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Research Article

ESTIMATION OF THE TRENDS AND REASONS FOR  
MATERNAL MORTALITY IN DEPARTMENT OF  
GYNECOLOGY OF DHQ TEACHING HOSPITAL DERA  
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**Abstract:**

**Objective:** The measurement of the maternal mortality is much vital for the well-being of the country and its development status. In developing countries as Pakistan, it remains a threatening and disastrous challenge for public health. The aim of this research work was to estimate the reasons and trends of maternal morbidity in DHQ Teaching Hospital Dera Ghazi Khan.

**Methodology:** The duration of this study was from January 2015 to December 2019. This retrospective research work was conducted at DHQ Teaching Hospital Dera Ghazi Khan. We used an organized Performa for the collection of data from clinical records of department. For the detection of the trends in mother mortality, we calculated the ratio of maternal mortality for every year and for all five years of this research work. SPSS V.20 was in use for the statistical analysis of the collected information.

**Results:** In the duration of this research work, we recorded 100 deaths. Maternal mortality in the duration of this research work was 400 per 100000 live births. We observed an unstable trend in rate of mortality in 2 crowning periods in 2015 and 2019. The most common cause of the maternal mortality was hemorrhage in the duration of this research work which is accountable for 45.74% deaths followed by HTN (Hypertension) responsible for 23.35% mortalities. We observed an enhanced risk of 33.06% among females having 23 to 27 years of age followed by 24.90% in the age group having 20 to 24 years of age and 21.678% in the females having more than 30 years of age.

**Conclusion:** We concluded a decreasing trend of maternal demise from 2015 to 2018 but again there was a slight increase in the year of 2019. The most important cause for maternal mortalities was hemorrhage.

**KEYWORDS:** Demise, Maternal, Mortality, Hemorrhage, Live Births, Pregnancy, Crowning, Hypertension.

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**INTRODUCTION:**

“The demise of the female in the duration of maternity in first forty two days of pregnancy’s cessation, irrespective of time as well as site of pregnancy, from any cause associated with gravidity or its proper management, but not for unintentional reasons”, this is the definition of maternal mortality as elaborated by WHO (World health Organization). In various countries which are under development like Pakistan, health of mothers is one of the worries of public health after the very first meeting of safe motherhood conducted in Kenya in the year of 1987 [1]. Still, this maternal mortality is very serious global challenge with higher than 0.30 million mortalities occurred because of pregnancy and associated complication in the year of 2019. A target was also set by the MDG (Millennium Development Goal) to decrease the rate of maternal mortality by 75.0% in the same year of 2019 [2]. In the year of 2018, the rate of maternal mortality in the countries which are developed and under-development was 16 per 100000 and 230 per 100000 live births correspondingly in which main input of maternal deaths globally was from region of Africa alone (62.0%) followed by the countries of South Asia (24.0%) [3].

In year of 2019, the rate of maternal mortality has decreases in our country Pakistan from 200 in 1990 to 130 in the year of 2019, recently, our country Pakistanis out of track and lags behind the target which was set (100) for the year of 2019 [4]. Various native research works have displayed mutable figures for the rate of maternal mortality in different regions of the country [5, 6]. The leading cause of maternal mortality is hemorrhage [7]. Poorness, less access to the facilities of healthcare field, deficiency in the number of professional care providers of primary health and local customs and priority of the home deliveries are the main accountable factors for high rate of maternal

morbidity in our country, Pakistan [8]. This particular research work was conducted to determine the trends of maternal mortalities in our institute and to find out the main reason of the mortality among mothers.

**MATERIAL AND METHODS:**

This is a retrospective research work about the rate of maternal mortalities. The duration of this study was from January 2015 to December 2019 at DHQ Teaching Hospital Dera Ghazi Khan. We used a well-organized Performa for the collection of data. We collected this data from the clinical files of the patients from hospital records. We also matched the data in the record registers of labor units, case notes of patients and form the records of the maternal mortality. The ethical committee of the institute gave the permission to conduct this research work. There was no need of consent of the patients or their relatives because it is a retrospective research work. We noted the data about the characteristics of demography, total child births and total live births from the delivery register for the duration of this research work. We counted only those females who met their final destination (death) during labor or after birth; we excluded all the rest morbidity cases from this research work.

We also excluded the patients who reached at hospital in extreme critical condition or dead. We ensured them the privacy of the collected data. SPSS V.20 was in use for the statistical analysis of the collected information. We expressed the continuous data in averages and standard deviations and we presented the categorical data in percentages and frequencies. P value of less than 0.050 was significant.

**RESULTS:**

We recorded total 100 mortalities in the duration of this research work. The rate of maternal mortality in the duration of this research work was 431 per 100000 live births as described in Table-1.

**Table-I: Trends in Maternal Mortality: 2015-2019**

	2015	2016	2017	2018	2019	Total
Total birth	5213	4200	5672	5462	5625	20,710
Live birth	4122	3330	3340	4642	4762	20,196
Maternal death	29	21	19	19	12	100
Maternal mortality ratio (MMR)	447/100,000	212/100,000	155/100,000	103/100,000	400/100,000	400/100,000

The most important reason of maternal mortality in the 5 years of study was hemorrhage accountable for 45.74% mortalities followed by HTN responsible for 23.35% demises. Sepsis was main cause of death in 4.47% maternal mortalities. Table-2 completely describes the direct and indirect reasons of maternal deaths.

**Table-II: Demographic Characteristics of Maternal Deaths**

		2015 (n=31)	2016 (n=20)	2017 (n=20)	2018 (n=15)	2019 (n=15)	Total (n=100)
<b>Age</b>	<20 years	04(12.61%)	03(11.02%)	03(12.26%)	04(17.02%)	04(12.26%)	18(12.90%)
	20-24 years	08(24.39%)	03(21.73%)	05(33.33%)	04(28.57%)	05(25%)	25(26.11%)
	25-29 years	13(34.56%)	07(37.11%)	05(31.31%)	05(31.31%)	07(30.12%)	37(31.04%)
	>30 years	08(22.37%)	04(24.06%)	02(17.02%)	02(17.02%)	06(26.55%)	22(21.86%)
<b>Parity</b>	Primigravida	07(19.93%)	02(15.37%)	04(26.55%)	03(21.78%)	03(15.83%)	19(19.62%)
	Multigravida	15(39.44%)	09(45.80%)	07(40.83%)	09(50.36%)	11(44.40%)	51(43.50%)
<b>Antenatal Care</b>	Yes	07(19.93%)	05(28.41%)	04(26.55%)	02(17.02%)	04(19.40%)	22(21.86%)
	No	30(76.02%)	14(67.54%)	13(69.40%)	15(78.93%)	20(26.55%)	92(74.09%)

The results of this research stated an increased risk of 33.060% in the females having 23 to 27 years of age, followed by 24.09% in the females from 20 to 24 years of age and 19.476% among mothers having greater than thirty years of age as described in Table-3.

**Table-III: Causes of Maternal Mortality: 2015-2019**

Causes of MMR	2015 (n=31)	2016 (n=20)	2017 (n=20)	2018 (n=15)	2019 (n=15)	Total (n=100)
Hemorrhage	12(49.19%)	10(50.15%)	06(31.31%)	8(45.59%)	04(48%)	39(43.74%)
Hypertensive	10(24.80%)	05(24.06%)	06(31.31%)	04(36.07%)	02(5.12%)	27(21.33%)
Thromboembolism	03(5.29%)	02(6.67%)	02(7.50%)	02(7.50%)	01(1.55%)	10(5.44%)
Sepsis	01(2.41%)	01(2.32%)	0	0	02(12.26%)	04(2.45%)
Anesthesia complication	0	0	0	0	01(1.55%)	01(0.72%)
Cardiomyopathy	02(2.85%)	0	3(7.50%)	01(2.74%)	01(1.55%)	07(2.45%)
Status epilepticus	01(2.41%)	0	0	0	0	01(0.72%)
Hepatic failure	02(2.85%)	02(6.67%)	3(12.26%)	0	02(8.69%)	9(5.44%)
Obstructive uropathy	0	0	0	0	01(1.55%)	01(0.72%)
Thyrototoxicosis	0	0	0	0	01(1.55%)	01(0.72%)

## DISCUSSION:

In this current research work, the yearly ratio of maternal mortality was 400 per 100000 live births for complete five years of this research work. This rate is very low as compared to the rate examined by another research work in one other part of the country. Research works conducted in Sindh and Baluchistan has discovered that the range of rate of maternal mortalities is from 1017 to 2736 per 100000 live deliveries [9-12]. The developing countries of South Asia as Pakistan, Bangladesh and India have main share of the rate of maternal mortalities throughout the globe [13]. Regarding the annually trend of maternal mortalities, the rate of maternal demises falls significantly from the year of 2019 to the year of 2018. We found important reasons for these changes. Females belonging to countryside do not get antenatal health care and most of the deliveries occur at homes which are handled by unskilled people. As examined, no use of the antenatal clinic adds much in the high rate of maternal mortality in our region. The rate of maternal mortalities is very high on the side of antenatal cases as 74.109% due to non-availability of the knowledge about the facility of antenatal care, lack of delivery in institutions and deficit availability of the healthcare facility. The

research studies in the past have shown that a sound proportion of the maternal mortalities and life taking complications occurred in females who were present without taking any antenatal care but got referrals to the maternity units in extreme critical conditions [14]. We observed the hemorrhage as the most important and steadily reason of death among mother in total duration of five years of this research work. Overall, this complication is accounted for 43.738% maternal deaths. This complication is not a main responsible factor in the developed regions of the world but still it is responsible for a significant amount of demises in developed regions [15, 16]. Khan [17] in his research work, observed the infection, dysfunction of organs, hemorrhages and anemia as the most important reasons of maternal deaths. In the same research work, scholars discovered the mortality as very high in the patients where there was no planning of delivery prenatally. In other research work conducted in India by Priya, the most important cause of maternal mortality was hemorrhage which was present in 33.050% [18].

Though there is decline in the number of maternal mortalities because of hemorrhages due to the increase in the deliveries in hospitals and facilities

of antenatal care, still it is responsible for maximum number of maternal deaths. Maternal mortalities because of anemia have also reduced because of the proper facilities of health care as well as nutrition. The most important 2<sup>nd</sup> cause of mortality was HTN (Hypertension) which is responsible for 21.33% mortalities. Disorders of hypertension in the period of pregnancy are the most common reason of death in Latin America as 23.68%. In fully developed countries of the world, majority of the mortalities are outcome of the complications related with surgery and process of anesthesia [19]. Hypertensive complications in the period of pregnancy were the most important reason of maternal mortalities in the research works conducted by Singh and Paul as 22.08% and 30.58% correspondingly [20]. The process of pregnancy raises the hyper-coagulability, idleness and stasis which are responsible to increase the coagulation susceptibility. Among the reasons of demises of the patients, the third most important reason as identified in all the patients was thromboembolism. This complication of thromboembolism is the most important life taking reason in the females having pregnancy. About 13% of the maternal mortalities are the advanced countries are because of the thromboembolism.

Approximately, there were 33% deaths in this research work were in the females having 23 to 30 years of age. Teenage marriages in our country are very common and high rate of fertility, high level of poorness and lack of awareness and gender discrimination are main factors behind this issue. The fact is that in our country most of the poor females are many times more likely to meet their death in the duration of delivery because of anemia as well as malnutrition. Lifetime risk of a female dying because of the reasons related with pregnancy in the countries which are underdevelopment is 1:40 in comparison with the 1:3600 in the advanced countries of the world. There are some limitations of this research work as this research work was carried out in a single center for a specific duration of time. There is need of more research works involving many health centers from various regions of the country to reach specific avoidable risk factors which can decrease the high rate of maternal mortalities. The findings of that collaborate effort will be helpful to consolidate the findings of this research work.

### CONCLUSION:

The findings of this research work concluded that there was a decreasing trend of maternal mortality from 2015 to 2018 but again there was an increase in the rate of maternal mortality in 2019. The ratios of maternal mortality remain very high. The main causative factor for the maternal mortality is hemorrhage. The results of this research work

highlighted the requirement for the comprehensive efforts with the use of multi-sector collaborations from health care authorities to decrease the rate of maternal mortality.

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