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Diagnostic Merits of R-Baux and P-Baux Scores in Anticipating Burn Consequences in Children

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ABSTRACT

Background and Objective: Providing timely and high-quality health services for pediatric burn cases is vital in reducing the death probability. The aim of this study was to demonstrate the value of P-Baux and R-Baux indexes in anticipating burn-related consequences among children.

Methods: The present cross-sectional investigation was carried out in 2018 at a burn referral center located in Tabriz. Through the census method, all children <12 years old who were admitted to the hospital with burn symptoms during the sampling period were included in the study. Data collection was carried out through a researcher-developed questionnaire. R-Baux and P-Baux scores were computed based on the patient's records. Data were analyzed using SPSS17 through multivariate logistic regression with a significance level of 0.05.

Findings: A total of 213 children were included in the study. In terms of mortality, the area under curve (AUC) of the R-Baux and P-Baux scores was similar (0.959). Moreover, the AUC of the outcomes for intensive care unit (ICU) admission and need for intubation was 99%. Logistic regression revealed a significant correlation between the need for intubation and death with both P-Baux and R-Baux scores ($p<0.05$). Admission to the ICU was only significantly related to the P-Baux score ($p=0.022$).

Conclusion: Utilizing P-Baux and R-Baux scores not only anticipates the death rate but also allows health service providers to prioritize patients and prepare proper facilities to prevent pediatric burn-related mortalities.

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Introduction

With approximately 180000 deaths annually, predominantly in Low- and Middle-Income Countries (LMICs), burns represent a significant avoidable public health issue impacting health at multiple social levels [1, 2]. Notably, in high-income countries with advanced care facilities, the burn-related mortality rate remains substantial (10-20%) [3]. In Iran, burn injuries account for 18% of pediatric deaths, making them the second leading cause of pediatric mortality [4]. Over recent decades, the post-burn survival rate has been significantly elevated [5, 6]. Furthermore, predictive models for mortality risk have been developed [7-10]. Among these, the Baux score possesses strong validity in predicting burn outcomes [10]. This aids healthcare providers in efficiently managing care protocols [11].

Children are particularly vulnerable to burn injuries. Pediatric mortality rates in LMICs are reported to be seven times higher compared to advanced counterparts [2, 5, 12]. Therefore, the establishment of prompt and effective services to prevent burn-related mortality is imperative. Former studies proposed the R-Baux score, which forecasts burn-related mortality [13, 14]. The R-Baux score incorporates age, respiratory system injury, and Total Body Surface Area (TBSA) to predict outcomes. A study by Karimi et al. (2013), demonstrated R-Baux and P-Baux scores of 55 and 73, respectively, correlating with a 95% mortality probability. Moreover, negative prognostic values for TBSA and inhalation while a positive prognostic value for age in terms of mortality outcome in patients <15 years of age was illustrated [6]. Edgar et al. (2023) in a systematic review, concluded that the revised Baux score is an easy and quick tool to estimate the death risk of burn patients [15]. Despite the widespread use of R-Baux, the application and sensitivity of P-Baux in anticipating burn-related consequences in children have not been documented properly. To provide timely and high-quality care for pediatric burn patients, it is crucial to have precise, accurate, and reliable indices determining the disease pathway. This will inform care providers of the subsequent treatment decisions, equipment, and procedures that should be prepared [16, 17]. This study aims to evaluate the predictive values of R-Baux and P-Baux in anticipating burn-related consequences among children that entailing intubation, intensive care unit (ICU) need and mortality.

Methods

Design and sample

This cross-sectional study was carried out in the university-affiliated Sina Hospital in the city of Tabriz (2018), a referral center for burn cases in northwestern Iran, with 280 active beds. Sampling was done through the census method, including all admitted children during the study period (6 months from March 20 to September 21, 2018).

Inclusion criteria were age <12 years old, admission to the burn unit, and parental consent to participate. Incomplete medical records served as exclusion criteria. Informed consents were obtained from parents for each data collection.

Data collection

Required data, including burn depth, total body surface area (TBSA), length of hospital stay (LOHS), cause of burn, background of burn and other disease, the anatomic site of burned area, and burn consequences including ICU admission, need for intubation, and death, were recorded through a researcher-developed questionnaire. Burn depth was determined as first-degree (superficial burn), second-degree (partial thickness burns), and third-degree (full-thickness burns)[17].

TBSA was calculated using the role of Nines for Children (Ages 1-14 years) which is a well-known valid and reliable method [18, 19]. Subsequently, the Baux scores were computed for all cases. Both the TBSA as well as the Baux measures were used as screening tools. R-Baux and P-Baux were utilized for adult and children's cases, respectively. These scores were calculated by the researchers using the gathered data through the following formulas:

P-Baux score= TBSA - age + (18×R)

R-Baux score = TBSA + age + (17×R)

R=1(in case of inhalation injury) R=0(in the absence of inhalation injury)

Where; R= Respiratory burn; TBSA= Total Body Surface Area

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The diagnostic values of the Baux were determined utilizing the ROC curve and the Area Under Curve (AUC), respectively. The best cut point was determined through best sensitivity. Death was defined as the primary outcome, and ICU admission and intubation needs were the secondary outcomes.

Analysis

Descriptive analysis (mean, frequency) and inferential data analysis (sensitivity and specificity, Chi-square, positive/negative likelihood ratios, and positive/negative predictive values) were used in the study. Furthermore, to investigate the relation of R-Baux and P-Baux scores with each of the outcomes, multivariate logistic regression was employed. Death, ICU admission, and intubation need were considered as dependent variables, and R-Baux and P-Baux scores, burn causes, age, sex, and burn degree were predictors. First, univariate logistic regression was conducted for each outcome, and variables with a p-value ≤0.2 were included in multivariable regression utilizing the ENTER model [20]. Alpha level=0.05 was used to determine the significance of effect estimates. Co-linearity error among TBSA and Baux scores was analyzed through the variance inflation factor parameter.

Results

A total of 213 pediatric burn cases were analyzed, with the majority being male (n=127 (59.60%)) and preschool age (n=178 (83.60%). Most hospitalization cases were from urban areas (69.50%), with a significant proportion of incidents occurring at home (90%). The main causes were boiling water (n=127; 59.5%), fire (n=23; 10.8%), and hot tea (n=20; 9.4%). Regarding the severity of burns, 137 cases (64.3%) were classified as 2nd and 3rd degree burns. In 148 (69.5%) cases, the lower limbs were affected. As for pre-existing health conditions, only 24 (11.3%) cases were found, and 8 (3.08%) cases used the medications. Only one case had a history of burns. Regarding respiratory burns, 6 (2.80%) cases were found.

Burn percentage in 161 (75.60%) cases was <16.5%. Most cases (88.70%) were hospitalized in the burn unit, while 24 cases (11.30%) were admitted to the ICU, with 13 fatalities. Approximately 10% of ICU cases were intubated, all of whom subsequently died. Table 1 represents data on the area under the curve (AUC), optimal cut-off points, specificity, and sensitivity of P-Baux and R-Baux scores concerning outcomes. There was no co-linearity error between TBSA and Baux scores (VIF=1).

Table 2 indicates that a one-unit increase in R-Baux score is associated with a 33% enhancement in mortality risk. Furthermore, logistic regression revealed a significant correlation between the need for intubation and mortality with both P-Baux and R-Baux scores ($p<0.05$). ICU admission showed a significant association with the P-Baux score only ($p=0.022$).

P-Baux and R-Baux scores >60 and 70 were associated with a mean probability of 0.90, with a higher score correlating with a higher outcome probabilities. An R-Baux score >50 and a P-Baux score > 40 were associated with a mean probability of 0.90 for ICU admission (Table 4). Furthermore, P-Baux and R-Baux scores >50 indicated a calculated mean probability of death greater than 0.90.

Table 1. Area Under Curve Information Related to the burn consequences in child

Outcome	Reference Score	Area Under Curve	Best Cut Point	Sensitivity (%)	Specificity (%)
Admission to the ICU	P.Baux	0.98 (0.96-0.99)	13.16	96 (89-100)	85 (80-90)
	R.Baux	0.96 (0.93-0.99)	17.62	96 (89-100)	80 (74-86)
	TBSA	0.96 (0.92-0.99)	17.5	92 (82-100)	90 (86-96)
Need for intubation	P.Baux	0.98 (0.97-0.99)	17.12	100 (89-100)	74 (68-80)
	R.Baux	0.98 (0.96-0.99)	13.16	100 (89-100)	80 (75-85)
	TBSA	096 (0.96-0.98)	23.5	90 (55-100)	90 (86-94)
Death	P.Baux	0.99 (0.98-0.998)	12.75	100 (82-100)	80 (75-85)
	R.Baux	0.99 (0.97-0.998)	19.04	100 (82-100)	79 (74-84)
	TBSA	0.99 (0.987-0.999)	37.25	85 (66-100)	70 (64-76)

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Table 2. Univariate logistic regression analysis results

Variables		B	S.E.	Sig.	Exp (B)	95% C.I. for EXP(B)	
						Lower	Upper
Intubation need	R.Baux	0.149	0.035	0.000	1.161	1.084	1.243
	P_Baux	0.096	0.022	0.000	1.101	1.055	1.148
	TBSA	0.140	0.030	0.000	1.150	1.084	1.220
	Burn cause			0.627			
	Burn cause (1)	-0.710	0.755	0.347	0.492	0.112	2.158
	Burn cause (2)	-0.629	0.940	0.504	0.533	0.085	3.365
Death	P_Baux	0.137	0.029	0.000	1.147	1.083	1.215
	R.Baux	0.245	0.066	0.000	1.278	1.124	1.453
	TBSA	0.190	0.040	0.000	1.209	1.119	1.307
	Burn cause			0.480			
	Burn cause (1)	-0.673	0.656	0.305	0.510	0.141	1.845
	Burn cause (2)	-0.944	0.895	0.291	0.389	0.067	2.247
Admission to the ICU	R.Baux	0.188	0.033	0.000	1.207	1.132	1.288
	P_Baux	0.132	0.026	0.000	1.141	1.085	1.200
	TBSA	0.222	0.041	0.000	1.248	1.153	1.351
	Burn cause			0.604			
	Burn cause (1)	-0.384	0.527	0.466	0.681	0.243	1.913
	Burn cause (2)	-0.670	0.686	0.328	0.512	0.133	1.962

Burn Cause: boiling water; Burn cause (1): hot foods; Burn cause (2): others such as fire, electricity, etc.

Table 3. The correlation between P-Baux and R-Baux scores with consequences

Burn Cause: boiling water (reference); Burn cause (1): hot foods; Burn cause (2): others such as fire, electricity, etc.

Outcome	Score	Variables	B	SE	Sig.	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
Death	P-Baux	P-Baux	0.135	0.054	0.013	1.145	1.02	1.27
		TBSA	0.153	0.059	0.010	1.165	1.03	1.30
		Burn cause			0.654			
		Burn cause (1)	-1.222	1.342	0.362	0.295	0.021	4.08
		Burn cause (2)	-.911	1.698	0.592	0.402	0.014	11.21
	R-Baux	R-Baux	0.338	0.139	0.015	1.402	1.06	1.84
		TBSA	-0.078	0.115	0.501	0.925	0.73	1.16
		Burn cause			0.789			
		Burn cause (1)	-0.947	1.399	0.498	0.388	0.02	6.02
		Burn cause (2)	-0.638	2.124	0.764	0.528	0.008	33.96
Intubation need	P-Baux	P-Baux	0.066	0.027	0.016	1.068	1.01	1.12
		TBSA	0.096	0.032	0.002	1.101	1.03	1.17
		Burn cause			0.631			
		Burn cause (1)	-0.828	1.120	0.460	0.437	0.049	3.92
		Burn cause (2)	0.184	1.373	0.893	1.202	0.081	17.74
	R-Baux	R-Baux	0.203	0.085	0.017	1.225	1.03	1.44
		TBSA	-0.058	0.089	0.513	0.944	0.79	1.12
		Burn cause			.941			
		Burn cause (1)	-.219	1.296	0.866	0.803	0.06	10.18
		Burn cause (2)	.289	1.631	.859	1.335	0.05	32.63
Admission to the ICU	P-Baux	P-Baux	0.064	0.028	0.022	1.066	1.00	1.12
		TBSA	0.160	0.046	0.001	1.174	1.07	1.28
		Burn cause			.981			
		Burn cause (1)	0.031	1.083	0.977	1.032	0.12	8.61
		Burn cause (2)	0.222	1.314	0.866	1.248	0.09	16.38
	R-Baux	R-Baux	0.026	0.080	0.745	1.026	0.87	1.20
		TBSA	0.195	0.096	0.043	1.215	1.006	1.46
		Burn cause			0.710			
		Burn cause (1)	-0.578	0.933	0.535	0.561	0.090	3.488
		Burn cause (2)	0.068	1.093	0.951	1.070	0.126	9.120

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Table 4. Mean probability of burn outcomes calculated by R-Baux and P-Baux

Outcome	R-Baux	Mean of Probability	P-Baux	Mean of Probability
Intubation	0-10	0.0015	0-10	0.002
	11-20	0.0051	11-20	0.011
	21-30	0.020	21-30	0.036
	31-40	0.092	31-40	0.190
	41-50	0.331	41-50	0.501
	51-60	0.635	51-60	0.788
	61-70	0.897	61-70	0.946
	71-80	0.901	71-80	0.980
	81-90	0.994	81-90	0.990
	91-100	-	91-100	-
	101-110	-	101-110	-
	111-120	-	111-120	-
Admission to the ICU	0-10	0.004	0-10	0.007
	11-20	0.024	11-20	0.076
	21-30	0.131	21-30	0.315
	31-40	0.504	31-40	0.867
	41-50	0.889	41-50	0.984
	51-60	0.979	51-60	0.997
	61-70	0.997	61-70	0.999
	71-80	0.998	71-80	0.999
	81-90	0.999	81-90	-
	91-100	-	91-100	-
	101-110	-	101-110	-
	111-120	-	111-120	-
Death	0-10	0.0001	0-10	0.0001
	11-20	0.001	11-20	0.0027
	21-30	0.011	21-30	0.023
	31-40	0.125	31-40	0.331
	41-50	0.637	41-50	0.847
	51-60	0.937	51-60	0.981
	61-70	0.994	61-70	0.998
	71-80	0.999	71-80	0.999
	81-90	-	81-90	-
	91-100	-	91-100	-
	101-110	-	101-110	-
	111-120	-	111-120	-

Discussion

The aim of the current study was to assess the prognostic value of R-Baux and P-Baux scores in predicting burn outcomes in children. Results revealed that a one-unit increase in the R-Baux score corresponded to a 33% rise in mortality risk. Moreover, both P-Baux and R-Baux scores were significantly correlated with the need for intubation and mortality in pediatric burn cases. Values above 50 for both P-Baux and R-Baux were associated with a mean death probability greater than 0.90.

Boys predominantly comprised the cases, particularly those under 5 years of age. In study of 11-year-old cases in Zurich, the authors suggested that cases <5 years had a higher risk. Moreover, boys had a higher susceptibility to burns compared to girls [21]. These findings are confirmed by the results of previous studies [6, 12, 22-24]. Burn injuries occur four times more frequently in boys than in girls [25], which may be due to their risky behavior. Furthermore, a study by Skogli et al. (2013) showed that boys were more affected by attention deficit-hyperactivity disorder (ADHD), which may increase the frequency of accidents [26]. For this reason, ADHD was considered a risk predictor for burn accidents in children in Iran [27].

Consistent with Karimi et al. (2013), the mortality rate was 10% in our study [6]. Nevertheless, there are

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large differences in mortality rates between studies, ranging from 7.1 % in East Africa [28] to 31.3% in India [29]. In fact, mortality rates are related to a variety of multiple factors, such as burn severity, gender, age, accessibility and quality of care services, and psychological support. Furthermore, cultural factors can influence the mortality rate [24].

Burn size, age and respiratory system injury are the most important predictors of burn-related mortality.

In order to better predict the consequences of burns, Osler et al. (2010) developed a revised version of the Baux score [13]. A small number of studies have investigated its ability to predict burn outcomes in children. In the present study, the P-Baux and R-Baux scores were found to be correlated with the anticipation of burn sequelae in children. Previous literature has reported that P-Baux correlates with the likelihood of death in children with burn injuries [6, 31, 32]. This finding is consistent with our results, as both scores showed a significant and positive association with the risk of death. In a study of 39,888 burn cases, Osler pointed out the usefulness of the R-Baux for nurses and surgeons in predicting mortality [13].

Previous studies have used R-Baux and P-Baux to predict mortality likelihood [6, 13, 14, 30]. However, in the current study, it was concluded that these scores could be utilized not only to predict mortality risk but also to anticipate the need for intubation and admission to the ICU. Compared to R-Baux, P-Baux was associated with a mean probability of 0.90 for the need for intubation and admission to the ICU at lower scores. Prasad et al. (2020) suggested that the R-Baux score had better predictive value for burn outcome than the quick Sequential Organ Failure Assessment (qSOFA) score. They also reported that 85 is the optimal R-Baux score for predicting mortality and ICU admission [31]. The study by Heng et al. (2015) on 90 ICU patients illustrated that the R-Baux score was associated with patient mortality [32]. In a study of 525 burn patients in Malaysia, Lip et al. (2019) demonstrated that the R-Baux score is the most accurate index for predicting mortality risk in patients [33].

Both P-Baux and R-Baux demonstrated similar AUCs for predicting intubation needs, ICU admission, and mortality, albeit with different optimal cut points, possibly due to a small sample size with respiratory injuries. Nevertheless, a strong correlation was found between the need for intubation and these scores, helping healthcare providers to provide rapid care and facilitate triage in burn units. In emergency situations, the use of the P-Baux score can simplify the decision-making process [15]. However, it must be noted that the score plays a key role in the early stages of the burn. As the disease progresses, other factors such as the quality of medical care, infections and medical history influence the outcome.

The present study only used existing burn cases in Sina Hospital, which is a referral hospital for burn cases in northwestern Iran. This issue needs to be considered in future interpretations and generalizability.

Conclusion

P.Baux and R.Baux scores are associated with the likelihood of ICU admission, need for intubation, and death in pediatric burn victims. The present study concludes that these scores can be used to anticipate the needs of patients in the initial phase of burn casualties. These scores not only anticipate mortality risk but also help healthcare providers prioritize pediatric care to mitigate burn-related deaths.

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Ethical approval

Informed consent was obtained from the parents of the children prior to data collection. The Ethics Committee of Tabriz University of Medical Sciences approved this study under code 94/1-3/12.

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Author's contribution

KSH, HS, and FR conceived and designed the study. AKH and FR collected the data. AR and MS analyzed data and interpreted the results. AR, MS, and KSH drafted the manuscript. All authors read

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and approved the final manuscript. KSH and MS supervised the study.

Conflict of interest

There is no conflict of interest in this study.

References

1. Smolle C, Cambiaso-Daniel J, Forbes AA, Wurzer P, Hundeshagen G, Branski LK, et al. Recent trends in burn epidemiology worldwide: A systematic review. Burns. 2017;43(2):249-57.
2. World Health Organization. Burns 2020 [cited 2020]. Available from: https://www.who.int/news-room/fact-sheets/detail/burns.
3. Seo DK, Kym D, Yim H, Yang HT, Cho YS, Kim JH, et al. Epidemiological trends and risk factors in major burns patients in South Korea: a 10-year experience. Burns. 2015;41(1):181-7.
4. Sadeghi Bazargani H, Arshi S, Ekman R, Mohammadi R. Prevention-oriented epidemiology of burns in Ardabil provincial burn centre, Iran. Burns. 2011;37(3):521-7.
5. Ramakrishnan KM, Sankar J, Venkatraman J. Profile of pediatric burns: Indian experience in a tertiary care burn unit. Burns. 2005;31(3):351-3.
6. Karimi H, Motevalian S-A, Rabbani A, Motabar A-R, Vasigh M, Sabzeparvar M, et al. Prediction of mortality in pediatric burn injuries: R-baux score to be applied in children (pediatrics-baux score). Iranian journal of pediatrics. 2013;23(2):165.
7. Halgas B, Bay C, Foster K. A comparison of injury scoring systems in predicting burn mortality. Annals of burns and fire disasters. 2018;31(2):89.
8. Gomez M, Wong DT, Stewart TE, Redelmeier DA, Fish JS. The FLAMES score accurately predicts mortality risk in burn patients. Journal of Trauma and Acute Care Surgery. 2008;65(3):636-45.
9. Galeiras R, Lorente JA, Pértega S, Vallejo A, Tomicic V, Miguel A, et al. A model for predicting mortality among critically ill burn victims. Burns. 2009;35(2):201-9.
10. Gravante G, Delogu D, Esposito G, Montone A. Analysis of prognostic indexes and other parameters to predict the length of hospitalization in thermally burned patients. Burns. 2007;33(3):312-5.
11. Karlie J, Wardhana A. External Validation of Belgian Outcome of Burn Injury Score on Burned Patient In Burn Unit dr. Cipto Mangunkusumo General Hospital. The New Ropanasuri Journal of Surgery. 2017;2(1):3.
12. Svee A, Jonsson A, Sjöberg F, Huss F. Burns in Sweden: temporal trends from 1987 to 2010. Annals of burns and fire disasters. 2016;29(2):85-9.
13. Osler T, Glance LG, Hosmer DW. Simplified estimates of the probability of death after burn injuries: extending and updating the baux score. Journal of Trauma and Acute Care Surgery. 2010;68(3):690-7.
14. Dokter J, Meijs J, Oen IM, van Baar ME, van der Vlies CH, Boxma H. External validation of the revised Baux score for the prediction of mortality in patients with acute burn injury. Journal of trauma and acute care surgery. 2014;76(3):840-5.
15. Edgar MC, Bond SM, Jiang SH, Scharf IM, Bejarano G, Vrouwe SQ. The Revised Baux Score as a Predictor of Burn Mortality: A Systematic Review and Meta-Analysis. Journal of Burn Care & Research. 2023;44(6):1278-88.
16. Ciornei B, David VL, Popescu D, Boia ES. Pain Management in Pediatric Burns: A Review of the Science behind It. Glob Health Epidemiol Genom. 2023;2023:9950870.
17. Jeschke MG, van Baar ME, Choudhry MA, Chung KK, Gibran NS, Logsetty S. Burn injury. Nat Rev Dis Primers. 2020;6(1):11.
18. Agarwal P, Sahu S. Determination of hand and palm area as a ratio of body surface area in Indian population. Indian Journal of Plastic Surgery. 2010;43(01):049-53.
19. Romanowski KS, Palmieri TL. Pediatric burn resuscitation: past, present, and future. Burns & trauma. 2017;5.
20. Hongyue W, Jing P, Bokai W, Xiang L, Julia ZZ, Kejia W, et al. Inconsistency between univariate and multiple logistic regressions. Shanghai archives of psychiatry. 2017;29(2):124.
21. Moehrlen T, Szucs T, Landolt MA, Meuli M, Schiestl C, Moehrlen U. Trauma mechanisms and injury patterns in pediatric burn patients. Burns. 2018;44(2):326-34.
22. Čelko AM, Grivna M, Dáňová J, Barss P. Severe childhood burns in the Czech Republic: risk factors and prevention. Bulletin of the World Health Organization. 2009;87:374-81.

[DOI: 10.22088/CJP.BUMS.10.0.12] [Downloaded from caspianjp.ir on 2025-06-08]

23. Trop M, Herzog SA, Pfurtscheller K, Hoebenreich AM, Schintler MV, Stockenhuber A, et al. The past 25 years of pediatric burn treatment in Graz and important lessons been learned. An overview. Burns. 2015;41(4):714-20.
24. Bennie N, Belacic H, Bruckman D, Mondozzi MA, Crow J. A Comparison of Pediatric Burn Injuries Based on Cultural Environment. Journal of Burn Care & Research. 2020;41(Supplement_1):S180-S1.
25. Åkerlund E, Huss FR, Sjöberg F. Burns in Sweden: an analysis of 24 538 cases during the period 1987–2004. Burns. 2007;33(1):31-6.
26. Skogli EW, Teicher MH, Andersen PN, Hovik KT, Øie M. ADHD in girls and boys – gender differences in co-existing symptoms and executive function measures. BMC Psychiatry. 2013;13(1):298.
27. Sadeghi-Bazargani H, Mohammadi R, Amiri S, Syedi N, Tabrizi A, Irandoost P, et al. Individual-level predictors of inpatient childhood burn injuries: a case–control study. BMC public health. 2016;16(1):209.
28. Chelidze KI, Lim CC, Peck RN, Giiti G, Leahy N, Rabbitts A, et al. Predictors of mortality among pediatric burn patients in East Africa. Journal of Burn Care & Research. 2016;37(2):e154-e60.
29. Dhopte A, Bamal R, Tiwari VK. A prospective analysis of risk factors for pediatric burn mortality at a tertiary burn center in North India. Burns & trauma. 2017;5(30).
30. Roberts G, Lloyd M, Parker M, Martin R, Philp B, Shelley O, et al. The Baux score is dead. Long live the Baux score: a 27-year retrospective cohort study of mortality at a regional burns service. Journal of Trauma and Acute Care Surgery. 2012;72(1):251-6.
31. Prasad A, Thode HC, Jr., Singer AJ. Predictive value of quick SOFA and revised Baux scores in burn patients. Burns. 2020;46(2):347-51.
32. Heng JS, Clancy O, Atkins J, Leon-Villapalos J, Williams AJ, Keays R, et al. Revised Baux Score and updated Charlson comorbidity index are independently associated with mortality in burns intensive care patients. Burns. 2015;41(7):1420-7.
33. Lip HTC, Idris MAM, Imran FH, Azmah TN, Huei TJ, Thomas M. Predictors of mortality and validation of burn mortality prognostic scores in a Malaysian burns intensive care unit. BMC Emerg Med. 2019;19(1):66.

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