doi.org/10.4236/aar.2025.146010

Received: October 6, 2025
Accepted: November 18, 2025
Published: November 21, 2025

Abstract

Background: Comorbidities and acute illnesses often result in adverse outcomes in emergency departments (EDs), which present specific challenges as the population ages. For effective treatment and resource planning, it is vital to identify mortality predictors for older patients admitted through the emergency department. **Objective:** To identify the clinical and demographic features, comorbidities, and mortality predictors of elderly patients admitted through the emergency department of a tertiary hospital in Somalia. **Methods:** A retrospective analysis included 654 individuals over 60 years old who were hospitalized in the emergency department between January and December 2022. We reviewed hospital databases to obtain information on diagnoses, treatments, outcomes, clinical presentations, comorbidities, and sociodemographics. Statistical analyses were performed using SPSS version 23. **Result:** A study showed that 61.9% of the people were men, and the average age was 72.3 years, with a variance of 5.3 years. Diabetes mellitus (31.2%) and hypertension (49.1%) were the two most common comorbidities. Fever (37.3%), dyspnea (36.4%), and altered mental status (35.5%) were some of the most common reasons people visited the hospital. Heart failure (10.1%), sepsis (17.1%), and stroke (21.4%) were the most prevalent diagnoses. The percentage of deaths in the hospital was 15.9%. Sepsis, stroke, malignancy, respiratory failure, altered mental status, trauma, and the need for intensive therapies (dialysis, vasopressors, intubation) were all separate factors associated with mortality ($p < 0.05$). **Conclusion:** The mortality rate in Somalia is elevated due to the significant incidence of multiple comorbidities and acute critical situations among older patients referred via the emergency department. Malignancy, stroke, sepsis, and the necessity for urgent therapies are all major indicators of poor outcomes. To reduce mortality in this vulnerable population, early identifica-

tion and prompt intervention for these high-risk illnesses are crucial.

Keywords

Geriatric Patients, Emergency Department, Somalia, Comorbidities, Clinical Outcomes, Mortality

1. Introduction

The World Health Organization (WHO) estimates that by 2050, there will be more than 2 billion people over the age of 60. This indicates that the world's population is undergoing a significant demographic change [1] [2]. Most of this aging population will live in low- and middle-income countries (LMICs), which will put even more strain on already overburdened healthcare systems [3].

Geriatric patients have distinctive problems in emergency treatment, such as atypical disease presentations, frailty, poly pharmacy, and cognitive dysfunction, which may hinder diagnosis and delay urgent therapies [3] [4]. Current evidence indicates that older patients admitted through emergency departments face greater risks of poor outcomes, such as extended hospitalizations, critical care unit admission, and increased mortality rates in comparison to younger groups of patients. Resource-constrained environments frequently exacerbate these risk factors, restricting access to specialized geriatric and critical care services [5] [6].

In sub-Saharan Africa, including Somalia, inadequate healthcare systems struggle due to political instability, a lack of resources, and insufficient staff. Emerging evidence indicates that older adults in African emergency departments frequently present with both non-communicable diseases (such as hypertension, stroke, and heart failure) and infectious diseases, illustrating the dual burden of disease in low- and middle-income countries [7] [8]. However, systematic data on geriatric emergency care in Somalia are still limited. It is crucial to note that there is less knowledge regarding the determinants of mortality in this vulnerable population, despite their significantly higher risk of adverse outcomes [9] [10].

Identifying the factors that predict mortality in older emergency department patients is important for ensuring that inadequate health systems are able to detect problems, take action, and use their resources wisely. Consequently, this study is designed to identify the demographic characteristics, clinical presentations, comorbidities, and mortality predictors among elderly patients admitted to the emergency department of a tertiary care hospital in Somalia.

2. Methods

2.1. Study Design and Setting

This retrospective observational study was conducted at the Somali-Türkiye Recep Tayyip Erdogan Training and Research Hospital (STEAH), a tertiary care referral institution in Somalia. STEAH offers specialty services such as internal medicine,

cardiology, neurology, pulmonology, and intensive care units. The study was designed to assess the clinical features, comorbidities, therapies, and mortality predictions in geriatric patients admitted through the emergency department (ED).

2.2. Study Population

All patients aged 60 years or older who were admitted through the Emergency Department (ED) for their first admission between January 1 and December 31, 2022, were included. Patients with incomplete medical records or transfers from other hospitals were excluded. A total of 654 patients matched the criteria for inclusion and were enrolled.

2.3. Data Collection

Data were retrospectively collected from electronic hospital records using a standardized data collection form based on ICD-10 codes. Variables encompassed socio-demographic attributes (age, sex), presenting complaints, comorbidities, clinical diagnoses, treatment modes (medical or surgical), ICU admission, and in-hospital outcomes (survival or mortality).

2.4. Statistical Analysis

Data were input into Microsoft Excel and processed with IBM SPSS Statistics version 23. Descriptive statistics detailed demographic and clinical characteristics: continuous variables were provided as means ± standard deviation (SD), and categorical variables as frequencies and percentages. Chi-square testing was used to examine the relationship between independent variables and in-hospital mortality. We used odds ratios (ORs) with 95% confidence intervals (CIs) to identify factors associated with death. Variables that were significant in bi-variate analysis were included in a multivariate logistic regression model to identify independent predictors of death. A p-value of less than 0.05 was considered statistically significant.

2.5. Ethical Considerations

The Ethical Research Committee of STEAH (Ref No: MSTH/9577) approved the study. The study safeguarded patient privacy by eliminating all identifying information from the collected data.

3. Results

The study included 654 elderly patients. The average age was 72.3 years, with 71.3% of people being between 65 and 75 years old and 28.7% being between 76 and 85 years old. There was no statistically significant correlation between age and in-hospital mortality ($p = 0.332$). The study population was made up of 61.9% males and 38.1% females. Gender was similarly not directly predictive of mortality ($p = 0.896$). As shown in Table 1.

The most common manifestations at admission were nausea and vomiting

Table 1. Demographic & general characteristics of participants.

Variable n (%)	Total (n = 654)	Outcome		P-Value
		Death (n = 104)	Live (n = 550)	
Gender				
Male	405 (61.9)	65 (9.9)	340 (52.0)	0.896
Female	249 (38.1)	39 (6.0)	210 (32.1)	
Age (Mean ± SD) = 72.32				
65 - 75 years	466 (71.3)	70 (10.7)	396 (60.6)	0.332
76 - 85 years	188 (28.7)	34 (5.2)	154 (23.5)	
Admission Status				
Normal Ward	509 (77.8)	13 (2.0)	496 (75.8)	0.000
ICU	145 (22.2)	91 (13.9)	54 (8.3)	
Department of Admission				
Cardiology	55 (8.4)	5 (0.8)	50 (7.6)	0.001
Cardiovascular Surgery	5 (0.8)	2 (0.3)	3 (0.5)	
ENT	9 (1.4)	0 (0.0)	9 (1.4)	
Genel Surgery	43 (6.6)	13 (2.0)	30 (4.6)	
İnfectious	42 (6.4)	4 (0.6)	38 (5.8)	
İnternal Medicine	234 (35.8)	45 (6.9)	189 (28.9)	
Nerology	114 (17.4)	15 (2.3)	99 (15.1)	
Neurosurgery	31 (4.7)	6 (0.9)	25 (3.8)	
Obstetrics and Gynecology	2 (0.3)	0 (0.0)	2 (0.3)	
Ortopedic	34 (5.2)	0 (0.0)	2 (0.3)	
Pulmonology	46 (7.0)	13 (2.0)	33 (5.0)	
Thorax surgery	2 (0.3)	0 (0.0)	2 (0.3)	
Urology	37 (5.7)	1 (0.2)	36 (5.5)	
Diagnosis				
Disease Diagnosed	654 (100.0)	104 (15.9)	550 (84.1)	0.313
Treatment				
Medical	526 (80.4)	89 (13.6)	437 (66.8)	0.149
Surgical	128 (19.6)	15 (2.3)	113 (17.3)	
Number of Risk Factors				
None	205 (31.3)	27 (4.1)	178 (27.2)	0.329
One	311 (47.6)	56 (8.6)	255 (39.0)	
Two or more	138 (21.1)	21 (3.2)	117 (17.9)	

Continued

Intubation				
Yes	117 (17.9)	87 (13.3)	30 (4.6)	0.000
No	537 (82.1)	17 (13.3)	520 (79.5)	
Vasopressor				
Yes	548 (83.8)	85 (13.0)	21 (3.2)	0.000
No	106 (16.2)	19 (2.9)	529 (80.9)	
Dialysis				
Yes	147 (22.5)	40 (6.1)	107 (16.4)	0.000
No	507 (77.5)	64 (9.8)	443 (67.7)	
Surgery				
Yes	134 (20.5)	14 (2.1)	120 (18.3)	0.053
No	520 (79.5)	90 (13.8)	430 (65.7)	
Length of Hospital Stay (days)				
01 - 07 days	467 (71.4)	57 (8.7)	410 (62.7)	0.000
08 - 15 days	137 (20.9)	28 (4.3)	109 (16.7)	
16 - 30 days	42 (6.4)	15 (2.3)	27 (4.1)	
>31 days	8 (1.2)	4 (0.6)	4 (0.6)	

P-Value (Level of Significance), n (numbers), % (Percentage), ICU (Intensive Care Unit), ENT (Otorhinolaryngology).

(26.8%), shortness of breath and cough (22.9%), and abdominal discomfort (18.0%). Various presenting symptoms were significantly correlated with increased mortality, including altered mental status (13.8%, p = 0.001), limb weakness (15.4%, p = 0.007), dyspnea (p = 0.010), lower limb or generalized edema (p = 0.010), urinary retention or hematuria (p = 0.002), and trauma-related injuries (p = 0.021). Conversely, symptoms including fever, headache, and diarrhea did not exhibit a statistically significant correlation with mortality. These findings are detailed in Table 2.

Hypertension (42.5%) and diabetes mellitus (30.3%) were the most common comorbidities, followed by cardiovascular disease, neurological diseases, renal failure, and liver disease. However, none of these chronic illnesses had a significant correlation with death (p = 0.05 for all). The odds ratio (OR = 2.01) for liver disease was the highest, although it was not statistically significant (p = 0.298) as summarized in Table 3.

These results indicate that acute clinical problems exerted a more significant influence on death outcomes compared to chronic comorbidities. Out of all the patients, 104 (15.9%) died while they were in the hospital, and 550 (84.1%) survived. A significant predictor of mortality was admission to the intensive care unit (ICU), which had a mortality rate of 13.9%, compared to 2.0% among general

Table 2. Clinical presentation of hospitalized geriatric patients.

Variable n (%)	Total (n = 654)	Outcome		P-Value
		Death (n = 104)	Live (n = 550)	
Altered Mental Status	90 (13.8)	30 (4.6)	60 (9.2)	0.000
Dizziness and Headache	12 (1.8)	4 (0.6)	8 (1.2)	0.107
Shortness of Breath and Cough	150 (22.9)	34 (5.2)	116 (17.7)	0.010
Chest Pain	21 (3.2)	1 (0.2)	20 (3.1)	0.127
Limb Weakness	101 (15.4)	7 (1.1)	94 (14.4)	0.007
Convulsions	5 (0.8)	2 (0.3)	3 (0.5)	0.181
Fever	25 (3.8)	4 (0.6)	21 (3.2)	0.582
Nausea and Vomiting	175 (26.8)	26 (4.0)	149 (22.8)	0.659
Abdominal Pain	118 (18.0)	19 (2.9)	99 (15.1)	0.948
Oliguria	80 (12.2)	18 (2.8)	62 (9.5)	0.085
Urinary Retention and Hematuria	34 (5.2)	0 (0.0)	34 (5.2)	0.002
Lower Limb Edema and Generalized Edema	72 (11.0)	19 (2.9)	53 (8.1)	0.010
Fatigue and Loss of Appetite	24 (3.7)	3 (0.5)	21 (3.2)	0.453
Hematochezia and Hematemesis	6 (0.9)	1 (0.2)	5 (0.8)	0.648
Trauma Related İnjuries	52 (8.0)	3 (0.5)	49 (7.5)	0.021
Skin Manifestations	42 (6.4)	4 (0.6)	38 (5.8)	0.172
Palpitations	3 (0.5)	0 (0.0)	3 (0.5)	0.594
Constipation	3 (0.5)	1 (0.2)	2 (0.3)	0.406
Diarrhea	19 (2.9)	1 (0.2)	18 (2.8)	0.167

P-Value (Level of Significance), n (Number), % (Percentage).

Table 3. Risk factors associated with outcomes of hospitalized geriatric patients.

Risk Factors n (%)	Total (n = 654)	Outcome		OR	P-Value
		Death (n = 104)	Live (n = 550)		
Hypertension	278 (42.5)	49 (7.5)	229 (35.0)	1.249 (0.82 - 1.90)	0.300
Diabetes Melitus	198 (30.3)	29 (4.4)	169 (25.8)	0.872 (0.54 - 1.38)	0.563
Cardiovascular Disease	35 (5.4)	7 (1.1)	28 (4.3)	1.345 (0.57 - 3.16)	0.496
Malignancy	16 (2.4)	1 (0.2)	15 (2.3)	0.346 (0.04 - 2.65)	0.285
Lung Disease	7 (1.1)	1 (0.2)	6 (0.9)	0.880 (0.10 - 7.38)	0.906

Continued

Neurological Disease	23 (3.5)	5 (0.8)	18 (2.8)	1.493 (0.54 - 4.11)	0.436
Renal Disease	32 (4.9)	5 (0.8)	27 (4.1)	0.978 (0.36 - 2.60)	0.965
Liver Disease	11 (1.7)	3 (0.5)	8 (1.2)	2.012 (0.52 - 7.71)	0.298

OR (Odds Ratio), P-Value (Level of Significance), n (Number), % (Percentage).

ward patients (p = 0.001). There were also variations between departments, with patients admitted through general surgery and pulmonology departments having higher death rates (p = 0.001) as recorded in Table 1.

The majority of patients (80.4%) received medical treatment, whereas 19.6% underwent surgical treatments; however, the type of treatment was not significantly correlated with mortality (p = 0.149). Conversely, the necessity for critical interventions, including intubation, vasopressor administration, and dialysis, was significantly correlated with elevated mortality (p = 0.001 for all) as also shown in Table 1. A disease-specific mortality analysis showed that individuals with fractures, anemia, gastroenteritis, or urological problems did not die. Patients with acute abdominal (37.9%), lung infections (32.4%), traumatic brain injury (23.3%), renal failure (20.7%), and stroke (13.0%) had the highest death rates as recorded in Table 4.

Table 4. Comparison of diagnosis with outcome.

Diagnosis n (%)	Outcome		P-Value
	Death (n = 104)	Live (n = 550)	
Fracture	0 (0.0)	34 (100.0)	0.000
Acute abdomen	11 (37.9)	18 (62.1)	
Anemia	0 (0.0)	7 (100.0)	
Cerebrovascular Accident: Intracranial Bleed/Ischemia	14 (13.0)	94 (87.0)	
Gastroenteritis	0 (0.0)	7 (100.0)	
GI Bleeding	1 (20.0)	4 (80.0)	
Hepatobiliary Diseases (Cirrhosis/Stone/Cholecystitis))	3 (16.7)	15 (83.3)	
Lung İnfections (Pneumonia/TB)	12 (32.4)	25 (67.6)	
Malignancy	2 (8.7)	21 (91.3)	
Metabolic Encephalopathy	2 (7.1)	26 (92.9)	
Myocardial İnfarction/Heart Failure	5 (8.6)	53 (91.4)	
Obstructive Lung Disease	2 (22.2)	7 (77.8)	
Peripheral Vascular Disease (DVT/PAD)	2 (33.3)	4 (66.7)	

Continued

Pulmonary Embolism	1 (16.7)	5 (83.3)
Renal Failure	37 (20.7)	142 (79.3)
Seizure	1 (25.0)	3 (75.0)
Soft Tissue İnfection	4 (10.3)	35 (89.7)
Traumatic Brain İnjury	7 (23.3)	23 (76.7)
Urologic Diseases	0 (0.0)	27 (100.0)

P-Value (Level of Significance), TB (Tuberculosis), DVT (Deep Venous Thrombosis), PAD (Peripheral Artery Disease).

Most of the patients (71.4%) were in the hospital for 1 to 7 days, during which time 8.7% of all deaths occurred (p = 0.001) as shown in Table 1. This indicates that shorter hospitalizations were substantially correlated with increased mortality, presumably due to the severity or immediate course of illness resulting in premature in-hospital death. Overall, the study indicates that acute clinical presentations, ICU admission, life-sustaining interventions, and certain severe diagnoses are strong indicators of mortality in older patients. On the other hand, age, gender, type of treatment, and chronic comorbidities like hypertension and diabetes mellitus were not independently related to death in the hospital.

4. Discussion

In this retrospective cohort study of 654 geriatric patients hospitalized in the emergency department (ED) of a tertiary hospital in Somalia, we found an in-hospital mortality rate of 15.9%. The main indications that an individual could pass away were the severity of their acute illness and signs of physiological decline, such as changes in mental status, shortness of breath, weakness in the limbs, generalized edema, trauma-related injuries, ICU admission, and the need for life-sustaining treatments like intubation, vasopressors, and dialysis. Common chronic diseases like hypertension and diabetes mellitus did not independently predict death. These results suggest that short-term outcomes in the emergency department are mostly determined by the severity of presenting diseases rather than the preexisting chronic disease burden [11] [12].

Our findings are consistent with previous research conducted in corresponding low- and middle-income country (LMIC) contexts, where insufficient emergency and critical care resources lead to heightened death rates among older persons [13] [14]. Age and gender did not show a significant correlation with death in our group, aligning with prior studies indicating that clinical presentation and severity are more predictive of outcomes in elderly emergency department patients than demographic characteristics [15] [16]. ICU hospitalization and the necessity for extensive life-sustaining treatments were especially strong predictors, indicating the severity of underlying organ failure and the complexity of acute presentations [17] [18].

Analysis based on diagnosis showed that acute abdominal and lung infections, renal failure, and traumatic brain injury had the greatest death rates. On the other hand, fractures, anemia, gastroenteritis, and urological disorders had very low death rates. Likewise, surgical procedures, conducted in 20.5% of patients, did not exhibit a significant correlation with mortality, indicating that prompt surgery, when warranted, does not worsen outcomes in the older population [19]. Shorter hospital stays (1 - 7 days) were surprisingly linked to increased mortality, underscoring that early in-hospital deaths frequently stem from severe or rapidly progressive illnesses, a conclusion aligned with existing evidence on acute deterioration in older individuals [20] [21].

This study has major implications for clinical practice in Somalia and other resource-constrained environments. Early detection of high-risk presentations—especially altered mental status, respiratory distress, trauma, and organ failure—should prompt immediate evaluation and an escalation in care, encompassing early diagnostics, oxygen therapy, and timely referral to surgery or the ICU. The incorporation of validated risk-stratification instruments, such as early warning scores or frailty assessments, may further optimize triage efficiency and resource distribution in the emergency department [22] [23]. Furthermore, the high mortality rate associated with aggressive treatments underscores the importance of structured goals-of-care discussions and shared decision-making with patients and their families, particularly when ICU resources are limited.

5. Limitations

There are a few problems with this study. First, its retrospective, single-center design and reliance on medical records may have caused misclassification or information bias. For instance, there was no standardized way to measure frailty, and there was limited information about patients' functional status before they became ill, the medications they used, or their do-not-resuscitate (DNR) wishes. Secondly, we could not examine long-term outcomes other than in-hospital death, such as 30-day or 90-day mortality and loss of function. Thirdly, even though we performed both bivariate and multivariate analyses, there may still be residual confounding because we did not evaluate some variables, such as frailty, baseline functional level, severity of acute illness, and time to treatment. Fourth, systemic limitations on the number of critical care beds also affected the results. There are not many ICU beds available. Only four hospitals in the area have ICUs, and only one of them has 35 ICU beds. For older persons, the number of ICU admissions each month is usually between 5 and 10. Also, there are not enough skilled ICU doctors and nurses; only one hospital has professionals who are trained to work in critical care. Cultural and social variables also affect who is admitted to the ICU. Many families would rather not send their elderly relatives to the ICU and instead care for them at home. Lastly, our hospital is a tertiary referral center, which means it probably receives more severe cases than smaller or primary care hospitals do.

6. Conclusion

Finally, our study shows that the short-term mortality rate among older people who go to the emergency department in Somalia is mostly influenced by the severity of the acute illness and the amount of organ support needed, not by the number of chronic conditions present at the same time. For older people who do not have a lot of resources, targeted interventions such as quickly identifying high-risk cases, using detection and frailty resources, expanding the emergency department and intensive care unit, and planning discussions about goals of care may improve outcomes.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Rawal, L. (2022) Ageing Population and Health in Low- and Middle-Income Countries. *Thai Journal of Public Health*, **52**, 181-184.

[2] Rudnicka, E., Napierała, P., Podfigurna, A., Męczekalski, B., Smolarczyk, R. and Grymowicz, M. (2020) The World Health Organization (WHO) Approach to Healthy Ageing. *Maturitas*, **139**, 6-11. https://doi.org/10.1016/j.maturitas.2020.05.018

[3] World Health Organization (2015) World Report on Ageing and Health. World Health Organization.

[4] Mitsunaga, T., Hasegawa, I., Uzura, M., Okuno, K., Otani, K., Ohtaki, Y., *et al.* (2019) Comparison of the National Early Warning Score (NEWS) and the Modified Early Warning Score (MEWS) for Predicting Admission and In-Hospital Mortality in Elderly Patients in the Pre-Hospital Setting and in the Emergency Department. *PeerJ*, **7**, e6947. https://doi.org/10.7717/peerj.6947

[5] Gbeasor-Komlanvi, F.A., Tchankoni, M.K., Bakoubayi, A.W., Lokossou, M.Y., Sadio, A., Zida-Compaore, W.I.C., *et al.* (2020) Predictors of Three-Month Mortality among Hospitalized Older Adults in Togo. *BMC Geriatrics*, **20**, Article No. 507. https://doi.org/10.1186/s12877-020-01907-y

[6] Shewiyo, E.J., Njau, R., de Oliveira, N.N., Sumbai, F.G., O'Leary, P., Shayo, F., *et al.* (2025) The Older the Injured, the Worse the Outcomes: A Comparison of Injury Patterns and In-Hospital Outcomes between Younger and Older Adult Trauma Patients at a Tertiary Hospital in Northern Tanzania. *PLOS Global Public Health*, **5**, e0004547. https://doi.org/10.1371/journal.pgph.0004547

[7] Ibro, S.A., Kasim, A.Z., Seid, S.S., Abdusemed, K.A., Senbiro, I.A., Waga, S.S., *et al.* (2024) Mapping the Evidence on Integrated Service Delivery for Non-Communicable and Infectious Disease Comorbidity in Sub-Saharan Africa: Protocol for a Scoping Review. *BMJ Open*, **14**, e084740. https://doi.org/10.1136/bmjopen-2024-084740

[8] Manji, H.K., Sawe, H., Kilindimo, S., Premji, E.N., Yussuf, A.O., Simbila, A.N., *et al.* (2022) Clinical Profile and Mortality among Adult Patients Presenting with Altered Mental Status to the Emergency Departments of a Tertiary Hospital in Tanzania: A Descriptive Cohort Study. *Pan African Medical Journal*, **41**, Article 46. https://doi.org/10.11604/pamj.2022.41.46.31601

[9] Shin, Y., Cho, K.J., Chang, M., Youk, H., Kim, Y.J., Park, J.Y. and Yoo, D. (2024) The Development and Validation of a Novel Deep-Learning Algorithm to Predict In-Hos-

pital Cardiac Arrest in ED-ICU (Emergency Department-Based Intensive Care Units): A Single-Center Retrospective Cohort Study. *Signa Vitae*, **20**, 83-98.

[10] Asfaw, K.G., Adugna, A.G., Mekonen, N.M., Leulseged, T.W., Merahi, M.K., Kejela, S. and Moges, F.H. (2024) Incidence of Mortality and Predictors among Patients with Shock Managed in the Emergency Room of a Large Tertiary Referral Hospital in Ethiopia. medRxiv.

[11] Olsson, H., Karlson, B.W., Herlitz, J., Karlsson, T., Hellberg, J., Prytz, M., *et al.* (2022) Predictors of Short- and Long-Term Mortality in Critically Ill, Older Adults Admitted to the Emergency Department: An Observational Study. *BMC Emergency Medicine*, **22**, Article No. 15. https://doi.org/10.1186/s12873-022-00571-2

[12] Pulok, M.H., Theou, O., van der Valk, A.M. and Rockwood, K. (2020) The Role of Illness Acuity on the Association between Frailty and Mortality in Emergency Department Patients Referred to Internal Medicine. *Age and Ageing*, **49**, 1071-1079. https://doi.org/10.1093/ageing/afaa089

[13] Uslu, M.F., Yilmaz, M., Atescelik, M. and Atilgan, F.A. (2023) Effect of Comorbid Diseases on Hospitalization and In-Hospital Mortality of Elderly Patients Who Reapplied to the Emergency Department within 72 Hours. *Cureus*, **15**, e49558. https://doi.org/10.7759/cureus.49558

[14] Siniscalchi, C., Di Micco, P., Guerra, A., Nouvenne, A., Cerundolo, N., Parise, A., *et al.* (2025) Clinical and Geriatric Predictors of In-Hospital Mortality in Older Adults Admitted to Internal Medicine Wards: A Retrospective Observational Study. *Journal of Clinical Medicine*, **14**, Article 6726. https://doi.org/10.3390/jcm14196726

[15] Roa Santervas, L., Wyller, T.B., Skovlund, E., Kristoffersen, E.S. and Romskaug, R. (2025) Associations between Frailty, Illness Severity, and Long-Term Mortality among Older Adults Admitted to Municipal Acute Care. *Journal of the American Medical Directors Association*, **26**, Article ID: 105718. https://doi.org/10.1016/j.jamda.2025.105718

[16] Erwander, K., Ivarsson, K., Olsson, M.L. and Agvall, B. (2024) Elderly Patients with Non-Specific Complaints at the Emergency Department Have a High Risk for Admission and 30-Days Mortality. *BMC Geriatrics*, **24**, Article No. 5. https://doi.org/10.1186/s12877-023-04621-7

[17] Blomaard, L.C., Speksnijder, C., Lucke, J.A., de Gelder, J., Anten, S., Schuit, S.C.E., *et al.* (2020) Geriatric Screening, Triage Urgency, and 30-day Mortality in Older Emergency Department Patients. *Journal of the American Geriatrics Society*, **68**, 1755-1762. https://doi.org/10.1111/jgs.16427

[18] Lee, K., Min, H.S., Moon, J.Y., Lim, D., Kim, Y., Ko, E., *et al.* (2022) Patient and Hospital Characteristics Predict Prolonged Emergency Department Length of Stay and In-Hospital Mortality: A Nationwide Analysis in Korea. *BMC Emergency Medicine*, **22**, Article No. 183. https://doi.org/10.1186/s12873-022-00745-y

[19] Miksch, R.C., Talwar, S., Gassner, C., Böcker, W., Holzapfel, B.M. and Gilbert, F. (2024) The Geriatric Trauma Patient: Common Comorbidities Lead to Higher Mortality—The Single Center Experience of a German Level I University Trauma Center. *Emergency Care and Medicine*, **2**, Article 3. https://doi.org/10.3390/ecm2010003

[20] Elliott, A., Taub, N., Banerjee, J., Aijaz, F., Jones, W., Teece, L., *et al.* (2021) Does the Clinical Frailty Scale at Triage Predict Outcomes from Emergency Care for Older People? *Annals of Emergency Medicine*, **77**, 620-627. https://doi.org/10.1016/j.annemergmed.2020.09.006

[21] Taşar, P.T., Karaşahin, Ö., Karaman, E.U., Serin, B.N., Urvasızoğlu, T.B., Gür, S.T. and Sevinç, C. (2021) Factors Associated with Mortality in Geriatric Patients Present-

ing to the Emergency Department after Falls. *European Journal of Geriatrics and Gerontology*, **3**, 171-176.

[22] Wu, H., Jia, S., Liao, B., Ji, T., Huang, J., Luo, Y., *et al.* (2024) Establishment of a Mortality Risk Nomogram for Predicting In-Hospital Mortality of Sepsis: Cohort Study from a Chinese Single Center. *Frontiers in Medicine*, **11**, Article 1360197. https://doi.org/10.3389/fmed.2024.1360197

[23] Hassan, M.S., Sidow, N.O., Gökgül, A., Adam, B.A., Osman, M.F., Mohamed, H.H., Ibrahim, I.G. and Abdi, I.A. (2023) Pattern of Neurological Disorders among Patients Evaluated in the Emergency Department: A Cross-Sectional Study. *Archives of Academic Emergency Medicine*, **11**, e20.