Prevalence of Maternal Mortality in Babylon Governorate for the Period of 2014-2018

Hewa Sattar Salih, Ph.D* Naji Yasser Saadoon, Ph.D** Zhian Salah Ramzi, Ph.D*** Anees Flayyih Abdulhassan, Ph.D****

ABSTRACT

Background: In Iraq, two major conflicts in the previous two decades have impeded progress toward achieving the Millennium Development Goals (MDGs). These conflicts have caused damage on the country's infrastructure and impacted different aspects of the health-care system. This study aimed to determinate maternal mortality rate in the Babylon Governorate and compares the results with developed counties in addition to identify the vast majority causes of maternal mortality rate.

Methodology: A descriptive design (retrospective study) is carried throughout the present study. The data collected through a convenient sample, which is comprised of all reported cases of maternal mortality for the period of 2014-2018 in Babylon Health Directorate, was selected. A maternal mortality questionnaire was constructed to measure the prevalence of maternal mortality in the Babylon Governorate. The pilot study was used to determine the validity and reliability of the questionnaire. Descriptive and inferential statistical analysis was used to analyze the collected data.

Results: The research findings depict that the maternal mortality ratio is almost double as being compared with developed countries throughout the years of 2015 to 2018, most of the direct top causes of maternal mortality are accounted for postpartum hemorrhage, and puerperal sepsis as well the vast majority of maternal mortality rate in 2014-2017. Maternal mortality causes include antepartum and postpartum hemorrhage, obstructed labor, and sepsis, late pregnancy, and multi birth are accounted as most risk factors for maternal mortality during 2014-2018, and the most of the maternal mortality is accounted for those who are rural area residents and absence of communication between primary health care centers and maternal hospitals, Furthermore, Inefficiency of primary health services, family planning, and minimal access of the pregnant women to skilled midwifery or emergency care.

Conclusions: This study concluded that the use se of modern family planning methods would contribute to reduce maternal death.

Keywords: Maternal mortality, Prevalence, Postpartum, Pregnant women

INTRODUCTION

United Nations International Children's Emergency Fund (UNICEF), and World Health Organization (WHO) estimates that pregnancy complications cause death for 529,000 every year, and sub-Saharan Africa and Asia comprise about 90% of the deaths. Maternal mortality represents a calamitous medical complication in many societies. The main etiology of mortality among women in reproductive age are because of complications during or after childbirth and pregnancy[1]. World Health Organization (WHO) defined Maternal death or maternal mortality as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes"[2]. Biostatistics and information systems of (WHO) mentioned in the report (2018) "Every minute a woman dies during labor or delivery. The highest maternal mortality rates are in Africa, with a lifetime risk of 1 in 16; the lowest rates are in Western nations (1:2800), with a global ratio of 400 maternal deaths per 100,000 live births"[3]. While Nawal Mohammed Nour stated, by the topic introduction to maternal mortality, obstetrics and gynecology "Maternal mortality in nations with poor resources has been put down into 3 sections: delay and hesitate in deciding to seeking care, reaching care lately, and not

*   Assistant Professor
       Community Health Nursing Department
       College of Nursing, University of Kirkuk
       Iraq. E-mail: Dr.hewa-salih@uokirkuk.edu.iq
**   Assistant Professor
       Community Health Nursing Department
       College of Nursing
       University of Babylon
***   Assistant Professor in Community Medicine / epidemiology
       College of Nursing
       Sulaimani University
****   Assistant Lecturer
       Adult Health Nursing Department
       College of Nursing
       University of Babylon

receiving adequate treatment on time. The first section is responsibility of the mother, family, or community that indiscriminate a life-threatening condition. It is not easy to identifying an emergency due to occurrence of large percentages of death during labor or in the first 24 hours after delivery. Many of births occur at home by unskilled nurse, while it needs skill to predict or prevent unpleasant outcomes and medical knowledge to diagnose and act on complications without hesitation. So far, the midwife and/or family realizes the presence of a problem at that time it's too late"[4]. Women with critical conditions who use public transportation to get to the health care facility often do not make it in time. Women receive inadequate care or inefficient treatment upon arrival. Nations with poor resources and insufficient health-care facilities may suffer from lack of the technology or services that are necessary to provide critical care to life-threatening patients. Medical negligence, and lack of supplies take a part in maternal mortality[5]. There is weakness of maternal and child planning for future modification and health improvement strategies[6]. In Iraq, two major conflicts in the previous two decades have impeded progress toward achieving the Millennium Development Goals (MDGs). These conflicts have caused damage on the country's infrastructure and impacted different aspects of the health-care system. This study aimed to determinate maternal mortality rate in the Babylon Governorate and compare the results with developed counties in addition to identify the vast majority causes of maternal mortality rate.

MATERIALS AND METHODS

A retrospective study was carried out in maternal hospital in the Babylon Governorate, from August 2018 to February 2019. The sample of study is divided into two group included record from 200 maternal hospital consumers which include mothers with prenatal and postnatal, and included items related to maternal mortality, and statistics of vital events of Babylon Health Directorate, forensic medicine, and statistics of vital events of Babylon Governorate Hospitals. The collected records had been analyzed by descriptive statistical data analysis (frequency, percent and ratio)[7,8].

RESULTS

Table 1: Number of Maternal Mortality and Its Ratio per 100000 Live births

Parameters	2014	2015	2016	2017	2018
Number of live birth	64563	65743	69550	65908	62692
Number of maternal mortality	10	24	21	21	24
Ratio	15.5 *(18.5)	34.9 *(18.25)	30.1 *(17.25)	31.8 *(18.2)	38.2 *(19.1)

*Maternal mortality ratio in developed countries

Results out of (Table 1) depict the maternal mortality ratio is almost double as being compared to that of the developed countries throughout the years of 2015 to 2018.

Table 2: Top Ten Direct Causes of Maternal Mortality 2012-2016

Causes	2014	2015	2016	2017	2018	Total	Percent
Abortion	1	2	2	1	1	7	7.00
Antepartum hemorrhage	1	1	2	2	4	10	10.00
Postpartum hemorrhage	3	5	4	4	7	23	23.00
Pulmonary embolism	0	2	2	3	1	8	8.00
Unspecific maternal hypertension	1	2	1	2	3	9	9.00
Rupture uterus	1	0	1	2	1	5	5.00
Cerebrovascular accident	1	0	3	3	4	11	11.00
Obstetrics embolism	0	0	2	1	0	3	3.00
Puerperal sepsis	2	11	3	3	2	21	21.00
Other ill- defined and unspecified causes of mortality	0	1	1	0	1	3	3.00
Total	10	24	21	21	24	100	100

Results out of (Table 2) present that the most causes of maternal mortality are postpartum hemorrhage (23 %) and puerperal sepsis (21 %).

Table 3: Maternal Mortality Risk Factors

Risk Factors	2014	2015	2016	2017	2018	Total	Percent
Late Pregnancy	4	4	3	7	7	25	25.00
Teenage Pregnancy	2	2	3	1	1	9	9.00
Overweight	1	2	1	3	2	9	9.00
Chronic disease	1	3	3	3	4	11	11.00
Multi birth	1	3	5	5	5	19	19.00
Obstetrics past history	0	3	2	1	1	7	7.00
Total							80%
Without	1	7	4	4	4	20	20.00
Total	10	24	21	21	24	100	100

Results out of (Table 3) shows that late pregnancy (25%) and multi birth (19%) are accounted as most risk factors for maternal mortality during 2014-2018 and majority of maternal mortality were at risk (80%).

Table 4: Demography of Maternal Mortality

List	Demography		2014	2015	2016	2017	2018	Total	%
1	Residence	Rural	7	15	8	15	17	62	62.0
		Urban	3	9	13	6	7	38	38.0
2	Age (Years)	-19	2	2	3	1	1	9	9.0
		20-24	3	7	7	3	6	26	26.o
		25-29	--	7	4	3	6	20	20.0
		30-24	1	4	4	5	4	18	18.0
		35-	4	4	3	7	7	25	25.0
3	Level of Education	Illiterate	3	5	5	4	3	20	20.0
		Educate	3	6	7	5	6	27	27.0
		Elementary school	3	6	5	7	8	29	29.0
		Intermediate	1	4	3	4	4	16	16.0
		Secondary school	0	2	1	1	3	7	17.0
		Other	0	1	0	0	0	1	1.0

Results out of (Table 4) indicate that most of the maternal mortality is accounted for those who are rural area residents (62%), late age (35) is (25.0%). MMR also was highest among women's with low education level.

Table 5: Distribution of Visits to Primary Health Care Centers, Risky Pregnant Women, Birth inside Health Facilities and Visits with Referral

List	Item	Frequency	Percent
1	**Pregnant women visits to primary health care center**		
	Yes	143	71.5%
	NO	57	28.5%
	Total	200	100%
2	**pregnant women at risk**		
	Yes	63	31.5%
	NO	137	68.5%
	Total	200	100%
3	**Birth inside health facilities**		
	Yes	116	58%
	NO	84	42%
	Total	200	100%
4	**Visit of hospital with referral or report from PHCC**		
	Yes	13	6.5
	NO	187	93.5
	Total	200	100%

Results out of (Table 5) show that most of the women have had visits to primary health care centers (71.5%), birth inside health facilities (58%) and no visit of hospital with referral or report from primary health care centers (93.5%).

DISCUSSION

Results out of table (1) depict the maternal mortality ratio is almost double as being compared to that of the developed countries throughout the years of 2013 to 2016. United Nations International Children's Emergency Fund (UNICEF), and World Health Organization (WHO) estimates that pregnancy complications cause death for 529,000 every year, and sub-Saharan Africa and Asia comprise about 90% of the deaths[9]. Maternal mortality represents a calamitous medical complication in many societies. Poverty may represents the main difference between developed and developing countries, however it's not mean absence of maternal mortality there[10,11]. Results out of table (2) present that most of the direct top causes of maternal mortality are accounted for postpartum hemorrhage (23. %) and puerperal sepsis (21.%). The study findings depict that the vast majority of maternal mortality rate is (80%) in 2012-2015. Etiology of maternal mortality include pulmonary embolism, postpartum hemorrhage, unspecific maternal hypertension and sepsis. There are five main complications that causes maternal death: bleeding, unsafe induced abortion, systematic inflammatory response (sepsis), uncontrolled hypertension during pregnancy, and obstructed labor. While the majority of maternal deaths are related to developing countries, this doesn't mean that other women in developed countries are not suffering from medical complications during or after pregnancy[12]. Halims' study depict, that the majority of the cases 70.4% (402) were classified as direct maternal deaths. The main cause of death was hemorrhage (38%) second one pre-eclampsia/ eclampsia that represent (20%), and the last one was sepsis (8.1%) [13,14]. The study findings show that late pregnancy (25%) and multi birth (19%) are accounted as most risk factors for maternal mortality during 2012-2016 and majority of maternal mortality were at risk (80%). Increase of maternal age resulting in increased maternal mortality. It also explained that maternal mortality increases with when maternal age is above 40. These results indicates that whenever the mothers getting old in age they will be at high risk of during or after pregnancy complications that may lead to death[15,16].Findings indicate that most of the maternal mortality is accounted for those who are rural area residents (62%), most of the maternal mortality is accounted for those who are the late age (35-) is (25.0%). and results out of the level of education that the most of maternal mortality if low level of education is illiterate, read and write, and elementary which is accounted for(76%) of them[17,18]. Mbizvos' study depicts that maternal death rate for people with rural residency was 168 per 100,000 of live births, and in other side for the urban residency was 85 per 100,000

live births[19]. The greatest risk of maternal death was among early teenagers and older mothers. Illiterate women were found to be more associated with maternal death ratio, as women who had no formal education represent 70% of all maternal deaths in this study[20,21]. Table (5) findings indicate that most of the women have visits to primary health care centers (71.5%), birth inside health facilities (58%) and no visit of hospital with referral or report from primary health care centers (93.5%). Almost one third of these women have risky pregnancy (31.5%). G. Walraven Said "our results also highlight the need to improve the quality of primary health care and for community-based education directed at increasing of the severity of the problems and the need to take prompt action. Health care related to pregnancy, childbirth and the often-neglected postpartum period involves different levels of care, all of which need to be included in interventions to further reduce mortality. Community services and referral-level services and the link between them need increased support and attention"[22,23].

CONCLUSION

This study concluded that the use se of modern family planning methods would contribute to reduce maternal death.

Authorship Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Potential Conflict of Interest: None

Competing Interest: None

Acceptance Date: 25 February 2022

Ethics Approval: University of Babylon/ College of Nursing's ethical committee was the obtainer of ethical clearance used in this study. Babylon Health Directorate reviewed the tools and protocol and approved to implement it.

REFERENCES

1. World Health Organization, UNICEF, UN Population Fund. Maternal mortality in 2000: estimates developed by WHO, UNICEF, UNFPA. Geneva: World Health Organization, 2004.
2. Romero-Gutierrez G, Espitia-Vera A, De-Leon A, et al. Risk factors of maternal death in Mexico. Birth 2007;34(1):21-5.
3. World Health Organization (WHO). (2016). Health statistics and information systems: Maternal mortality ratio (per 100 000 live births).
4. Nour NM, Introduction to Maternal Mortality, Obstetrics and Gynecology. Rev Obstet Gynecol 2008;1(2):77-81.
5. Jammeh A, Sundby J, Vangen S. Barriers to Emergency Obstetric Care Services in Perinatal Deaths in Rural Gambia: A Qualitative In-Depth Interview Study. ISRN Obstet Gynecol 2011:981096.
6. Yasser SN, Khalifa MF. Evaluation of quality Improvement for Maternal and Child Health Promotion in Baghdad City's Primary Health Care Centers. Iraqi National J Nurs Specialties 2013;27(1):59-65.
7. Muwfaq YN, Ahmed MM, Abdulsalam RR. Assessing Quality of Life in Palliative Care. Bahrain Med Bulletin 2021;43(3):594-6.
8. Naji AB, Ahmed MM, Younis NM. Adherence the Preventive Measure Against for COVID-19among Teachers at University of Mosul. In J Med Tox Leg Med 2021;24(4).
9. World Health Organization, UNICEF, UN Population Fund. Maternal mortality in 2000: estimates developed by WHO, UNICEF, UNFPA. Geneva: World Health Organization, 2004.
10. Semba RD, Bloem MW. Nutrition and Health: Nutrition and Health in Developing Countries, Second Edition Edited by: Humana Press, Totowa, NJ.2008, 45.
11. Younis NM, Mahmoud M, Ahmed A, et al. University Students' Attitude Towards E-Learning. Bahrain Med Bulletin 2021;43(2):460-2.
12. Maine D, Akalin MZ, Ward VM. The Design and Evaluation of Maternal Mortality Programs Center for Population and Family Health, School of Public Health ,Columbia University, June 1997. P. 4.
13. Halim A, Utz B, Biswas A, et al. Cause of and contributing factors to maternal deaths; a cross-sectional study using verbal autopsy in four districts in Bangladesh. BJOG 2014;121(4):86-94.
14. Ahmed MM, Younis NM, Hussein AA. Violence towards Nurses staff at teaching hospitals in Mosul City. Indian J Forensic Med Toxicol 2020;14(3):2598-603.
15. Abiodun NL, Kabir, Kurfi O, et al. Risk Factors for Maternal Mortality in Nigeria. Research Gate 2016.
16. Younis NM, Ahmed MM, Hussein AA. Nurses' knowledge, attitude and practice towards preparedness of disaster management in emergency of mosul teaching hospitals. Medico-Legal Update 2020;20(3):775-79.
17. Zabin L Kiragu K. The Health Consequences of Adolescent Sexual and Fertility Behavior in Sub-Saharan Africa. Stud Fam Plann 1998;29(2):210-32.
18. Ahmed MM, Younis NM, Hussein AA. Prevalence of tobacco use among health care workers at primary health care centers in Mosul City. Pakistan J Med Health Sci 2021; 15(1):421-4.
19. Michael TM, Fawcus S. Maternal mortality in rural and urban Zimbabwe: Social and reproductive factors in an incident case-referent study. Social Sci Med 1993;36(9):1197-1205
20. Ujah IAO, Aisien OA, Mutihir JT, et al. Factors Contributing to Maternal Mortality in North-Central Nigeria: A Seventeen-year Review. Afr J Reprod Health 2005;9(3):27-40.
21. Younis NM, Ahmed MM, Dhahir NM. Prevalence of Coronavirus among Healthcare Workers. Int J Med Toxicolgy Legal Med 2021;24(2).
22. Walraven G, Telfer M. Maternal Mortality in Rural Gambia: Levels, Causes and Contributing Factors. Bull World Health Organ 2000;78(5):603-13.
23. Ahmed M, Younis NM, Dhahir NM. Acceptance of Covid-19 vaccine among nursing students of Mosul University, Iraq. Rawal Med J 2022;47(2).