

Differences Of Still Birth Rate Between Cesarean Section And Normal Vaginal Delivery in Al-Nasiriyah At 2019: A Comparative Study

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Abstract

Background: A born baby with no any life signs within or after 28 weeks of gestation is define as stillbirth, . 3rd trimester SB account 2.6 million globally at 2015.

Objectives: to compare SBR by the 2 places of birth in Al-Nasiriyah city, and to determine the expected determinants of the still birth.

Methodology: An analytical-comparative, hospital based study, extending all over the past 1 years; from 1st day of January till the end of December of 2019 in Bint Al-Huda maternity and pediatrics hospital-Thi-qar/Iraq. Including all Still birth, from 2 different places of labor that including: Main labor room and operative theater room, informed consent also was taken from all participants parent. SPSS version 25 had been used, P value <0.05 is considered significant.

Results: Among 8772 delivered fetus as a normal vaginal delivery, 136 delivered died with a total still birth rate Of 15.5/1000, compared to a total deliveries by cesarean section of 5810, were the total still birth of 97 delivered died with a rate of 16.7/1000. Still birth rates difference was of not a great values in their distribution according to different months and seasons of the year 2019. Age of the parents and weight of SB had a significant role in SBR.

Conclusion: delivery by CS and NVD show no significant statistical difference of the SBR between those who are., also no difference in monthly trends of SBR all-over the period of the study, whether was by CS or NVD. Different age groups in different places and within the same place show a highly significant statistical association, B. wt. of deliverd baby was also one of the main determinants of the SBR and the age of father that extending the 41 years show significant difference in the occurance of the SB.

Introduction

A born baby with no any life signs within or after 28 weeks of gestation is define as stillbirth(SB)⁽¹⁾. 3rd trimester (3rd T) SB account 2.6 million globally at 2015, countries of low & middle income are the most affected regions., nearly 75% in sub-Saharan Africa & south Asia⁽²⁾. Where this number approximately greater by ten times

than that for developed countries (29/1000 versus 3 / 1000 of total births)⁽²⁾. The 2nd T SB number is unknown in the in LMICs but in high-income countries(HIC) nearly 1/2 of all SB occur from 20 -28 weeks of pregnancy⁽²⁾.

In LMIC, the High SB rates might be contributed to several proximal, intermediate

& distal factors, that tended to be crossly related⁽³⁾. Potential factors that consider as a distal involve poorly educated women, low SES, & the seeking care time is inappropriate. While intermediate factors for SB expressed as young or extreme age of reproduction of mother, lackness or poorly aware of danger signs awareness, community resources- non-availability, hospital transfer or referral delay, and maternal malnutrition (poverty)^(4,5). Finally, proximal factors: medical conditions for both fetal & mother and health care system poor response act for SB. These factors inter-relatedness exemplified as, illiteracy plus poverty, where correlated with food insecurity, malnutrition plus anemia. also affect a seeking care family's decisions if they identifying the danger signs, and antenatal care access inform delivery, or emergency care. For the poorly resourced- countries, even when time of reach to facility is proper for saving life of both the inadequate facilities are fail to prevent poorly progress fetal or meternal outcomes⁽⁶⁾.

many literatures emphasized that the determinants of deaths clinical cause for maternal & SB are hospitals occurrence.

Global analyses, recently, over the past five years, suggest overall decline in SBR was 25.5%, A big variations in SBR exist among LMIC, and many of these countries have experienced little or no reduction in SBR^(7,8).

The intra-partum period is the main period for the fetal deaths occurrence, where most of these occur in near term or at term, by which the the maternal causes were the main contributors of mortality. The surprising point was that 2/3 of the SB were with no any maternal complication during their gestation and before labor⁽²⁾.

Many risk factoes across LMIC playing a big role in the resistant of these high SBR⁽³⁾. That are of varying incidences across countries, where resources availability & care provision are the main determinants. A populations that are remotely located not getting a

accessible care at proper time. Poor a registration vital statistics functionality had a relation for high SBR^(3,7). Data at National levels are rarely available regarding some countries. In LMICs, surveys for health & demography were have not included SBs as routine pregnancy outcomes, if the information is available, it is of poor validation regarding age of gestation^(8,9). A hospital-based data regarding the SB are the main dependent information for many countries⁽¹⁰⁻¹²⁾.

This article aimed to determine the comparative main suspected determinants of still birth in two different localities of birth in the hospital of the study inform of intermediate & distal risk factors and also to be compared with SBR of other societies.

Aim of the study: to compare SBR by the 2 places of birth in Al-Nasiriyah city, and to determine the expected determinants of the still birth.

Methodology & Type of study: A The study was an analytical-comparative, hospital based study, extending all over the past 1 years; from 1st day of January till the end of December of 2019 in Bint Al-Huda maternity and pediatrics hospital-Thi-Qar-Iraq.

Study population:

All Still birth had been included, from 2 different places of labor that including: Main labor room and operative theater room

Inclusion and exclusion criteria:

All SBs regardless to their gender or age were included, those who died after birth were excluded.

Variables of interest:

1-Age for the mother and father that divided into three categories (<20 yrs, 20-40 yrs and >

40 yrs) , 2-Sex that resorted into male and females. 3.Residence into: Al-Nasiriyah and others. 3- Months of death as documented in the case sheet of the mother. 4- Presence of congenital anomalies. 5- Ward of labor by which the neonate had been died and death registered. 6- Weight of delivered still birth (<1Kg, 1-2.5 Kg and >2.5Kg).

Ethical considerations:

An ethical clearance was obtained from Bint Al-Huda teaching hospital directorate to perform the study. An informed consent also was taken from all participants parent.

Pilot study :

To know the feasibility, cost and time required for the final study and also know the adequacy of the questionnaire and the extent of any unexpected problems, a piloting was carried out during the first two weeks of January 2019 on ten

Procedures of recording , coding and checking of data :

The data

directly registered in the questionnaire form at the work field and checked daily and weekly . A quantitative approach was used for coding and the questionnaire data was pre-coded by using of statistical package for social science (SPSS)version (25) .

Statistical analysis:

Excel sheet, SPSS version (25) was used for data analysis . descriptive statistic , frequencies , percentages , associations , tests of significance (Paired t test) was used for

analysis of quantitative- continuous variables . means and standard deviations were used to present data of continuous variables. Correlation was performed to recognize the independent predictors of SBR. A P-value < 0.05 was considered statistically significant .

Epidemiological analysis:

Including estimation of still birth rate =

Number of all delivered died fetus/total number of deliveries*1000
At specific place and time.

Results:

Among 8772 delivered fetus as a normal vaginal delivery, 136 delivered died with a total still birth rate Of 15.5/1000, compared to a total deliveries by cesarean section of 5810, were the total still birth of 97 delivered died with a rate of 16.7/1000.

Still birth rates difference was of not a great values in their distribution according to different months and seasons of the year 2019 , as shown in figure 1 and table 1.

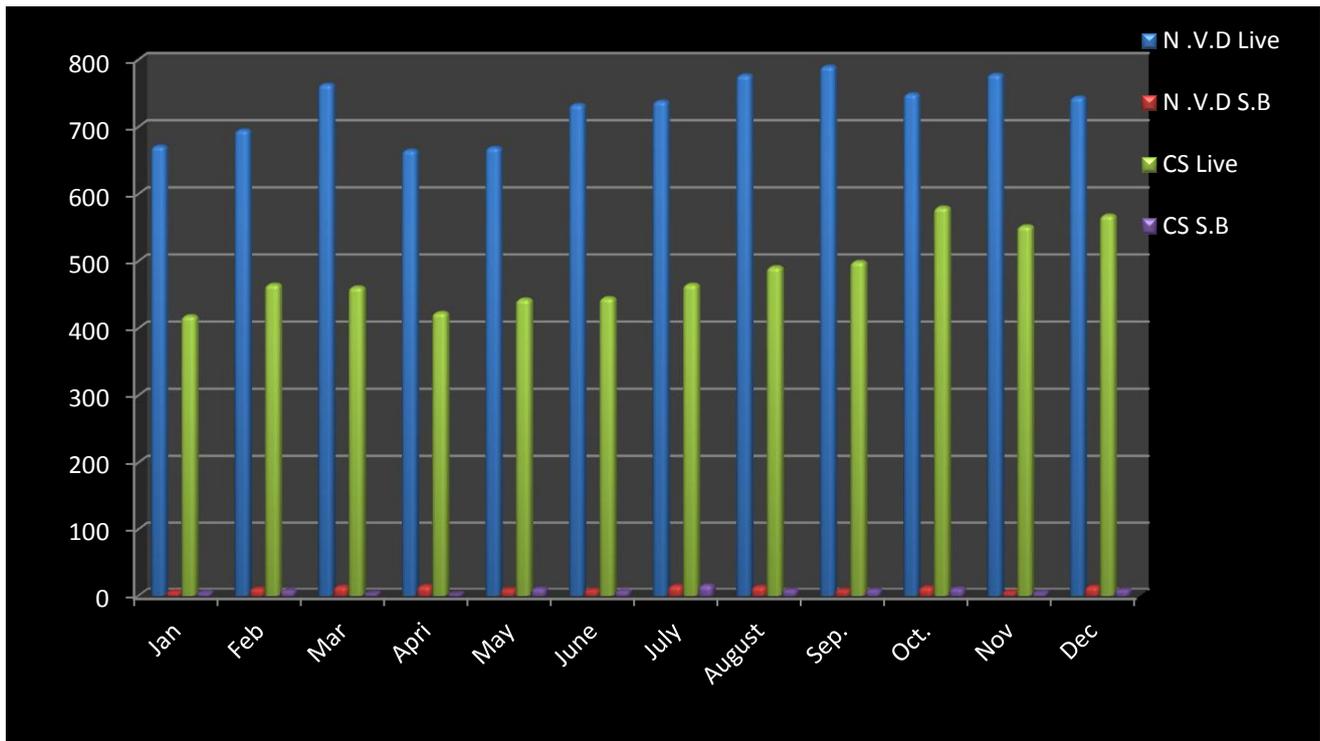


Figure 1: Distribution according to month of the year 2019

Table 1: Still birth number and rate according to places of delivery and months of 2019

Months	Normal Vaginal Deliveries			Cesarean Section		
	Total birth	S.B	S.B. rate	Total birth	S.B	S.B. rate
Jan	671	6	8.941878	418	5	11.96172
Feb	695	11	15.82734	465	8	17.2043
Mar	763	14	18.34862	461	4	8.67679
Apri	665	15	22.55639	423	3	7.092199
May	669	10	14.94768	443	11	24.8307
June	733	9	12.27831	445	7	15.73034
July	738	15	20.3252	465	16	34.4086
August	777	14	18.01802	491	9	18.32994
Sep.	790	9	11.39241	499	9	18.03607
Oct.	749	13	17.35648	580	11	18.96552
Nov	778	6	7.712082	552	5	9.057971
Dec	744	14	18.8172	568	9	15.84507
Total	8772	136	15.50388	5810	97	16.69535

There was no significant statistical difference of the SBR with in the 2 places of delivery, where P value 0.382.

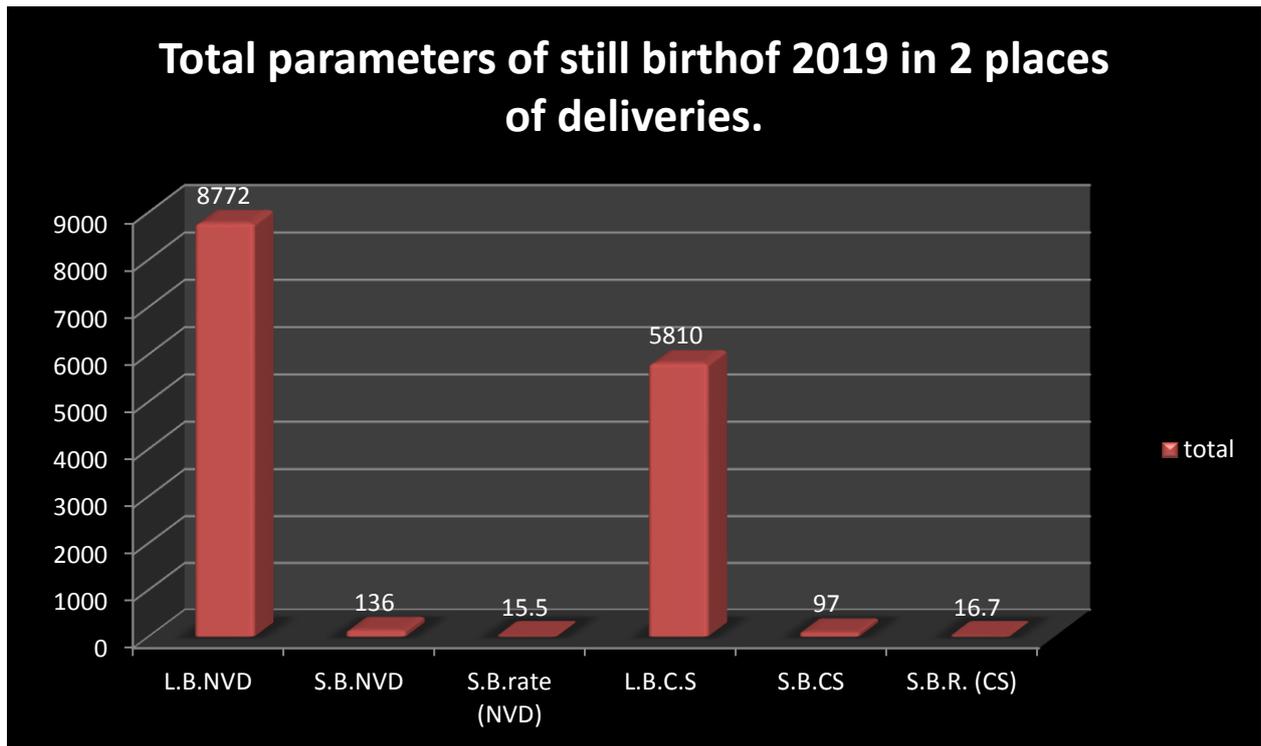


Figure 2: Difference of the total SBR in the 2 places of delivery
ANOVA= 0.795.....p value= 0.382

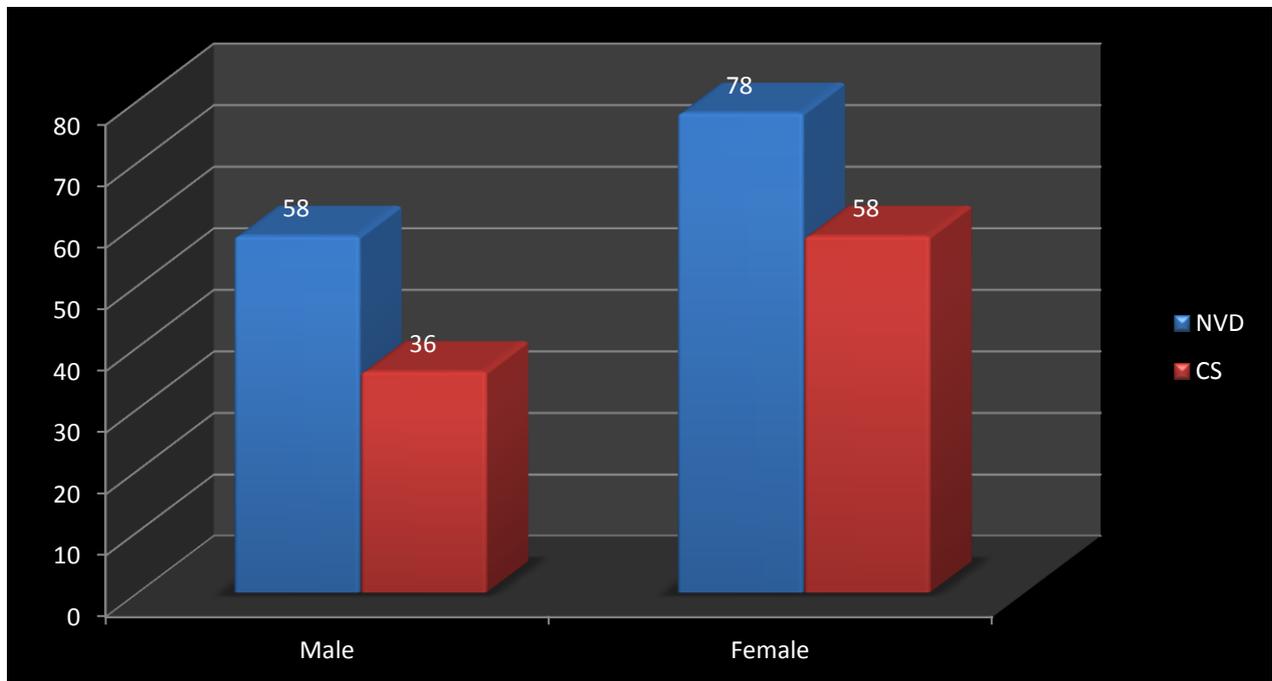


Figure 3-A: Distribution according to gender of the SB babies

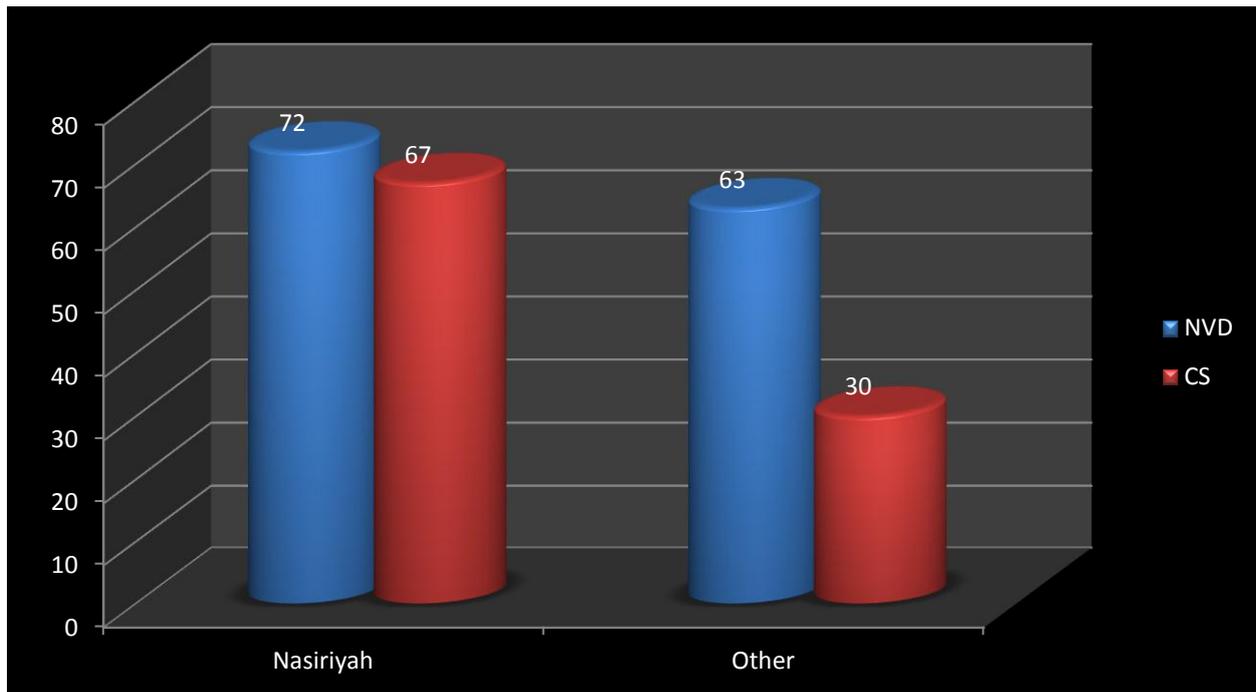


Figure3-B: Distribution according to residence of the SB fetus.

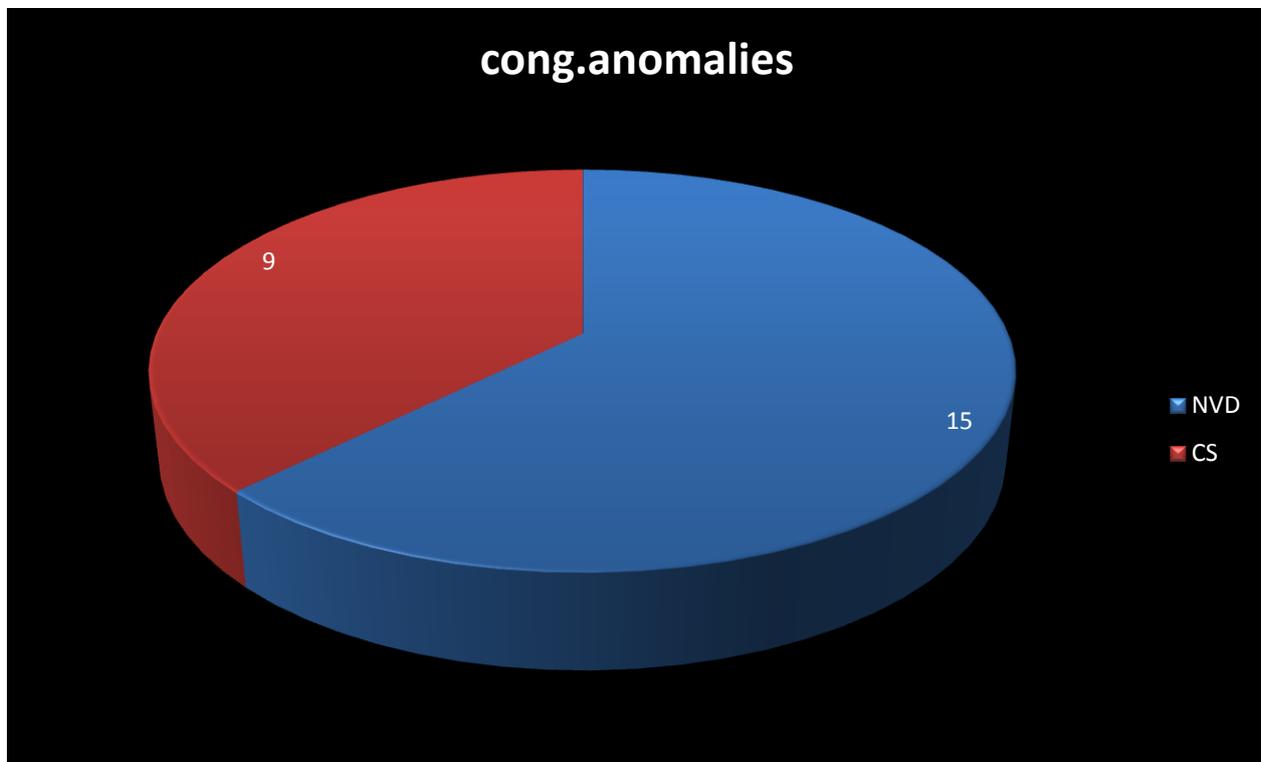


Figure 3-C: Distribution according to presence of congenital anomalies

Table 2: Paired Samples Statistics analysis for the total SB in two different places of delivery

Pair		Mean	N	S. D	S. E	Correlation	Sig.	t	p
1	Total birth NVD	731	12	45.19	13.04	.635	.026	19.479	.0001
	Total birth Cs	484.2	12	55.34	15.97				
2	No .of S.B.NVD	11.3	12	3.31	.95	.292	.356	2.721	.020
	S.B.CS	8.08	12	3.62	1.047				
3	S.B.R.NVD	15.54	12	4.60	1.32	.220	.492	-.495-	.630
	S.B.R. CS	16.67	12	7.56	2.182				

A very high had been noted in comparison of the total birth means of the 2 different places of delivery, while the comparison of still birth number show significant statistical difference with a week positive correlation, on other hand there was no significant statistical difference between the SB Rates of 2 different place with non significant negative correlation

Table 3- A: Comparison of still birth rates according to type of deliveries and weights of born baby and months of 2019

Months	Wt<1Kg%		1-2.5Kg%		>2.5kg	
	NVD	CS	NVD	CS	NVD	CS
Jan	0.167	0.4	0.33	0.2	0.5	0.4
Feb	0	0.13	0.54	0.25	0.45	0.62
Mar	0.14	0.25	0.57	0.5	0.28	0.25
Apri	0.53	0.33	0.2	1	0.26	0
May	0.2	0	0.4	0.54	0.4	0.45
June	0.22	0.14	0.44	0.71	0.33	0.143
July	0.13	0.06	0.53	0.62	0.33	0.32
August	0.28	0	0.43	0.33	0.28	0.66
Sep.	0.66	0.22	0	0.55	0.33	0.22
Oct.	0.38	0.09	0.31	0.64	0.31	0.27
Nov	0.66	0	0	0.4	0.33	0.6
Dec	0.07	0.44	0.57	0.11	0.35	0.44

Table 3- B: Paired sample statistics comparison of still birth rates according to type of deliveries and weights of borne baby and months

		Paired Differences				Sig. (2-tailed)	
		Mean	S. D	Correlation	Sig.		
Pair 1	Less 1Kg(NVD) - less1kgCS	.11475	.293	-.168-	.601	1.356	.202
Pair 2	bet.1to2.5kg(NVD) – bet 1to2.5kgCS	-.12750-	.362	-.290-	.360	-1.219-	.248
Pair 3	More 2.5kg(NVD) – More 2.5KgCS	-.01858-	.185	.395	.204	-.346-	.736
Pair 4	less1Kg - bet.1to2.5kg (NVD)	-.07358-	.420	-.951-	.000	-.606-	.557
Pair 5	less1Kg – More 2.5kg(NVD)	-.05942-	.262	-.436-	.156	-.785-	.449
Pair 6	less1kgCS – bet. 1to2.5kgCS	-.31583-	.314	-.172-	.593	-3.479-	.005
Pair 7	less1kgCS – More 2.5KgCS	-.19275-	.301	-.410-	.186	-2.213-	.049
Pair 8	bet. 1to2.5kg – More 2.5kg.. (NVD)	.01417	.205	.137	.672	.239	.815
Pair 9	Bet. 1to2.5kgCS – More 2.5KgCS	.12308	.424	-.780-	.003	1.005	.337

Only the body weight of the less than one and from 1-2.5 kg in CS group and less1kgCS – More 2.5KgCS show significant statistical differences.

Table 4- A: Comparison of still birth rates according to mother age in different months of 2019

Months	Mother age <20 yrs		Bet. 20-40 yrs		>40 yrs	
	NVD	CS	NVD	CS	NVD	CS
Jan	0.166667	0	0.833333	1	0	0
Feb	0.272727	0	0.727273	1	0	0
Mar	0.214286	0	0.785714	1	0	0
Apri	0.066667	0	0.933333	1	0	0
May	0.1	0	0.9	1	0	0
June	0.222222	0.142857	0.777778	0.857143	0	0
July	0.2	0.0625	0.8	0.6875	0	0
August	0.071429	0	0.928571	1	0	0
Sep.	0.111111	0.111111	0.888889	0.888889	0	0
Oct.	0	0	0.846154	1	0	0
Nov	0.333333	0	0.5	1	0.166667	0
Dec	0.142857	0.222222	0.714286	0.777778	0.142857	0

Table 4- B: Paired Samples Statistics Comparison of still birth rates according to mother age borne baby in different months

Mother age		Mean	S. D	Correlation	sig	t	P value
Pair 1	<20yr	.1584	.095	.038	.907	3.308	.007
	<20CS	.0449	.074				
Pair 2	20 to 40yr	.8029	.120	.103	.750	-2.975-	.013
	20 to 40 CS	.9343	.107				
Pair 3	> 40 yr	.0258	.060	.	.	1.478	.167
	> 40 CS	.0000	.000				
Pair 4	< 20 yr	.1584	.095	-.813-	.001	-10.88-	.000
	20 to 40 yr	.8029	.120				
Pair 5	< 20 yr	.1584	.095	.425	.168	5.197	.000
	>40 yr	.0258	.060				
Pair 6	< 20 CS	.0449	.074	-.745-	.005	-17.99-	.000
	20 to 40 CS	.9343	.107				
Pair 7	< 20 CS	.0449	.074	.	.	2.074	.062
	>40 CS	.0000	.000				
Pair 8	20 to 40 CS	.9343	.107	.	.	30.008	.000
	> 40 CS	.0000	.000				
Pair 9	20 to 40 yr	.8029	.120	-.791-	.002	15.657	.000
	> 40 yr	.0258	.060				

The only age of the mother with more than 40 years among different places of delivery and the age of 20 with more than 40 among CS group show non-significant statistical association while the other relation between different age groups in different places and within the same place show a highly significant statistical association, regarding the correlations was of strong negative values within 3 groups as seen with in the table 4-B.

Table 5- A: Comparison of still birth rates according to father age borne baby in different months

Months	Father age <20 yrs		Bet. 20-40 yrs		>40 yrs	
	NVD	CS	NVD	CS	NVD	CS
Jan	0	0	0	0	1	1
Feb	0	0	0	0	1	1
Mar	0	0	0.071429	0	0.857143	1
Apri	0	0	0	0	0.933333	1
May	0	0	0	0	0.9	0.909091
June	0	0	0	0	0.888889	1
July	0	0	0.066667	0	0.866667	0.9375
August	0	0	0	0	0.928571	1
Sep.	0	0	0	0	1	1
Oct.	0	0	0.153846	0	0.846154	1
Nov	0.166667	0	0	0	1	1
Dec	0.142857	0	0	0	1	1

Table 5- B: Paired Samples Statistics Comparison of still birth rates according to father age borne baby in different months

Pairs	Father age	Mean	S. D	Corr el.	Sig.	t	P
Pair1	< 20 NVD	.0258	.06045			1.478	.167
	20 CS	.0000	.00000				
Pair2	20-40 NVD	.0243	.04872			1.730	.112
	20-40-CS	.0000	.00000				
Pair3	>41 NVD	.9351	.06263	.356	.257	-3.057-	.011
	>41- CS	.9872	.03047				
Pair 4	<20 NVD	.0258	.06045	-.232-	.467	.059	.954
	20-40 NVD	.0243	.04872				
Pair 5	<20- NVD	.0258	.06045	.483	.112	-50.292-	.0001
	>41 NVD	.9351	.06263				
Pair 6	20-40 NVD	.0243	.04872	-.709-	.010	-30.608-	.0001
	>41 NVD	.9351	.06263				
Pair 7	<20-CS	.0000 ^a	.00000			1.478	.167
	20-40-CS	.0000 ^a	.00000				
Pair 8	<20CS	.0000	.00000			- 112.253-	.0001
	>41-CS	.9872	.03047				
Pair 9	20-40-CS	.0000	.00000			- 112.253-	.0001
	>41-CS	.9872	.03047				

Discussion

The current study show little non- significant difference between the SBRs of NVD & CS through which the total values of both was 15,5 and 16.7 /1000 respectively, which was lower than Sarah S. & Shiyam Sunder Tikmani, et al⁽¹³⁾ study reviewed the trend of SBR mean of 2010 - 2016, that decreased from 31.7 to 26.4/1000 births , where reduction average annually by nearly 3.0% .this difference of the our SBR and Sarah et al study might be explained by the difference in the study design or difference in the community characters that are reviewed by the 2 studies but our study was nearest to goal by the year of 2030 of The Every Newborn Action Plan, a to reduce SBR at global level to 12 / 1000 births^(14,15). If we assume a rate of 12/1000 births by 2030.

In our study the SBR doesn't show significant decline or increment all over the 12 months of the study, this was not comparable to many studies especially Blencowe et al study, that done using thousand number of data involving large number of countries (195) between the years of 2005-2015^(8,16)

Regarding the SBR we register lower rate than Pakistan (43.1per thousand births) also S.Saleem et al register a SBR at 2016 as 47.7/1000 births. In India –different states SBR (20- 66/1000), the stillbirth rates in different states reportedly range from births. Bellad et al- from Karnataka(also Indian sites).(28.6/1000) births[16]. it also lower than mean SBR for many Indian states which (25.3/1000) births But, Our study result was comparable to Nagpur- Maharashtra district (17.8/1000)births..and also nearly comparable to Kenya national SBR as WHO reporting (21.8/1000) births⁽¹⁷⁾ & lower than Zambia (25.5/1000) births⁽¹⁸⁾.

The national SBR Guatemala reporting (10/1000) births which was lower than our study⁽⁸⁾. This variation might be explained by

the differences in the population characteristics, sample size and design of the study.

Parents age of more than 40 was one of the main contributors of the SBR in different places, regardless the place of delivery was the main significant finding of our study, which comparable to other studies where consider as independent risk of SB^(2,5,19) Regarding the antenatal care coverage rate was low in our society, public sector of health suffering from scarcity of resources regarding the availability of supplements, diagnostic tools and treatment, that convert the pregnant vision to private sectors, which make difficult decision to convey the role of ANC in reduction of SBR, in Iraq. That surely make a differences from other studies Kenya, Pakistan and Zambia⁽²⁰⁾ that focusing on the role of ANC on outcome of pregnancy

Limitation:

- 1- To an unknown extent the deliveries with home or mid wife deliveries was difficult to be predicted
- 2- Private sectors regarding the deliveries by CS or deliver by Painless clinic also don't enter in our research.

Conclusion:

- 1- There was no significant statistical difference of the SBR with in the 2 places of delivery
- 2- There was no difference in monthly trends of SBR all-over the period of the study, whether was by CS or NVD.
- 3- Different age groups in different places and within the same place show a highly significant statistical association, B. wt. of delivered baby was also one of the main determinants of the SBR and the age of father that extending the 41 years show significant difference in the occurrence of the SB..

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الاختلافات في معدل المواليد الساكنة بين الولادة القيصرية والولادة المهبلية الطبيعية في الناصرية عام ٢٠١٩ : دراسة مقارنة

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نبذة مختصرة:

الخلفية: يُعرّف الطفل المولود بدون أي علامات على الحياة خلال أو بعد ٢٨ أسبوعًا من الحمل في الفصل الثالث بأنه ولادة جنين ميت. يقدر العدد ٢.٦ مليون عالميًا في عام ٢٠١٥.

الأهداف: مقارنة حسب مكان الولادة في مدينة الناصرية وتحديد المحددات المتوقعة للمواليد الميئة. المنهجية: دراسة تحليلية مقارنة ، تستند إلى المستشفى ، تمتد على مدار السنوات الأولى الماضية ؛ من اليوم الأول من كانون الثاني حتى نهاية كانون الأول ٢٠١٩ في مستشفى بنت الهدى للولادة والأطفال في ذي قار \ العراق بما في ذلك جميع المواليد الموتى ، من مكانين مختلفين للولادة ، بما في ذلك: غرفة المخاض الرئيسية وغرفة مسرح العمليات ، تم أخذ الموافقة المستنيرة أيضًا من جميع الوالدين المشاركين.

النتائج: من بين ٨٧٧٢ جنينًا تم الولادة كولادة مهبلية طبيعية توفي ١٣٦ مولودًا مقارنة بإجمالي الولادات القيصرية البالغ ٥٨١٠ كان إجمالي المواليد الجدد ٩٧ حالة وفاة.

لا يزال الاختلاف في معدلات المواليد ليس ذا قيمة كبيرة في توزيعها وفقًا للأشهر والمواسم المختلفة لعام ٢٠١٩.

الاستنتاج: لا يظهر بين الولادة القيصرية والولادة المهبلية الطبيعية أي فرق إحصائي كبير.