AUTHOR QUERIES

AUTHOR PLEASE ANSWER ALL QUERIES

AQ1. As per style, the short title running head should contain a maximum of 40 characters (including spaces). Hence, please provide a new one of the above specifications.

AQ2. Please provide a post/zip code for the corresponding author.

AQ3. Please provide academic degrees (eg, MD, PhD, MSc, BSc) of the author 'Marwan N. Mohamed' in the corresponding author.

AQ4. Please provide the expansion of DECAF, BAP-65, CURB-65, qSOFA, and ROC.

AQ5. Please give manufacturer information for 'SPSS': company name, town, state (if USA), and country. (SPSS is the product name).

AQ6. Please provide the city/location of publisher for reference [6].

Prognostic scores for acute exacerbation of chronic obstructive pulmonary disease: which one performs best in the emergency department?

Marwan N. Mohamed, Maha M. El-kholy, Mohammed M. Saleh, Reham M. El-Morshedy

Department of Chest, Faculty of Medicine, Assiut University, Assiut, Egypt

Correspondence to Marwan N. Mohamed, Department of Chest Diseases, Faculty of Medicine, Assiut University, Egypt
Tel: +0 100 936 4307;
e-mail: faridamarwan2014@yahoo.com

Received: 26-Nov-2025
Revised: 09-Feb-2026
Accepted: 21-Feb-2026
Published: XX-XX-XXXX

The Egyptian Journal of Chest Diseases and Tuberculosis 2026, XX:XX–XX

Background
Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) is the main reason of hospital admission. Early diagnosis and prognostication of patients are important to guide clinicians in optimal decisions regarding the type and site of care. Different scores used to assess the severity of exacerbation and predict the outcome. This study aimed to assess the value of four scores (DECAF, BAP-65, CURB-65 and qSOFA) in predicting intensive care unit admission and in-hospital death in patients with AECOPD.

Patients and methods
This prospective cohort study was conducted on 150 patients presented to the emergency department of Assiut University Hospital with AECOPD. Clinical, laboratory, radiographic, and electrocardiographic data were collected to calculate the prognostic scores.

Results
The current study enrolled 150 patients. Sixty-nine patients out of them needed ICU and 81 were admitted to the medical ward. There was a statistically significant difference between survivors and nonsurvivors regarding having diabetes mellitus (*P* value 0.023), cerebrovascular diseases (*P*<0.001), dyspnea grade (*P* value 0.006), conscious level (*P*<0.001), respiratory rate (*P* value 0.005), oxygen saturation (*P* value 0.004) and blood urea nitrogen (*P* value 0.044). DECAF score was the most sensitive score in predicting mortality (100% sensitivity) with an area under the curve of 0.874 followed by qSOFA and CURB-65 with sensitivity 85% for both scores. BAP-65 had the highest sensitivity (92.8%) in predicting ICU admission with an area under the curve of 0.857 followed by DECAF and CURB-65 score with sensitivity 91.3 and 87%, respectively. Multivariate regression study revealed a statistically significant correlation between mortality and dyspnea grade V, unconsciousness, low systolic blood pressure, high respiratory rate, low serum albumin level, and high DECAF and CURB-65 scores.

Conclusion
DECAF score was the most reliable indicator of in-hospital death followed by CURB-65 and qSOFA scores in AECOPD patients presented in the emergency department. BAP-65 performed best in predicting ICU admission in patients with AECOPD, followed by DECAF and CURB-65 scores.

Keywords:
chronic obstructive pulmonary disease exacerbation, mortality, outcome, scores

Egypt J Chest Dis Tuberc 2026, XX:XX–XX

0422-7638

Introduction

Chronic obstructive pulmonary disease (COPD) continues to be a significant global public health concern. In 2019, COPD was the third most common cause of death worldwide, accounting for over 3.23 million deaths, or 6% of all deaths, according to the WHO [1]. The burden of COPD is particularly pronounced in low- and middle-income nations, where healthcare facilities and resources are frequently scarce [2].

Increased dyspnea and/or sputum that worsen in less than 14 days is known as an acute exacerbation of COPD (AECOPD). It may also be accompanied by tachypnea and/or tachycardia, and is frequently linked to increased local and systemic inflammation triggered by infection, pollution, or other insults to the airways [1]. Early identification and prognosis of patients with AECOPD have remained difficult

in clinical practice and a focus of study due to the variety of COPD and exacerbations, as well as the lack of recognition of these disorders. The predictive performance and practical validity of the several prognostic models that have been established for patients with AECOPD are still unknown, despite the fact that these models differ greatly in type, performance, and applicability [3].

Numerous prognostic scoring systems have been developed for AECOPD patients, including DECAF, BAP-65, CURB-65, and qSOFA. These scores have been developed to aid clinical decision-making and to identify the risk of death during hospitalization and the need for intensive care unit admission in patients with AECOPD, thereby helping triage them to the appropriate level of care [4]. The objective of this study was to evaluate the effectiveness of the four scores (DECAF, BAP-65, CURB-65, and qSOFA) in predicting ICU admission and in-hospital death in patients with AECOPD.

Patients and methods

This prospective cohort study was conducted on 150 patients above 18 years who presented to the emergency department of Assiut University Hospital with AECOPD from 20th of April 20, 2022 to May 10, 2024. Patients who did not fit the diagnostic criteria of AECOPD, patients presented with acute insult affecting another system, and patients who required immediate cardiopulmonary resuscitation were eliminated from the study. The enrolled patients were assessed at the time of presentation by different scores and followed up during hospital stay for the need of ICU admission and in-hospital mortality.

Sample size calculation:Sample was calculated using epi program according to the incidence of patients with AECOPD presented to the emergency department. The sample size will be 150 at 95% confidence level and 5% confidence limit.

All patients had to follow the following: Full medical background including sociodemographic data, comorbidities, and clinical presentation, including dyspnea grade assessed according to the extended Medical Research Council Dyspnoea scale (eMRCD); the patients were categorized into the following grades;

(a) Grade 1: Breathless only with strenuous exercise,
(b) Grade 2: Breathless when hurrying on the level or walking up a slight hill,
(c) Grade3: Walks slower than peers, or stops when walking on the flat at own pace,
(d) Grade 4: Stops after walking 100 m, or for a few minutes, on the level,
(e) Grade 5: Too breathless to leave the house,
(f) Grade5a: independent in washing and/or dressing and
(g) Grade 5b: dependent in washing and dressing [5].

Detailed clinical examination, including vital signs and assessment of conscious level using AVPU scale. The AVPU scale is a rapid assessment tool used by first responder and medical professionals to determine a patient's level of consciousness, commonly in emergency situations. It classifies responsiveness into four levels: Alert (awake), Verbal (responds to voice), Pain (responds to pain), or Unresponsive [6].

Full laboratory investigations were recorded including: complete blood picture, kidney and liver function, serum electrolytes, and coagulation profile, Arterial blood gases, ECG, and HRCT were also performed.

All patients were assessed by the following scores: BAP-65 scoring system parameters included blood urea nitrogen, altered mentality, pulse rate, and age [7]. DECAF scoring system, which is composed of dyspnea grade, esinopenia, consolidation in CT-chest, acidaemia in ABG, and atrial fibrillation [8]. The CURB-65 score which assessed conscious level, blood urea nitrogen, respiratory rate, blood pressure and age [8]. qSOFA was calculated by giving 1 point for each variable of respiratory rate greater than or equal to 22, systolic blood pressure less than or equal to 100, and altered mental status. A score of equal to or more than two indicates more severity with increased risk of ICU admission and mortality [9]. All four scores were calculated at the time of presentation to the emergency department, using information gathered from the initial clinical assessment, laboratory investigations, chest radiography, and ECG findings at admission.

The scientific ethics committee of Assiut University's Faculty of Medicine accepted this work. (IRB number:4-2023-200179). Informed consent was taken from patients or their relative to examine the patients and deal with their data with maintaining patients' privacy.

Statistical analysis

SPSS (Statistical Package for the Social Sciences) version 28 was used to analyze the data. Absolute frequencies were used to characterize categorical variables. Depending on the type of data, quantitative variables were reported using their means and SD or their median and interquartile range. The Independent sample *t*-test (for normally distributed

data) and Mann–Whitney test (for non-normally distributed data) were used to compare quantitative data between two groups. The optimal cutoff value for a particular quantitative parameter in evaluating the severity of AECOPD was found using the ROC curve. To find independent risk factors linked to the severity of AECOPD, binary logistic regression was employed. *P* less than 0.05 was chosen as the threshold for statistical significance. If *P* less than or equal to 0.001, there was a highly significant difference.

Results

The mean age was 66.4 years old, most of the patients included were males (68%) and were smokers (63.3%), but without a statistically significant difference. Regarding comorbidity, hypertension was the most encountered comorbidity 49.3%, followed by diabetes mellitus 28.7% and ischemic heart diseases 21%. There was only statistical significant difference between nonsurvivors and survivors in frequency of cerebrovascular diseases and diabetes mellitus as shown in Table 1.

ABG parameters and laboratory investigations of the studied patients. Dyspnea grade 5 was found in 85% of nonsurvivors compared with 55.4% of survivors with a significant difference between the two groups.

Table 1 Baseline demographic data, comorbidities and severity grade of AECOPD

	Total	Nonsurvivors *n*=20 (%)	Survivors *n*=130 (%)	*P*
	Mean±SD	Mean±SD	Mean±SD	
Age (year)	66.4±9.29	69.8±7.79	65.88±9.42	0.079
Sex				
Male	102 (68)	13 (12.7)	89 (87.3)	0.757
Female	48 (32)	7 (14.6)	41 (85.4)	
Smoking				
Non-smokers	55 (36.7)	9 (16.4)	46 (83.6)	0.406
Smokers	95 (63.3)	11 (11.6)	84 (88.4)	
Comorbidities				
Diabetes	43 (28.7)	10 (23.3)	33 (76.9)	0.023*
Hypertension	74 (49.3)	10 (13.5)	64 (86.5)	0.949
IHD	21 (14)	4 (19)	17 (81)	0.486
CVD	9 (6)	6 (66.7)	3 (33.3)	<0.001**
Hepatic disease	6 (4)	1 (16.7)	5 (83.3)	0.583
Renal disease	5 (3.3)	1 (20)	4 (80)	0.516
Severity grades				
Mild	18 (12)	0	18 (100)	
Moderate	70 (46.7)	0	70 (100)	0.001**
Severe	62 (41.3)	20 (32.3)	42 (67.7)	

*P less than 0.05 is statistically significant **P less than or equal to 0.001 is statistically highly significant.
CVD; cerebrovascular disease; IHD, ischemic heart disease.

Regarding the conscious level, not alert was found in 95% of nonsurvivors and 29.2% of survivors with a statistically significant difference. As for the vital signs, nonsurvivors had lower blood pressure and oxygen saturation and higher respiratory rate compared with survivors' group with statistically significant difference with *P* values of 0.001, 0.004, and 0.005, respectively. Regarding laboratory data, nonsurvivors group had higher blood urea nitrogen and lower albumin levels compared with the survivors, with statistically significant difference with *P* values of 0.044 and 0.034, respectively, as shown in Table 2.

The association of different scoring systems and their components with mortality in AECOPD patients is shown in Table 3. According to BAP-65 score, significant number of nonsurvivors group were not alert and had pulse rate greater than or equal to 109 (bpm). Regarding the DECAF score, all nonsurvivors had a higher grade of dyspnea, consolidation, acidemia and atrial fibrillation compared with the survivors, with

Table 2 Clinical characteristics. ABG parameters and laboratory investigations of the studied patients

	Nonsurvivors *n*=20 (%)	**Survivors *n*=130 (%)**	***P* value**
Dyspnea			
Grade 4	3 (15)	58 (44.6)	0.006*
Grade 5	17 (85)	72(55.4)	
Conscious level			
Alert not alert	1 (5)	92 (70.8)	<0.001**
	19 (95)	38 (29.2)	
	Mean±SD	Mean±SD	
Systolic blood pressure (mmHg)	101.0±27.7	120.69±24.09	0.001**
Diastolic blood pressure (mmHg)	63.5±19.54	74.23±12.32	0.026*
Respiratory Rate (cycle/min)	28.57±4.14	26.66±2.28	0.005*
Oxygen saturation (%)	64.15±11.02	73.82±14.34	0.004*
PH	7.24±0.07	7.37±0.1	<0.001**
$PaCO_2$(mmHg)	78.95±23.68	60.47±16.19	<0.001**
PaO_2(mmHg)	38.8±10.82	44.67±10.43	0.021*
HCO_3(mEq/l)	30.5±7.5	33.38±6.27	0.115
WBCs(10*3/ul)	13.23±4.33	10.84±5.4	0.061
Hemoglobin (g/dl)	13.01±1.67	13.02±2.39	0.992
Platelet count (10*3/ul)	226.95±61.66	244.48±97.76	0.287
Albumin (g/l)	28.87±5.9	32.03±6.22	0.034*
	Median(IQR)	Median (IQR)	*P* value
AST (U/l)	42 (27.5–88.5)	26 (18–45)	0.004*
ALT (U/l)	49.5 (26.2-54.5)	26.5 (18–54.25)	0.015*
Total bilirubin (umol/l)	7.85 (6.8- 11.23)	8.1 (5.7–12)	0.925
BUN (mmol/l)	12.5 (7–21.43)	9.1 (6–13.75)	0.044*

*P less than 0.05 is statistically significant, **P less than or equal to 0.001 is statistically highly significant WBCs: white blood cells ALT: alanine transaminase AST: aspartate transaminase BUN: blood urea nitrogen.

a statistically significant difference (P<0.001). CURB-65 showed that, there was a statistically significant difference between nonsurvivors and survivors regarding confusion and respiratory rate greater than or equal to 30 (cycle/min.). Regarding qSOFA score, systolic blood pressure less than or equal to 100 mmHg was found in 30 and 11.5% of nonsurvivors and survivors, respectively. As for the conscious level, 90% of nonsurvivors were not alert compared with only 30% of survivors with a statistically significant difference.

Table 3 Association of different scoring systems and their components with mortality in AECOPD patients

Score	Nonsurvivors n=20 (%)	Survivors n=130 (%)	P value
BAP-65			
BUN≥25(mg/dl)	13 (65)	72 (55.4)	0.419
Not alert	18 (90)	38 (29.2)	<0.001**
Pulse≥109(bpm)	16 (80)	51 (39.2)	<0.001**
Age≥65 years	14 (70)	74 (56.9)	0.269
DECAF			
Dyspnea			
Grade 4	3 (15)	58 (44.6)	0.013*
Grade 5a	10 (50)	51 (39.2)	
Grade 5b	7 (35)	21 (16.2)	
Esinopenia	13 (65)	77 (59.2)	0.624
(<0.05×10*9/l)			
Consolidation	17 (85)	48 (36.9)	<0.001**
Acidemia<7.30	16 (80)	27 (20.8)	<0.001**
AF	7 (35)	10 (7.7)	<0.001**
CURB-65			
Confusion	18 (90)	38 (29.2)	<0.001**
BUN>7(mmol/l)	16 (80)	87 (66.9)	0.241
RR≥30 (cycle/min.)	8 (40)	16 (12.3)	0.002*
BP<90/60 (mmHg)	4 (20)	10 (7.7)	0.095
Age≥65 years	14 (70)	74 (56.9)	0.369
Qsofa			
Systolic Blood pressure	6 (30)	15 (11.5)	0.027*
<100 (mmHg)			
RR>25(cycle/min.)	17 (85)	103 (79.2)	0.548
Not alert	18 (90)	39 (30)	<0.001**

*P less than 0.05 is statistically significant, **P less than or equal to 0.001 is statistically highly significant.
AF, Atrial fibrillation; BP, Blood pressure; BUN, blood urea nitrogen; RR, Respiratory rate

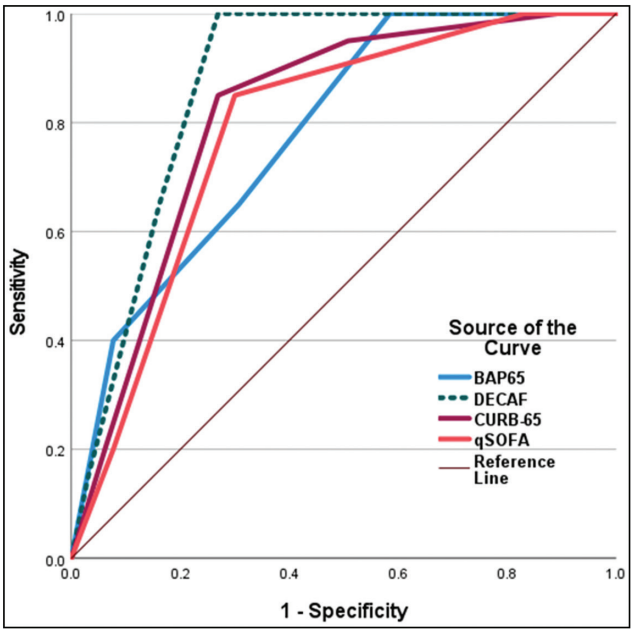
Performances of studied scores in prediction of mortality are shown in Table 4 and, Fig. 1. DECAF score was the most sensitive score in predicting mortality (100% sensitivity)

with an area under the curve (AUC) of 0.874, followed by CURB-65 and qSOFA, with a sensitivity of 85% for both scores.

Regarding ICU admission, BAP-65 had the highest sensitivity (92.8%) with an AUC of 0.857 followed by DECAF and CURB-65 scores with sensitivity 91.3 and 87%, respectively, as shown in Table 5 and Fig. 2.

Multivariate regression analysis showing the performance of individual variables in association with in-hospital mortality is shown in Table 6; dyspnea grade, breathing rate, systolic blood pressure, unconsciousness, serum albumin and high grade of DECAF and CURB-65 scores -with cutoff value greater than or equal to 2.5- were good predictors of in-hospital death with P less than 0.05.

Figure 1



ROC curve showing performance of studied scores in prediction of mortality.

Table 4 Performance of studied scores in prediction of mortality

Scores	Cutoff	AUC	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	P value
BAP-65	≥2.5	0.782	65	69.2	24.5	92.8	68.7	<0.001**
DECAF	≥2.5	0.874	100	73.1	36.4	100	76.7	<0.001**
CURB-65	≥2.5	0.813	85	73.1	32.8	73.1	74.7	<0.001**
Qsofa	≥1.5	0.785	85	70	30.4	96.8	72	<0.001**

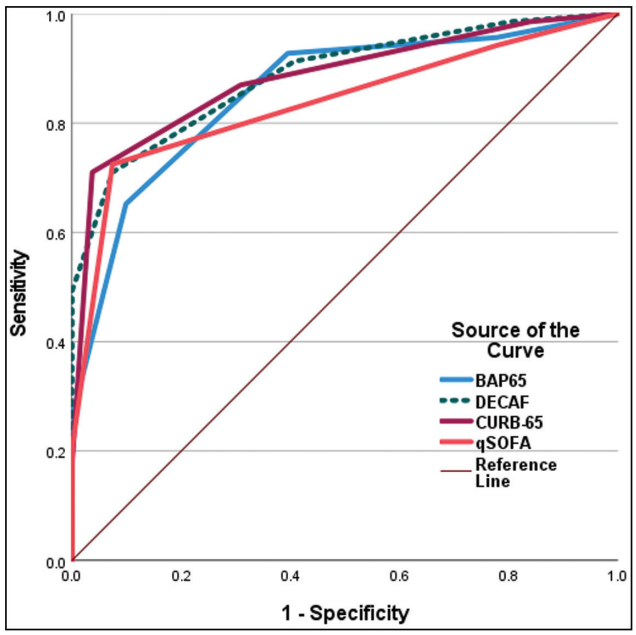
AUC, area under curve; PPV, positive predictive value; NPV, negative predictive value. *P less than 0.05 is statistically significant **P less than or equal to 0.001 is statistically highly significant.

Table 5 Performance of studied scores in prediction of ICU admission

Scores	Cutoff	AUC	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	*P*
BAP-65	≥1.5	0.857	92.8	60.5	66.7	90.7	75.3	<0.001**
DECAF	≥1.5	0.886	91.3	59.3	65.6	88.9	74	<0.001**
CURB-65	≥1.5	0.883	87	69.1	70.6	86.2	77.3	<0.001**
Qsofa	≥1.5	0.837	72.5	92.6	89.3	79.8	83.3	<0.001**

AUC, area under curve; PPV, positive predictive value; NPV, negative predictive value.
*P less than 0.05 is statistically significant **P less than or equal to 0.001 is statistically highly significant.

Figure 2



ROC curve showing performance of studied scores in prediction of ICU admission.

Table 6 Multivariate regression analysis of factors associated with mortality

	B	*P*	AOR	95% C.I.	
				Lower	Upper
Dyspnea (grade 5)	3.463	0.026*	31.908	1.503	677.285
Unconscious	4.813	0.003*	123.143	5.301	2860.626
Systolic BP (mmHg)	−0.082	0.001**	0.921	0.877	0.967
RR (cycle/min)	0.479	0.002*	1.615	1.188	2.195
AST (u/l)	0.008	0.086	1.008	0.999	1.017
Albumin(g/l)	−0.225	0.008*	0.799	0.676	0.944
CURB-65 ≥2.5	−1.917	0.020*	0.147	0.029	0.738
DECAF ≥2.5	2.071	0.001**	7.935	2.382	26.434

AOR, adjusted odds ratio; CI, confidence interval *P less than 0.05 is statistically significant **P less than or equal to 0.001 is statistically highly significant.
AST, aspartate transaminase; BP, blood pressure; RR, respiratory rate.

Discussion

Every year in the United States, between 0.6 and 1.5 million ED visits are caused by AECOPD, and scores used in prediction of outcome help in guiding decision-making in patient management [10].

In this study, regarding sociodemographic data, the mean age of studied patients was

66.4 ± 9.29 years, most of them were males 68%(*n*=102) and smokers 63% (*n*=95) with no statistically significant difference regarding age, sex, and smoking history between survivors and nonsurvivors; these finding are mostly due to prevalence of smoking in our society, especially among males and its association with the development of COPD. Singh *et al.* reported similar results regarding sociodemographic data where the mean age was 65.3 ± 12.4 years, and 65% (*n*=130) were males. Half of the patients (50%, *n*=100) were smokers [11]. On the other hand, Williams and colleagues conducted a study about smoking and socioeconomic factors linked to acute exacerbations of COPD which was different from this study. The majority of sample population were females (64.4%), mean age was 66.2 (8.9) years, and smokers were only 19.2% [12].

As regard comorbid diseases, there was a statistically significant relation between in-hospital mortality and comorbid diabetes (50% of nonsurvivors were diabetic compared with 33% in survivors) and frequency of CVD(30% of nonsurvivors had history of CVD compared with 3% in survivors). This was in line with the results reported by Krishnan *et al.* showing that COPD patients with diabetes (40.8%) experienced increased risk of severe exacerbations (odds ratio OR=1.119) [13]. However, Zidan and colleagues conducted a study showing that, the most frequent morbidities associated with COPD patients were; hypertension (32%), diabetes (17%) and ischemic heart disease (12%). Hypertension(*P*=0.040), diabetes (*P*=0.043), and ischemic heart diseases (*P*=0.011*) were the most significant comorbidities linked to in-hospital mortality in patients with AECOPD [14].

Regarding clinical characteristics, this study found a statistically significant difference in the degree of dyspnea between survivors and nonsurvivors. Dyspnea grade 5 was present in 85% of nonsurvivors and 55.4% of survivors out of 150 patients in the study, highlighting the fact that the dyspnea grade indicates the severity of the underlying pathology of COPD.

This was consistent with a research by Steer *et al.* that found that 34.2% of patients had eMRCD dyspnea grade 5 [5], and that the severity of dyspnea predicts the clinical outcomes in patients hospitalized with AECOPD. This study contradicts a study by Sangwan *et al.* that used the eMRCD score to assess all patients' dyspnea. Nine of the fifty AECOPD patients in the study passed away. The eMRCD score of 5 was present in all nonsurvivors and in 25 (60.9%) of the survivors. This might be because this study had a higher sample size [15].

According to the ROC curve illustrating the performance of the studied scores in predicting in-hospital mortality, the BAP-65 score was the least sensitive in this study, with a sensitivity of 65%. This is primarily because the score excludes some crucial factors linked to mortality, such as acidemia and dyspnea grade. This was consistent with a research by Germini *et al.* that found the sensitivity of BAP-65 scoregreater than or equal to 4 to predict in-hospital mortality was 44%, indicating that the BAP-65 score lacked adequate accuracy to stratify patients based on their risk of in-hospital mortality [16]. In contrast, a research by Sangwan *et al.* discovered that BAP-65 had a 100% sensitivity for predicting mortality [15].

In the present study, DECAF score has high sensitivity in predicting in-hospital mortality and ICU admission according to ROC curve (100 and 91.3%, respectively) with AUC of 0.874 and 0.886, respectively. This may be due to high clinical significance of the included parameters in DECAF score. Sangwan *et al.* concurred with this study, which demonstrated that the DECAF score has a 100% sensitivity for predicting in-hospital mortality [15]. However, a study by Candemir Ergene *et al.* showed that the DECAF score had a moderate prognostic value in predicting ICU admission and mortality among AECOPD patients, with a negative predictive value of 90.6% and an AUC of 0.758 [17].

Lolah *et al.* agreed with this study that DECAF and BAP-65 scores had a good prediction of in-hospital mortality, with 100% sensitivity for both, whereas the specificity was 87% for DECAF score and 91% BAP-65 score. The accuracy in mortality prediction for DECAF and BAP-65 scores was 88 and 92%, respectively [18].

Regarding CURB-65 score in this study, it had good sensitivity in predicting in-hospital mortality and ICU admission (85% and 87%, respectively). Ahmed *et al.* reported a study of CURB-65 sensitivity for prediction of in-hospital death in patients with AECOPD showing slightly lower sensitivity values (64.71%) of the score in predicting in- hospital death. Out of 34 patients who died during the hospital stay, 12 (35.3%) were low- risk and 22 (64.7%) were high-risk, which may be explained by lower mortality rate in the present study (13.3% compared with 29.8% in their study) [19].

Regarding qSOFA in the present study, it had high sensitivity in predicting in-hospital mortality (85%) but less sensitive in predicting ICU admission (72.5%). İlhan *et al.* conducted a study about the predictive value of modified risk scores in patients with AECOPD showing different results stating that, Overall, the qSOFA score performed moderately to well in predicting MV requirement and ICU admission, but poorly in predicting death [20].

In this study, a multivariate regression analysis showed that the performance of individual variables in association with in-hospital mortality; dyspnea grade, respiratory rate, systolic blood pressure, alertness, albumin level, and high grade of DECAF and CURB-65 scores -with cutoff value greater than or equal to 2.5- were good predictors of in-hospital death with *P* value less than 0.05. On the other hand, according to İlhan *et al.*, a multivariate analysis revealed that among AECOPD patients, ICU admission, age, and creatinine levels were the predictors of mortality ($P<0.05$) [20].

A logistic regression analysis was conducted by Singh *et al.* for clinical parameters which estimate in-hospital death and the need for mechanical ventilation in patients with AECOPD showed that, dyspnea grade, acidemia, consolidation, altered mental status, esinopenia, blood urea nitrogen, heart rate were strong clinical predictors of mortality with an OR more than 1 and a *P* value less than 0.05 [11].

The current study's limitations were being a single-center study and having a small sample size, which may have decreased the precision of the findings. Long-term monitoring is also necessary to boost the precision and enhance the performance of the examined scores.

Conclusion

DECAF score was the most reliable score for predicting in-hospital mortality followed by CURB-65 and qSOFA scores in AECOPD patients presented in the emergency department. For predicting ICU admission in AECOPD patients, BAP-65 showed the best performance followed by DECAF and CURB-65 scores.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Venkatesan P. GOLD COPD report: 2024 update. Lancet Respir Med 2024; 12:15–6.
2. Alqarni AA, Badr OI, Aldhahir AM, Alqahtani JS, Siraj RA, Naser AY, *et al*. Obesity Prevalence and Association with Spirometry Profiles, ICU Admission, and Comorbidities Among Patients with COPD: Retrospective Study in Two Tertiary Centres in Saudi Arabia. Int J Chron Obstruct Pulmon Dis 2024; 19:111–20.
3. Xu Z, Li F, Xin Y, Wang Y, Wang Y. Prognostic risk prediction model for patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD): a systematic review and meta- analysis. Respir Res 2024; 25:410.
4. Memon MA, Faryal S, Brohi N, Kumar B. Role of the DECAF Score in Predicting In-hospital Mortality in Acute Exacerbation of Chronic Obstructive Pulmonary Disease. Cureus 2019; 11:e4826.
5. Steer J, Norman EM, Afolabi OA, Gibson GJ, Bourke SC. Dyspnoea severity and pneumonia as predictors of in-hospital mortality and early readmission in acute exacerbations of COPD. Thorax 2012; 67:117–21.
6. Romanelli D, Farrell MW. AVPU Scale. StatPearls. Treasure Island (FL) ineligible companies. Disclosure: Mitchell Farrell declares no relevant financial relationships with ineligible companies: StatPearls Publishing Copyright © 2025. ■: StatPearls Publishing LLC; 2025.
7. Shorr AF, Sun X, Johannes RS, Yaitanes A, Tabak YP. Validation of a novel risk score for severity of illness in acute exacerbations of COPD. Chest 2011; 140:1177–83.
8. Allena N, Khanal S, Jog A, Duran MJ, Paulino S, Bojja S, *et al*. Decoding the Chronic Obstructive Pulmonary Disease (COPD) Puzzle: Investigating the Significance of Exacerbation Scores in Triage Decision-Making. Cureus 2023; 15:e41975.
9. Shahsavarinia K, Moharramzadeh P, Arvanagi RJ, Mahmoodpoor A. qSOFA score for prediction of sepsis outcome in emergency department. Pak J Med Sci 2020; 36:668–72.
10. Liew CQ, Hsu SH, Ko CH, Chou EH, Herrala J, Lu TC, *et al*. Acute exacerbation of chronic obstructive pulmonary disease in United States emergency departments, 2010-2018. BMC Pulm Med 2023; 23:217.
11. Singh S, Dev A, Kumar A, Kumar S, Sinha S, Kumar Nayan S. Comparative Analysis of Prognostic Scores for Predicting Mortality and the Need for Mechanical Ventilation in Patients With Acute Exacerbation of Chronic Obstructive Pulmonary Disease Presenting to the Emergency Department. Cureus 2025; 17:e82374.
12. Williams PJ, Cumella A, Philip KEJ, Laverty AA, Hopkinson NS. Smoking and socioeconomic factors linked to acute exacerbations of COPD: analysis from an Asthma + Lung UK survey. BMJ Open Respir Res 2022; 9.
13. Krishnan JK, Martinez FJ, Altman P, Bilano VLF, Khokhlovich E, Przybysz R, *et al*. Multimorbidities in COPD are Associated With Increased Exacerbations and Health Care Resource Utilization in Real-World Patients from a U.S. Database. Chronic Obstr Pulm Dis 2024; 11:472–81.
14. Zidan MH, Gharraf HS, Wahdan BE. A comparative study of DECAF score and modified DECAF score in predicting hospital mortality rates in acute exacerbation of chronic obstructive pulmonary disease. Egypt J Chest Dis Tuberculosis 2020; 69:3.
15. Sangwan V, Chaudhry D, Malik R. Dyspnea, Eosinopenia, Consolidation, Acidemia and Atrial Fibrillation Score and BAP-65 Score, Tools for Prediction of Mortality in Acute Exacerbations of Chronic Obstructive Pulmonary Disease: A Comparative Pilot Study. Indian J Crit Care Med 2017; 21:671–7.
16. Germini F, Veronese G, Marcucci M, Coen D, Ardemagni D, Montano N, *et al*. Validation of the BAP-65 score for prediction of in-hospital death or use of mechanical ventilation in patients presenting to the emergency department with an acute exacerbation of COPD: a retrospective multi-center study from the Italian Society of Emergency Medicine (SIMEU). Eur J Intern Med 2019; 61:62–8.
17. Candemir Ergene G, Doğan NÖ, Ergül T, Özturan İU, Pekdemir M, Yaka E, *et al*. Evaluating the prognostic value of DECAF score and procalcitonin in patients with COPD exacerbation. Am J Emerg Med 2025; 90:23–30.
18. Lolah MA, El-Habashy MM, Gadallah MT. Comparative study between BAP65 score and DECAF score in assessment of acute exacerbation of chronic obstructive pulmonary disease. Egypt J Chest Dis Tuberculosis 2022; 71:242–7.
19. Ahmed N, Jawad N, Jafri S, Raja W. DECAF versus CURB-65 to Foresee Mortality among Patients Presenting with an Acute Exacerbation of Chronic Obstructive Pulmonary Disease. Cureus 2020; 12:e6613.
20. İlhan B, Bozdereli Berikol G, Doğan H. The predictive value of modified risk scores in patients with acute exacerbation of COPD: a retrospective cohort study. Intern Emerg Med 2022; 17:2119–27.