Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 26s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

The Effect of Some Variables on Neonatal Deaths in The Neonatal Intensive Care Unit in Al-Kut City, 2024: A Comparative study between two hospitals

Wria Abbas Al-Arkwze[1], Mathil Alwan Mansur[2], Hussein Atta Abdulazeez[3], Ali Ismael Hama al-Jaf[4]

[1]Department of Statistics, College of Science, Razi University, Kermanshah, Iran.

[2]Ministry of Health, Chief in charge of ICD. 10 program in Al zahraa tech hospital in Al kut. Wasit.

[3]pediatricians in Al Kut hospital for gynaecology and pediatrics in Al kut Wasit

[4]Ministry of Health, Wasit Health Directorate, Manager of Training and Human Development Center, Wasit Province-Kut City

***Corresponding Author:**

Email ID: Iraqweesa@gmail.com

Cite this paper as: Wria Abbas Al-Arkwze, Mathil Alwan Mansur, Hussein Atta Abdulazeez, Ali Ismael Hama al-Jaf, (2025) The Effect of Some Variables on Neonatal Deaths in The Neonatal Intensive Care Unit in Al-Kut City, 2024: A Comparative study between two hospitals, *Journal of Neonatal Surgery*, 14 (26s), 192-205

ABSTRACT

The newborn period is defined as the first 28 days of life. In practice, however, sick or very immature infants may require neonatal care for many months.

Study aims: to identify the variables affecting neonatal mortality in the neonatal intensive care unit at Al-Zahra and Al-Kut hospitals, and compare the results between them.

Methodology: An analytic cross-sectional study was conducted with a purposive sample of sterile preterm infants to identify the impact of various variables on neonatal mortality in the leading hospitals of Al-Kut District. Data were collected from records for the year 2024.

Results: In Al-Kut Hospital, the p-value of both variables, weeks of pregnancy and type of birth, was 0.004 and 0.04, respectively; the two variables have a significant effect on the cause of death, the rest of the variables (Gender, Weight, Birth was single or multiple, and the Mother's age) had no significant impact. In Al Zahraa Hospital, all variables do not have a significant effect on the cause of death.

Conclusion: There is a difference in the effect of the variables under study between the two hospitals on the cause of death of premature infants.

Keywords: *neonatal mortality, variables, sterile preterm, nicu , cause of death.*

1. INTRODUCTION

The newborn period is defined as the first 28 days of life. In practice, however, sick or very immature infants may require neonatal care for many months [1]. Globally, approximately 15 million babies are born prematurely every year. Of these, approximately a million pass away as a result of preterm problems. Births to mothers in sub-Saharan Africa and Asia account for over 60% of premature deliveries worldwide [2], [3]. South Asia continues to lag in reducing neonatal deaths despite progress in global neonatal mortality. The Small Vulnerable Newborn (SVN) framework has been proposed to integrate preterm birth (PT), small for gestational age (SGA), and low birth weight [4].

One of the most common measures of society's health is mortality among neonates. There are about 18 neonatal deaths worldwide for every 1,000 live births during the first month of life [5].

The most common causes of prematurity, a preterm infant faces a variety of physiologic handicaps:

1- Pulmonary immaturity–surfactant deficiency (Respiratory distress syndrome)

2- Immature cerebral vasculature and structure predispose to subependymal or intraventricular hemorrhage

3-. Increased susceptibility to infection.especially septicemia

4. Immature respiratory control leads to apnea and bradycardia [6].

Neonatal mortality rate (NMR) was very high among neonates with respiratory distress syndrome (RDS) and low-birth-weight preterm neonates. The obstetric history, such as gestational age, mode and place of delivery, and type of pregnancy, as well as birth weight, age at the time of death, and residency, were significantly associated with high rates of neonatal mortality [7], [8].

Children face the highest risk of death in their first month, with a global rate of 18 deaths per 1,000 live births in 2021. [7]. Worldwide, the main causes of death in the neonatal period are congenital anomalies, prematurity, and perinatal asphyxia. In Iraq, NMR has declined from 27 per 1000 in 1990 to 21 in 2007, then to 18 in 2015, which is promising [8].

The study aimed to identify the variables affecting neonatal mortality in the neonatal intensive care unit at Al-Zahra and Al-Kut hospitals and compare the results between them.

2. METHODOLOGY

Study design and population: A analytic cross-sectional study was conducted on the impact of some variables on neonatal mortality among sterile preterm infants in Kut District hospitals.

Sampling and sample size: The sample was intentionally selected from Kut Gynecology and Children's Hospital, Al-Zahraa Teaching Hospital. The study sample (Al-Zahraa Teaching Hospital) included 87 neonatal deaths. Some data were excluded for the following reasons: data were recorded incorrectly (7), and incorrectly diagnosed the cause of death (23). (Al-Kut Hospital for Women and Children) 48 neonatal deaths. Some data were excluded for the following reasons: Data recorded incorrectly (14) and incorrectly diagnosed the cause of death (22).

Data collection: Data were collected from records from the year 2024 (variables are Gender, Weight, Weeks of pregnancy, Birth was single or multiple, Type of birth, Mother's age).

Data analysis: The data were entered and analyzed using the statistical program (R 4.3.2), while Microsoft Excel 2010 was utilized to create tables and charts for representing and comparing the data.

Overview of the two hospitals:

Al Kut hospital for pediatric and obstetrics was established in 2019 after the fusion of two old hospitals. It is located at the center of Al Kut city. The NCU staff consists of 6 pediatricians, 2 permanent, 5 resident doctors, in addition to 30 nurses. The single 24-hour call in the NCU is covered by 1 Siener, 1 permanent, 1 resident doctor, and 10 nurses (8 am 3 pm shift) - and 5 nurses in (3 pm – 8 am shift). Oxygen supply for the NCU is central, with no medical air. There are 6 resuscitation equipment,16 incubators,2 continuous positive airway pressure CPAP and one temporary ventilator, one portable x-ray, ultrasound, and echo.

Al Zahraa Teaching Hospital was established in 1986. It is located in the northern region of Al Kut city. The NICU staff consists of 3 pediatricians, 3 permanent resident doctors, 3 junior resident doctors, in addition to 18 nurses. The single 24-hour call in the NICU is covered by 1 Senior pediatrician, 1 permanent, 1 resident doctor, and 12 nurses with 8-hour shifts. Oxygen supply for the NCU is central, There are 6 resuscitation equipment,18 incubators,2 continuous positive airway pressure CPAP and 3 ventilator, one portable x-ray, ultrasound, and echo.

Research Hypothesis:

HO: Some variables do not affect Neonatal Deaths.

H1: Some variables affect neonatal deaths.

Table (1): Shows numbers of Neonatal Deaths for each hospital by gender.

females	Males	Hospitals
29	58	Al Zahraa Teaching Hospital
23	25	Al-Kut Hospital for Women and Children

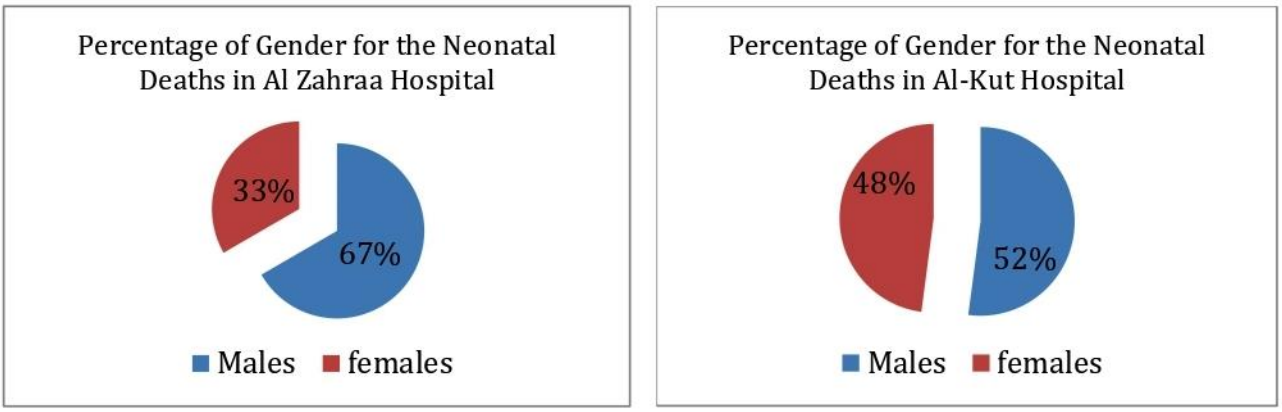


Figure (1) shows the neonatal mortality percentage for each hospital by gender.

- In both hospitals, the neonatal mortality percentage by gender for males is higher than for females. Still, at Al Zahraa Hospital, the neonatal mortality percentage for males is higher than at Al Kut Hospital by 15%.

Table (2): Shows the number of neonatal deaths for each hospital by weight.

2.5-4 kg	Less than 2.5 kg	Hospitals
31	56	Al Zahraa Teaching Hospital
13	35	Al-Kut Hospital for Women and Children

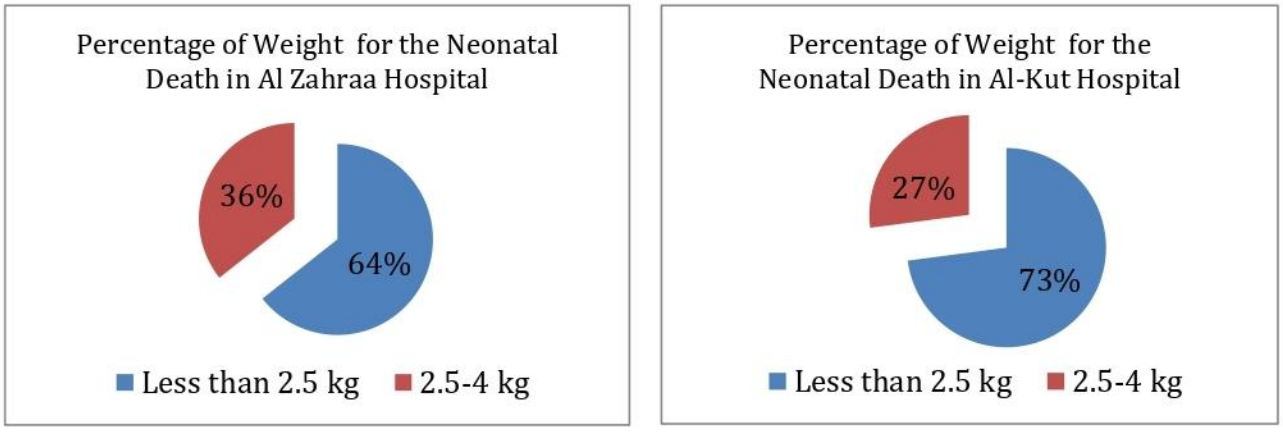


Figure (2) shows the neonatal mortality percentage for each hospital by weight.

- In both hospitals, the neonatal mortality percentage by weight Less than 2.5 kg is higher than 2.5-4 kg. Still, at Al Kut Hospital, the neonatal mortality percentage by weight Less than 2.5 kg is higher than at Al Zahraa Hospital by 9%.

Table (3): Shows the number of neonatal deaths for each hospital by weeks of pregnancy.

36-40 weeks	Less than 36 weeks	Hospitals
72	15	Al Zahraa Teaching Hospital
14	34	Al-Kut Hospital for Women and Children

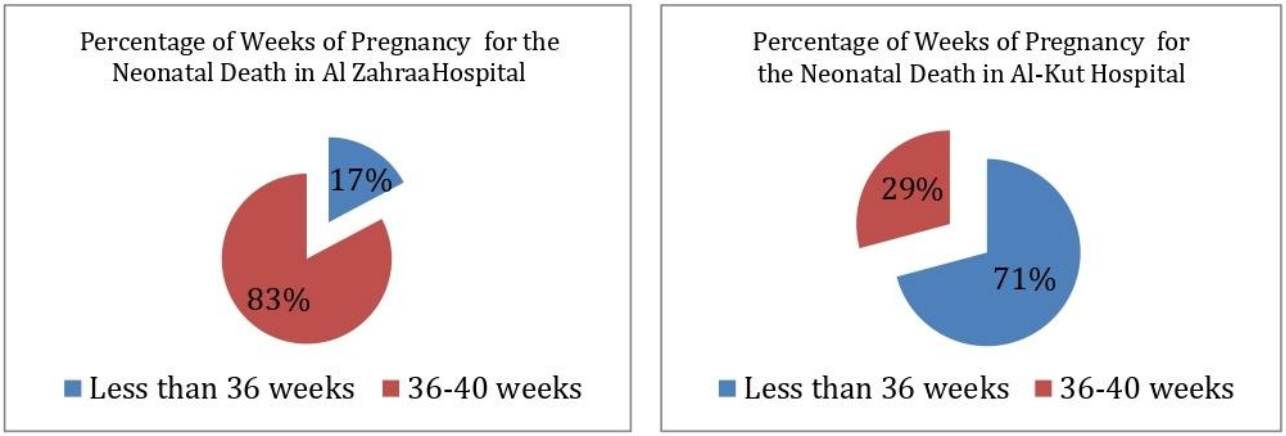


Figure (3) shows the neonatal mortality percentage for each hospital by weeks of pregnancy.

- The neonatal mortality percentage at Al Zahra Hospital, according to the weeks of pregnancy from 36-40 weeks, reached 83%, which is higher than at Al Kut Hospital, which reached 29%.
- The neonatal mortality percentage at Al Kut Hospital, according to the weeks of pregnancy from Less than 36 weeks, reached 71%, which is higher than at Al Zahra Hospital, which reached 17%.

Table (4): Shows the number of neonatal deaths for each hospital by birth was single or multiple.

Multiple birth	Single birth	Hospitals
12	75	Al Zahraa Teaching Hospital
4	44	Al-Kut Hospital for Women and Children

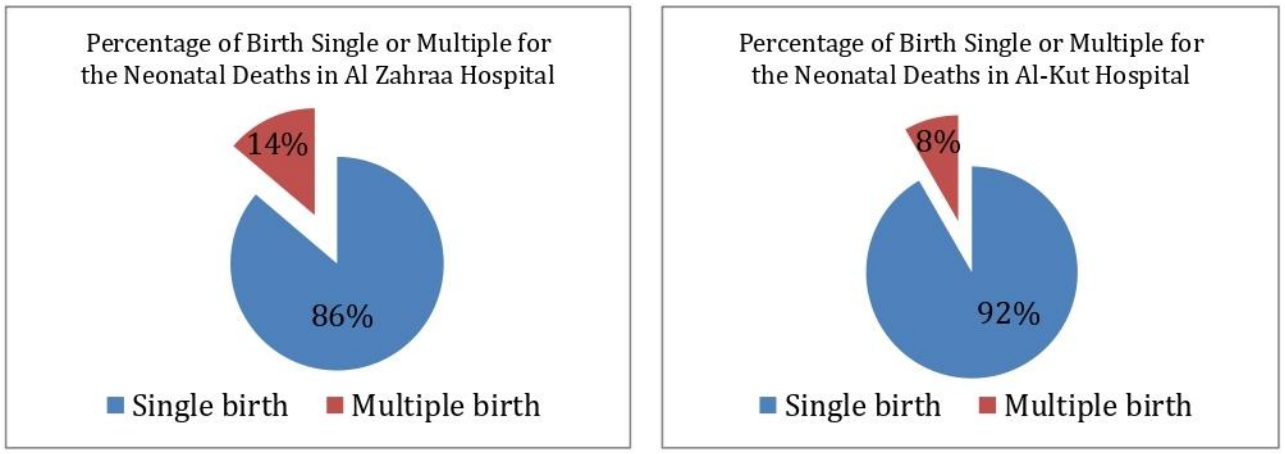


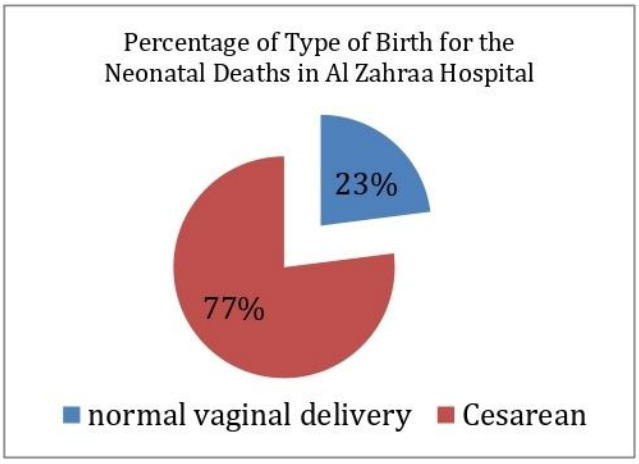
Figure (4) shows the neonatal mortality percentage for each hospital by birth was single or multiple.

- In both hospitals, the neonatal mortality percentage by birth was single is higher than multiple. Still, at Al Kut Hospital, the neonatal mortality percentage by single is higher than at Al Zahraa Hospital by 6%.

Table (5): Shows the number of neonatal deaths for each hospital by type of birth.

Cesarean	Normal vaginal delivery	Hospitals
67	20	Al Zahraa Teaching Hospital

31	17	Al-Kut Hospital for Women and Children



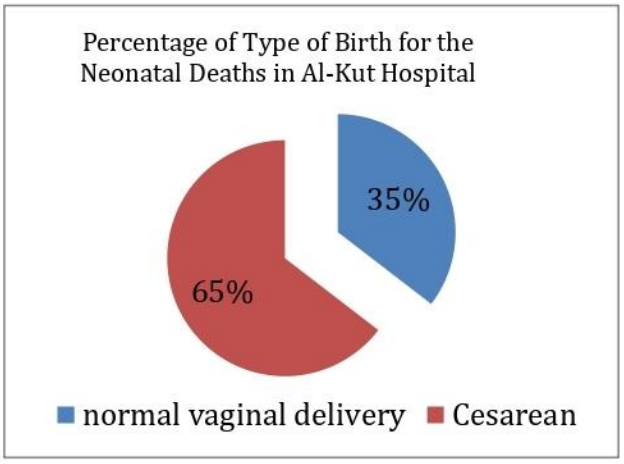


Figure (5) shows the neonatal mortality percentage for each hospital by type of birth.

- In both hospitals, the neonatal mortality percentage by type of birth Cesarean is higher than for Normal vaginal delivery. Still, at Al Zahraa Hospital, the neonatal mortality percentage for Cesarean is higher than at Al Kut Hospital by 12%.

Table (6): Shows the number of neonatal deaths for each hospital by Mother's age.

Number of the Neonatal Deaths in Al Kut Hospital	Number of the Neonatal Deaths in Al Zahraa Hospital	Mother's age groups
3	16	Less than 20 years old
5	22	20-24
22	23	25-29
9	10	30-34
9	12	35-40
0	4	More Than 40

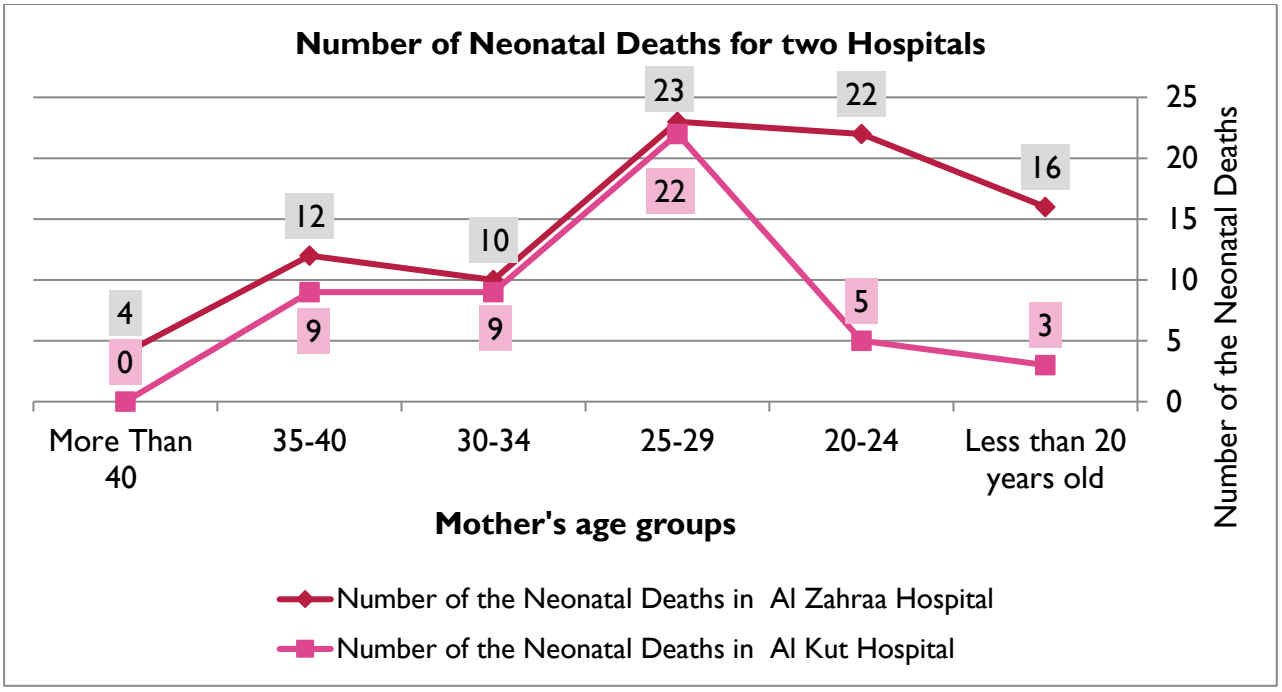


Figure (6) Shows the number of neonatal deaths for each hospital by Mother's age.

- In both hospitals, the number of neonatal deaths by mothers' age for the age group 25-29 is higher than in other age groups. The age group of more than 40 is Less than in other age groups.

Table (7): Shows the percentage of neonatal deaths for each hospital by cause of death.

percentage of the neonatal Deaths	number of the neonatal Deaths in Al Kut Hospital	percentage of the neonatal Deaths	number of the neonatal Deaths in Al Zahraa Hospital	cause of death
10	5	7	6	P21
63	30	63	55	P22
0	0	1	1	P23
17	8	6	5	P36
0	0	1	1	P53
10	4	22	19	Q00-99

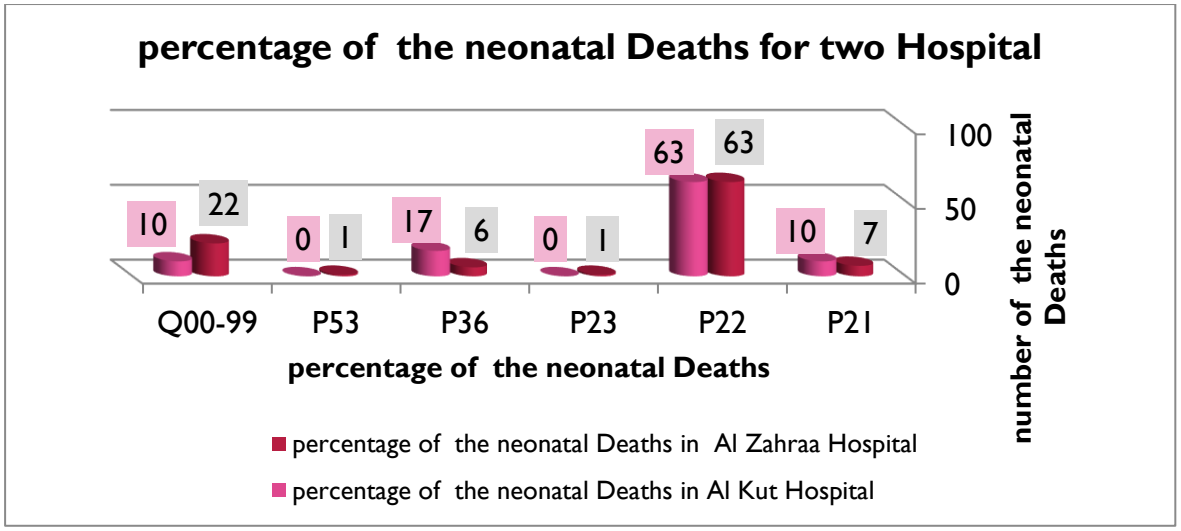


Figure (7) Shows the percentage of neonatal deaths for each hospital by cause of death.

- In both hospitals, the percentage of neonatal deaths due to p22 is higher than for other causes. The causes p23, p53 are Less than for other causes of death.

Data Analysis of Neonatal Deaths for Al-Kut Hospital for Women and Children:

Table (8): Summary results of the regression model and the coefficient of determination of the main hypothesis In the first stage.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.493	0.243	0.153	1.517	1.880

In Table (8): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 49%. Also, the coefficient of determination is 0.243 and the adjusted coefficient of determination is 0.153, which indicates that the independent variables adjust and explain approximately 3.15% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 1.517. In addition, the value of the Durbin-Watson statistic is reported to be 1.880. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (9): Results of the analysis of variance table.

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	31.002	5	6.200	2.694	0.034
Residuals	96.665	42	2.302		
Total	127.667	47			

In Table (9) evaluates the significance of the multiple linear regression model. The reported significance level is 0.034. Since this value is less than the 0.05 error level, the regression model is confirmed with 95% confidence.

Table (10): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient	t-statistic	Significance level

	B	Standard deviation	Beta		
Gender	-0.162	0.444	-0.050	-0.366	0.786
Weeks of pregnancy	0.024	0.0813	0.068	-0.300	0.004
Age of mother	-0.04	0.046	0.416	1.836	0.200
Weight	0.0007	0.003	-0.124	-0.872	0.630
Single or twin	1.120	0.816	0.190	1.372	0.222
Type of birth	0.632	0.480	0.185	1.315	0.195

In Table (10), which is called the regression coefficient table, we see that the reported significance level for the coefficient of the independent variables is smaller than the 0.05 error level only for the independent variable of weeks of pregnancy. Therefore, we can conclude with 95% confidence that only this variable has a significant linear lag on the (cause of death), and the remaining variables do not have a significant effect on the dependent variable (cause of death). and we remove them from the model one by one, in order, based on the largest significance level. These variables do not have a significant linear effect on the dependent variable (cause of death) and their presence in the regression model is not significant and they are not able to predict the dependent variable of the cause of death. Therefore, we remove them from the model based on the largest significance level, which includes the gender variable.

Table (11): Summary results of the regression model and the coefficient of determination of the main hypothesis in the second stage.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.521	0.271	0.184	1.488	1.851

In Table (11): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 52%. Also, the coefficient of determination is 0.271 and the adjusted coefficient of determination is 0.184, which indicates that the independent variables adjust and explain approximately 18.4% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 1.488. In addition, the value of the Durbin-Watson statistic is reported to be 1.851. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (12): Results of the analysis of variance table

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	34.613	5	6.923	3.125	0.017
Residuals	93.053	42	2.216		
Total	127.667	47			

In Table (12) evaluates the significance of the multiple linear regression model. The reported significance level is 0.017, and since this value is less than the 0.05 error level, the regression model is confirmed with 95% confidence.

Table (13): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient		t-statistic	Significance level
	B	Standard deviation	Beta		
Weeks of pregnancy	0.022	.0080	0.064	0.285	0.004
Weight	0.0007	0.0003	.0416	1.854	0.089
Age of mother	0.0391	0.046	.0119	-0.848	0.679
Single or twin	1.161	.0800	0.197	1.450	0.193
Type of birth	0.642	.0474	0.188	1.353	0.183

In Table (13), which is called the regression coefficient table, we see that the reported significance level for the coefficient of the independent variables is greater than the error level of 0.05. We can conclude with 95% confidence that these variables do not have a significant linear effect on the dependent variable (cause of death), and their presence in the regression model is not significant and they are not able to predict the dependent variable (cause of death), and only the variable of weeks of pregnancy, whose significance level is less than the error level of 0.05, has a significant effect on predicting the cause of death. Therefore, based on the significance level, we remove the largest significance level, which includes the newborn weight variable, from the model.

Table (14): Summary results of the regression model and the coefficient of determination of the main hypothesis in the third stage.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.460	0.211	0.138	1.530	1.591

In Table (14): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 46%. Also, the coefficient of determination is 0.211 and the adjusted coefficient of determination is 0.138, which indicates that the independent variables adjust and explain approximately 13.8% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 1.530. In addition, the value of the Durbin-Watson statistic is reported to be 1.591. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (15): Results of the analysis of variance table.

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	26.994	5	6.749	2.883	0.034
Residuals	100.672	42	2.341		
Total	127.667	47			

In Table (15), which evaluates the significance of the multiple linear regression model, the reported significance level for the regression model is 0.034, and since this value is less than the 0.05 error level, the regression model is confirmed with 95% confidence.

Table (16): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient		t-statistic	Significance level
	B	Standard deviation	Beta		
Weeks of pregnancy	0.143	.004	0.398	2.923	0.005
Age of mother	-0.04	0.047	-0.150	-1.043	0.302
Single or twin	0.852	.0805	0.145	1.059	0.295
Type of birth	0.685	.0487	0.201	1.406	0.166

In Table (16), which is called the regression coefficient table, we see that the reported significance level for the coefficient of the independent variables is greater than the error level of 0.05. We can conclude with 95% confidence that these variables do not have a significant linear effect on the dependent variable (cause of death), and their presence in the regression model is not significant and they are not able to predict the dependent variable (cause of death), and only the weeks of pregnancy variable will have a significant effect. So, based on the significance level, we remove the largest significance level that includes the age variable from the model.

Table (17): Summary results of the regression model and the coefficient of determination of the main hypothesis in the Fourth stage.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.438	0.191	0.136	1.531	1.564

In Table (17): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 43%. Also, the coefficient of determination is 0.191 and the adjusted coefficient of determination is 0.136, which indicates that the independent variables adjust and explain approximately 13.6% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 1.531. In addition, the value of the Durbin-Watson statistic is reported to be 1.564. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (18): Results of the analysis of variance table.

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	24.445	5	8.148	3.473	0.024
Residuals	103.221	42	2.346		
Total	127.667	47			

In Table (18) evaluates the significance of the multiple linear regression model. The reported significance level is 0.024, which is less than the error level of 0.05, and so the regression model is confirmed with 95% confidence.

Table (19): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient		t-statistic	Significance level
	B	Standard deviation	Beta		
Weeks of pregnancy	0.138	.0048	0.384	2.832	0.0006
Single or twin	0.783	.0803	0.133	0.975	0.334
Type of birth	0.529	.0464	0.155	1.140	0.260

In Table (19), which is called the regression coefficient table, we see that at this stage, the reported significance level for the coefficient of the independent variables is only the weeks of pregnancy variable. Its significance level is smaller than the 0.05 error level. Therefore, it can be concluded that this variable remains in the model and cannot be removed from it, and the cause of death can be predicted using the weeks of pregnancy variable.

Table (20): Summary results of the regression model and the coefficient of determination of the main hypothesis In the fifth stage.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.233	0.054	0.032	2.007	1.664

In Table (20): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 23%. Also, the coefficient of determination is 0.054 and the adjusted coefficient of determination is 0.032, which indicates that the independent variables adjust and explain approximately 3% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 2.007. In addition, the value of the Durbin-Watson statistic is reported to be 1.664. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (21): Results of the analysis of variance table.

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	19.341	5	9.671	2.402	0.002
Residuals	338.245	42	4.027		
Total	357.586	47			

In Table (21) evaluates the significance of the multiple linear regression model. The reported significance level is 0.002. Since this value is less than the 0.05 error level, the regression model is confirmed with 95% confidence.

Table (22): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient		t-statistic	Significance level
	B	Standard deviation	Beta		
Weeks of pregnancy	0.154	0.078	.0212	1.981	0.041

Type of birth	0.341	0.516	0.071	0.661	.004

In Table (22), which is called the regression coefficient table. We see that at this stage, the reported significance level for the coefficient of the independent variables of weeks of pregnancy and type of birth is less than the 0.05 error level. Therefore, it can be concluded that this variable remains in the model and cannot be removed from it, and the cause of death can be predicted using the weeks of pregnancy and type of birth variables.

Data Analysis of Neonatal Deaths for Al Zahraa Teaching Hospital:

Table (23): Summary results of the regression model and the coefficient of determination of the main hypothesis.

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of prediction	Dorbeen Watson statistics
0.371	0.138	0.073	1.963	1.748

In Table (23): The size of the multiple correlation coefficient between the independent variables and the dependent variable is reported to be approximately 37%. Also, the coefficient of determination is 0.138 and the adjusted coefficient of determination is 0.073, which indicates that the independent variables adjust and explain approximately 7.3% of the changes and dispersion of the dependent variable (cause of death). The standard error of prediction is 1.963. In addition, the value of the Durbin-Watson statistic is reported to be 1.748. Since this value is between 1.5 and 2.5, it can be concluded that the assumption of non-correlation between the residuals of the regression model is confirmed.

Table (24): Results of the analysis of variance table

Variable	Sum of squares	Degree of freedom	Mean squares	F-statistic	Significance level
Regression	49.262	6	8.210	2.130	0.059
Residuals	308.325	80	3.854		
Total	357.586	86			

In Table (24), which evaluates the significance of the multiple linear regression model, the reported significance level for the regression model is 0.059, and since this value is greater than the error level of 0.05, the regression model is not confirmed with 95% confidence.

Table (25): Report of regression coefficients for predicting the type of death based on independent variables.

Variable	Non-standard coefficient	Standard coefficient		t-statistic	Significance level
	B	Standard deviation	Beta		
Gender	-0.632	0.481	-0.147	-1.314	0.193
Weeks of pregnancy	0.000	0.100	0.000	-0.002	0.998
Age of mother	0.000	0.000	0.196	1.427	0.158
Weight	-0.024	0.021	-0.122	-1.156	0.251
Single or twin	0.837	0.665	-0.142	-1.258	0.212
Type of birth	-0.289	0.525	0.060	0.551	0.583

In Table (25), which is called the regression coefficient table, we see that the reported significance level for the coefficient of the independent variables is greater than the 0.05 error level. We can conclude with 95% confidence that these variables do not have a significant linear effect on the dependent variable of cause of death, and their presence in the regression model is not significant and they are not able to predict the dependent variable (cause of death).

3. RESULTS

1. In Al-Kut Hospital, the significance value for the independent variables of weeks of pregnancy and type of birth is less than the 0.05 error level. Therefore, it can be concluded that those variables remain in the model and cannot be removed from it, and the cause of death can be predicted using the weeks of pregnancy and type of birth variables.
2. In Al-Kut Hospital, the independent variables, weeks of pregnancy and type of birth, have a significant effect on the cause of death, so we reject the null hypothesis and accept the alternative hypothesis.
3. In Al Zahraa Hospital, the independent variables do not have a significant effect on the cause of death, so we accept the null hypothesis and reject the alternative hypothesis. Their presence in the regression model is not significant, and they cannot predict the dependent variable (cause of death).
4. Respiratory distress syndrome (RDS) was the leading cause of death, accounting for 63% of total deaths at Al-Zahraa Hospital and the same percentage at Al-Kut Hospital.
5. Congenital malformations were the second most important cause of death, accounting for 21% of all deaths at Al Zahra Hospital and 10% at Al Kut Hospital.
6. In 2024, the neonatal mortality rate per 1,000 live births was (16) at Al Zahra Hospital and (7) at Al Kut Hospital.
7. The percentage of neonatal deaths among patients admitted to the NICU at Al Zahra Hospital was 11%, and 9% at Al Kut Hospital.

4. DISCUSSION

We selected these two hospitals in Wasit Governorate based on the following criteria:

1. Availability of statistical documentation.

2. Both hospitals are equipped with advanced resuscitation systems, including ventilators and surfactant medications for managing respiratory distress syndrome.

Our study focuses on sterile neonatal cases at Al-Zahraa Teaching Hospital and Al-Kut Gynecology and Children's Hospital. We compared the distribution of mortality and morbidity among newborns in the neonatal intensive care unit (NICU) of both hospitals and studied the causes of neonatal mortality.

5. CONCLUSION

The results of this article indicate that the neonatal mortality rate is lower than the global rate for both hospitals. There is a difference in the effect of the variables under study between the two hospitals on the cause of death of premature infants. The variables most associated with neonatal mortality at Al-Kut Hospital include weeks of pregnancy and type of birth. There was little difference between the neonatal mortality percentage for each hospital. Al-Zahra Hospital has fewer births than Al-Kut Hospital, but the number of hospitalized and dying preterm infants is higher than at Al-Kut Hospital. Where it is referred, most critical cases are sent to Al Zahra Hospital, which is considered one of the most important healthcare institutions

6. RECOMMENDATIONS

1- Separating the neonatal intensive care unit for sterile and non-sterile preterm infants, opening a special hall for non-sterile preterm infants in all hospitals in Wasit Governorate, conducting a study of the factors affecting the mortality of non-sterile preterm infants, and comparing the results with the results of sterile preterm infant mortality.

2- increasing the number of incubators, CPAPs, and ventilators, and we need a neonatologist, a neonatal anesthesiologist, and a central medical airway.

REFERENCES

[1] M. B. Abbott and C. H. Vlasses, “Nelson textbook of pediatrics,” Jama, vol. 306, no. 21, pp. 2387–2388, 2011.

[2] J. Maluni et al., “After neonatal care, what next? A qualitative study of mothers’ post-discharge experiences after premature birth in Kenya,” Int J Equity Health, vol. 24, no. 1, p. 17, Jan. 2025, doi: 10.1186/s12939-024-02340-y.

[3] B. Fisseha, E. B. Gidey, B. G. Tewele, and T. G. Haile, "Time to neonatal mortality and its predictors among preterm neonates admitted to the neonatal intensive care unit in northern Ethiopia, 2023/2024: a retrospective cohort study," Arch Public Health, vol. 83, no. 1, p. 13, Jan. 2025, doi: 10.1186/s13690-024-01497-w.

[4] H. Malik et al., "Mapping neonatal vulnerability using the Small Vulnerable Newborn (SVN) framework—secondary analysis of PRISMA Pakistan study," The Lancet Regional Health - Southeast Asia, vol. 33, p. 100535, Feb. 2025, doi: 10.1016/j.lansea.2025.100535.

[5] A. F. Zegeye et al., "Prevalence and determinants of post-neonatal mortality in East Africa: a multilevel analysis of the recent demographic and health survey," Front. Pediatr., vol. 13, p. 1380913, Jan. 2025, doi: 10.3389/fped.2025.1380913.

[6] W. W. Hay Jr and R. R. Deterding, Current diagnosis & treatment pediatrics. McGraw-Hill Education, 2014.

[7] Z. A. Abdulrasol, A. F. Obaid, M. A. Kadim, and A. M. J. Shlash, "Mortality rate among Iraqi neonates in neonatal intensive care units: Retrospective study," Journal of Neonatal Nursing, vol. 30, no. 2, pp. 148–151, Apr. 2024, doi: 10.1016/j.jnn.2023.07.018.

[8] E. Alsadi, "Comparison Study of Causes and Neonatal Mortality Rates of Newborns Admitted in Neonatal Intensive Care Unit of Al-Sadder Teaching Hospital in Al-Amara City, Iraq," ijp ; Int J Pediatr, vol. 5, no. 3, Mar. 2017, doi: 10.22038/ijp.2017.22315.1868

.