

Socio-Demographic Factors, Causes and Three Delays
Affecting Maternal Death in Valsad, Gujarat

By

Pragya Vishwakarma

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2017-2019



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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Pragya Vishwakarma, student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at National Health Mission (NHM), Gujarat from 4th February to 10 May.

The Candidate has successfully carried out the study assigned to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

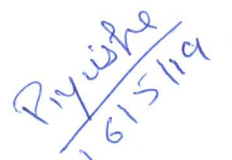


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Study on Relation of Socio-Demographic Factors & Delays with Maternal Death

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Organization – National Health Mission, Gujarat

She comes across as a committed, sincere & diligent person who has a strong drive
and zeal for learning.

We wish her all the best for future endeavors.

ABRUKI
8-15-19
Chief District Health Officer
District Health Society
Jilla panchayat, Valsad

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation title "Socio-demographic Factors, Causes & Three Delays Affecting Maternal Death in Valsad, Gujarat" submitted by Dr. Pragya Vishwakarma Enrollment No. IIHMR-U/01/2017-19/0627 under the supervision of Veena Nair Sarkar for award of MBA in Hospital and Health Management carried out during the period from Feb.4, 2019 to May 10, 2019 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

ABSTRACT

Objective: To identify the delays & causes related to maternal death as well the socio-demographic factors & that contribute to maternal death in Valsad district, Gujarat.

Study Design: Retrospective Observational Study

Methodology: Forty-four maternal deaths occurred during April 2017 to March 2019 were reviewed. Initially, the list of maternal deaths was taken from the institution's database & then data regarding socio-demographic factors like age, caste & literacy status, ANC checkups, gravida, parity, referrals, three delays, causes of death were collected on structured proformas by visiting their homes; which was later analyzed by SPSS version 22.

Results: The mean age of all the maternal deaths was 24.61 ± 4.4 years with minimum age being 18 years & maximum 39 years. 37 women (84%) belonged to ST category, 20 (45%) were illiterate & 18 (41%) had studied upto 8th standard. 32 maternal deaths (72%) were postnatal deaths. 87% were anemic. 87% had multiple delays, with maximum maternal deaths due to first delay followed by second delay & then third delay. Main cause of most of the deaths were PPH (40%) followed by puerperal sepsis (31%) & eclampsia (11%).

Conclusion: Poor socio-demographic factors can be a major reason for maternal deaths occurring due to type 1 & type 2 delay. Thus, knowledge & awareness about obstetric complications is important. Early referrals & good transport facilities can also reduce maternal mortality by avoiding type 2 delays.

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ABBREVIATIONS

MMR - Maternal Mortality Ratio

SDG - Sustainable Development Goals

PPH - Postpartum hemorrhage

APH - Ante-partum hemorrhage

SPSS - Statistical Package for the Social Sciences

ASHA- Accredited Social Health Activist

ANM - Auxilliary Nurse Midwifery

WHO - World Health Organization

INTRODUCTION

Pregnancy & childbirth related health complication & mortality has been a tragic & common event for mothers throughout the history. An estimated 830 women die from preventable causes related to pregnancy & childbirth around the world every day. (1) Since 1990 to 2015 the global maternal mortality ratio has dropped by 44 percent that transforms to annual average rate of reduction of 2.3 percent only. (2)

Maternal mortality ratio of India is 130 per 100000 live births (3) & it contributes to 20 percent of all the maternal deaths globally.

Maternal Death is 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. (4)

Maternal mortality ratio is defined as the number of maternal deaths per 100,000 live births, a measure of the risk of death once a woman has become pregnant.

Among all Indian states, Gujarat is one of those whose MMR fell from 112 in 2011-13 to two digits, i.e., 91 per 100000 live births as per SRS 2014-16. (3)

Major complications that accounts for approximately 75% of all the maternal deaths are severe bleeding (mostly bleeding after childbirth), sepsis, high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery & unsafe abortions. (1)

According to Thaddeus and Maine, delays of pregnancy-related mortality can occur at 3 different levels (5):

- delay in decision making to seek care,
- delay in reaching appropriate facility,
- delay in receiving adequate care in facility.

The reasons for the first type of delay can be lack of awareness, finances or lack of decision maker. The second type of delay is usually due to lack of transport facility & multiple referrals whereas the third delay is due to lack of blood supplies, equipment or skilled manpower at the facility.

Low socio-economic status of women, rural areas, illiteracy & health seeking behavior may also be the contributing factors resulting in delays in receiving care during pregnancy. (5)
(6)

Reduction of maternal mortality has been a global health priority. One target under SDG Goal 3 is to reduce global maternal mortality ratio to less than 70 per 100000 live births by 2030. (7)

Therefore, prerequisite for further reduction of maternal mortality ratio is to study the causes & delays associated with maternal death, as well as socio-demographic factors contributing to maternal death; for effective health policy decisions.

Keeping in mind the above points, this study was conducted with the following objectives-

- To assess delays & causes related to maternal death.
- To describe the socio-demographic factors contributing to maternal death.

LITERATURE REVIEW

Author	Year	Study location	Sample Size	Salient Features
1. Maternal mortality in rural Varanasi: Delays, causes, and contributing factors				
Kalpna Kumari Ratan Kumar Srivastava, Manushi Srivastava, Neeti Purwar	2019	Varanasi, U.P.	22	Mean age of women was 23 years (± 5.5) with minimum being 16 yrs. & maximum 35 yrs. 45.5% of all women were illiterate. Type 1 delay was found in 81.8%, type 2 in 54.5%, & type 3 in 45.5%. (8)
2. Contribution of social factors to maternal deaths in urban India: Use of care pathway and delay models				
Manmeet Kaur, Madhu Gupta, Vijin Pandara Purayil, Monika Rana, Venkatesan Chakrapani	2018	Chandigarh	136	Eight percent women died at home & 54% died at tertiary facilities. PPH (26.5%), puerperium (25%) and labor/delivery (14.7%) were major reported causes. (9)
3. Analysis of maternal mortality: a retrospective study at tertiary care center				

Surekha N. Khandale, Kshama Kedar	2017	Indira Gandhi Government Medical College Nagpur, Maharashtra	78	69.23% women were from rural areas. 76.92% belonged to BPL category. 64.09% received <3 ANC visits. 94.87% were referred. Type 1 delay was prevalent (85.89%) compared to Type 2 and 3 delay. (10)
4. Global causes of maternal death: a WHO systematic analysis				
Lale Say, Doris Chou, Alison Gemmill, Özge Tunçalp, Ann-Beth Moller, Jane Daniels, A Metin Gülmezoglu, Marleen Temmerman, Leontine Alkema	2014	WHO	60799	Within the period of 2003 to 2009, hemorrhage, hypertensive disorder & sepsis contributed to more than half of all the maternal deaths globally. (11)
5. Cause of and contributing factors to maternal deaths; a cross-sectional study using verbal autopsy in four districts in Bangladesh				
A Halim, B Utz, A Biswas, F Rahman, N van den Broekb	2014	Bangladesh	571	48% died in health facilities, 17% died on the way to health facilities & 35% died at home. 64% deaths were those women who were multiparous. Most common identified cause was hemorrhage (38%) followed by pre-eclampsia/eclampsia (20%) & sepsis (8.1%). (12)
6. Socio-demographic Characteristics & the Three delays of maternal mortality				

Nusrat Shah, Nazli Hossain, Rizwana Shoaib, Ayesha Hussain, Rehma Gillani, Nusrat H. Khan	2009	Karachi	104	94% had multiple delays, out of which 71% faced first delay, 74% faced second delay whereas 48% were third delay. (13)
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METHODOLOGY

Research Question -

1. What are the most common causes of maternal deaths in Valsad, Gujarat?
2. Does socio-demographic factors contribute to maternal death?

Study Design	: Retrospective Observational Study
Study Approach	: Quantitative (Semi-structured questionnaire)
Sample Area	: Valsad District, Gujarat
Sample size	: 44 (Reference Period – financial year 2016-17 & 2018-19)
Inclusion Criteria	: All maternal deaths that occurred due to any obstetric complications
Exclusion Criteria	: Accidental maternal death : Mothers dying after 42 nd days of deliveries
Study Tool	: Semi-structured questionnaire
Duration	: 90 days
Statistical Method	: SPSS Version 22

RESULTS

1. Taluka-wise maternal deaths

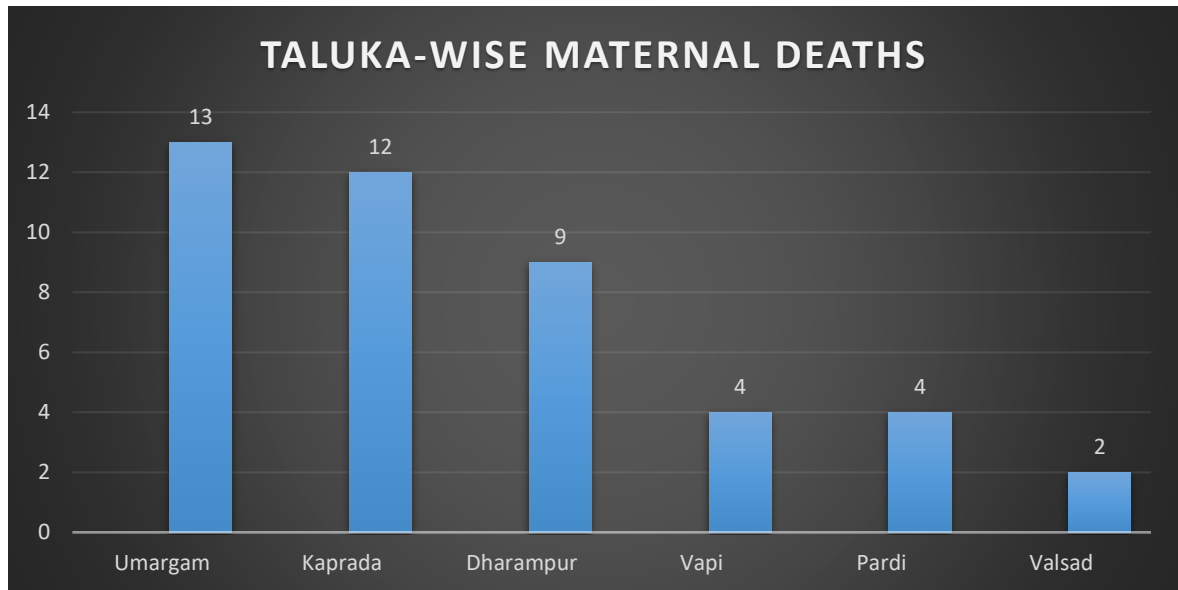


FIGURE 1 - Taluka-wise frequency distribution of maternal deaths

Interpretation-

Maximum maternal deaths occurred in Umargam taluka (13) followed by Kaprada (12), Dharampur (9), Vapi & Pardi (4 each) & Valsad (2).

2. Age-wise frequency distribution of maternal deaths

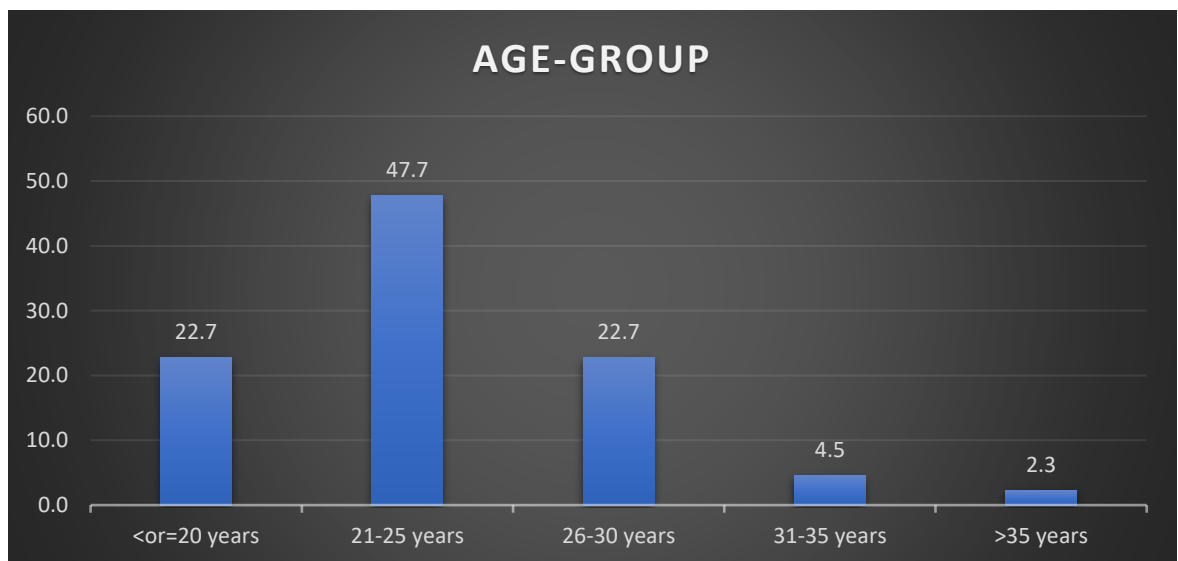


FIGURE 2 - Age-wise frequency distribution of maternal deaths

Interpretation-

Maximum maternal deaths occurred in the age-group of 21-25 years.

3. Caste-wise frequency distribution of maternal deaths

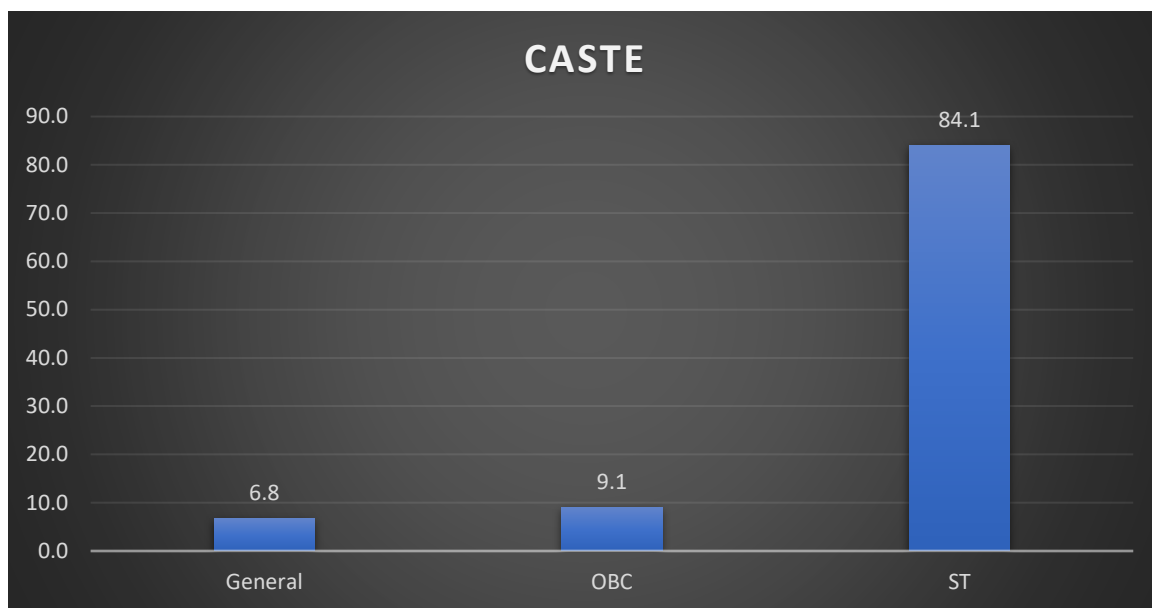


FIGURE 3 - Caste-wise frequency distribution of maternal deaths

Interpretation-

Out of all the maternal deaths, 37 (84%) belonged to ST category.

4. Literacy status-wise frequency distribution of maternal deaths

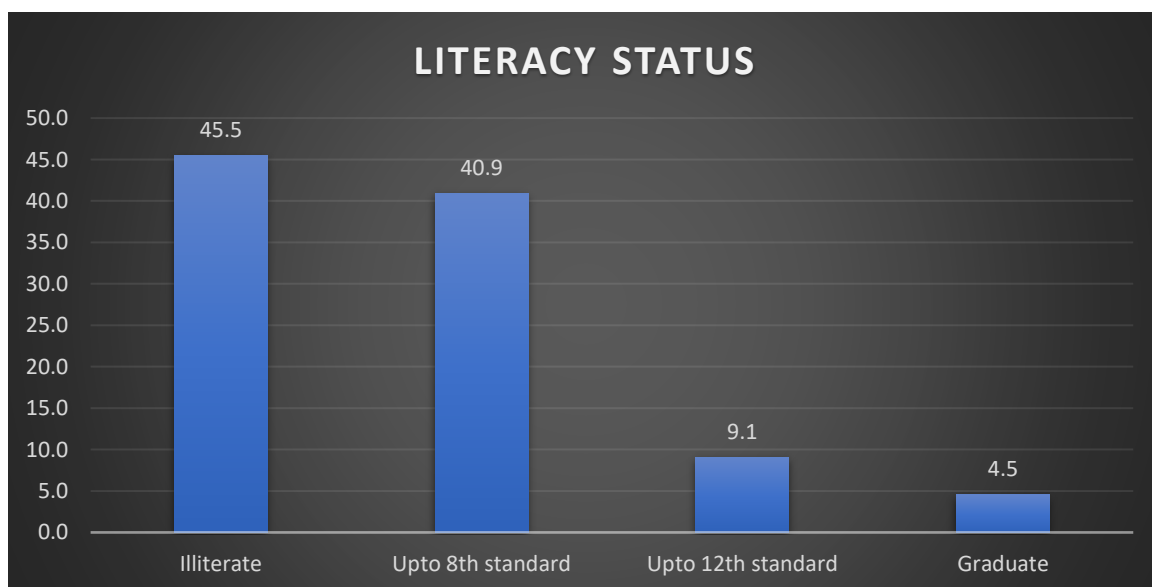


FIGURE 4 – Literacy-wise frequency distribution of maternal deaths

Interpretation-

Out of all the women, 20 (45%) were illiterate, 18 (41%) studied till 8th standard, 4 (9%) studied till 12th standard & only 2 (4%) were graduate.

5. Occupation-wise frequency distribution of maternal deaths



FIGURE 5 – Occupation-wise frequency distribution of maternal deaths

Interpretation-

Out of all the 44 maternal deaths, 79.5% women (35) were housewives.

6. ANC checkup-wise frequency distribution of maternal deaths

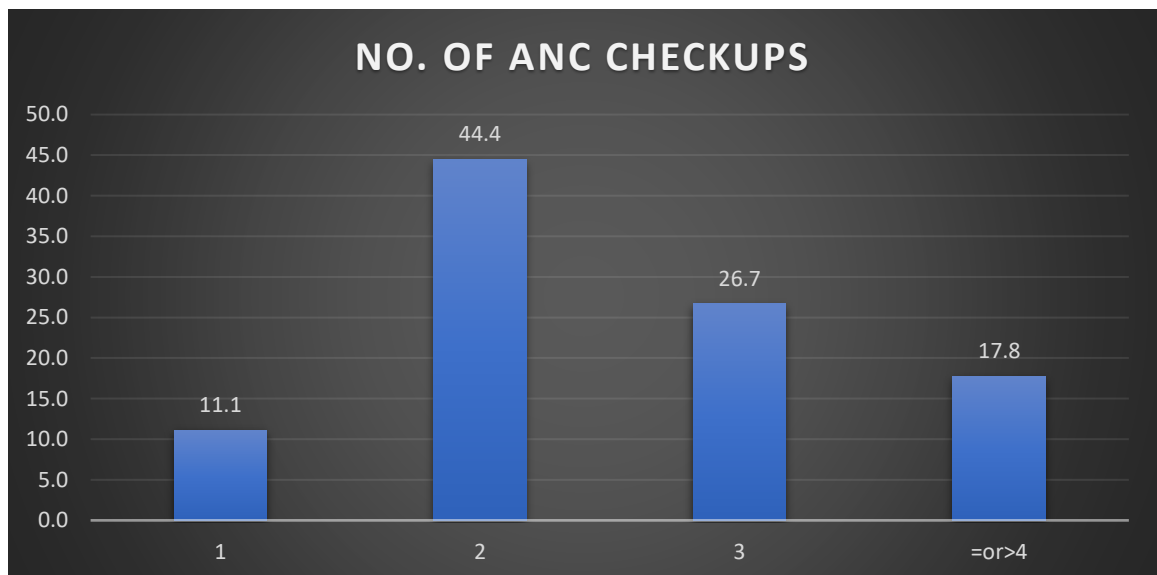


FIGURE 6 – ANC checkup wise frequency distribution of maternal deaths

Interpretation-

This graph shows that 17% (8) women had received ≥ 4 ANC checkups, 26% (12), 44% (20) & 9% (4) received only 3, 2 & 1 ANC checkups.

7. Frequency distribution of maternal deaths according to place of death

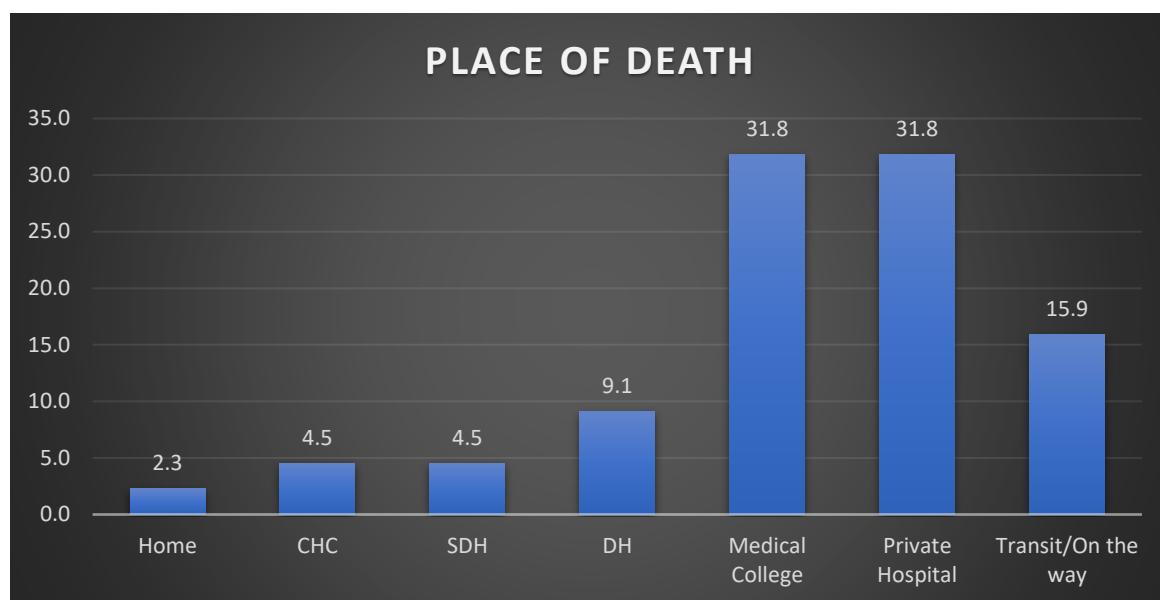


FIGURE 7 - Frequency distribution of maternal deaths according to place of death

Interpretation-

Same number of deaths i.e., 14 (31.8%) occurred in both medical college & private hospitals. 7 deaths (15%) occurred on the way to the facility, 8 (18%) occurred in government facilities like CHC, SDH & DH whereas 1 death occurred at home.

8. Frequency distribution of maternal deaths according to type of death

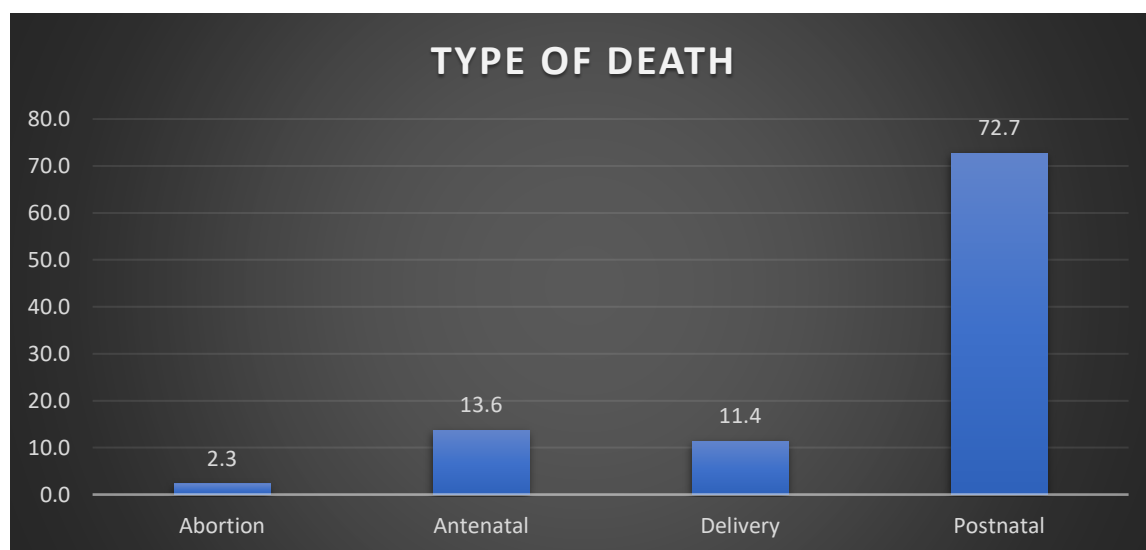


FIGURE 8 - Frequency distribution of maternal deaths according to type of death

Interpretation-

Out of all the 44 maternal deaths, 72% (32) were postnatal death.

9. Frequency distribution of maternal deaths according to the cause of death

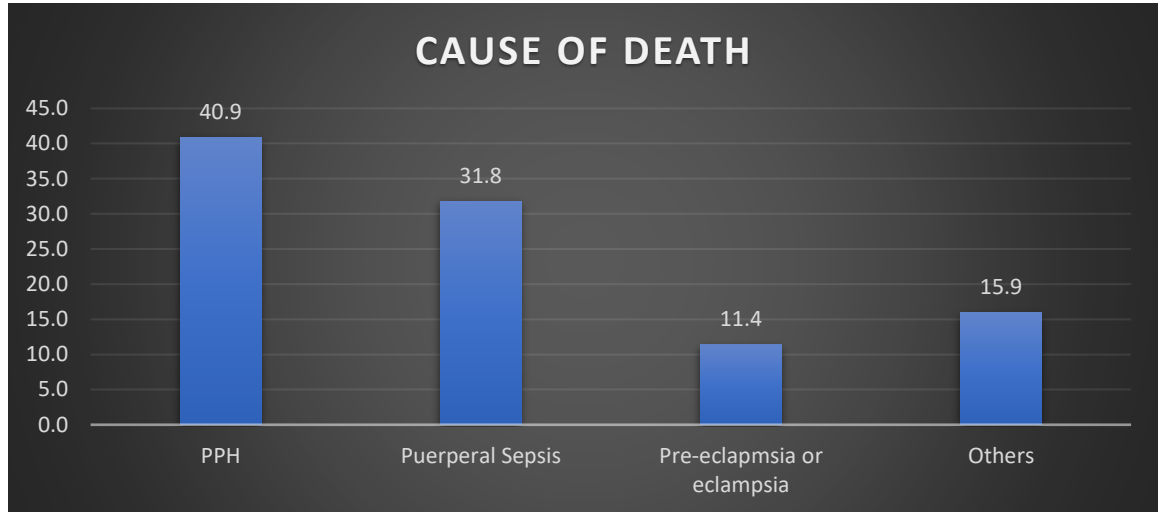


FIGURE 9 - Frequency distribution of maternal deaths according to the cause of death

Interpretation-

Forty-one percent (18) deaths occurred due to PPH/APH followed by 32% (14) deaths due to puerperal sepsis, 11% (5) due to eclampsia.

Thus, it can be concluded that most common cause of maternal deaths was post-partum hemorrhage followed by sepsis & pre-eclampsia.

10. Frequency distribution of type of delays associated with maternal deaths

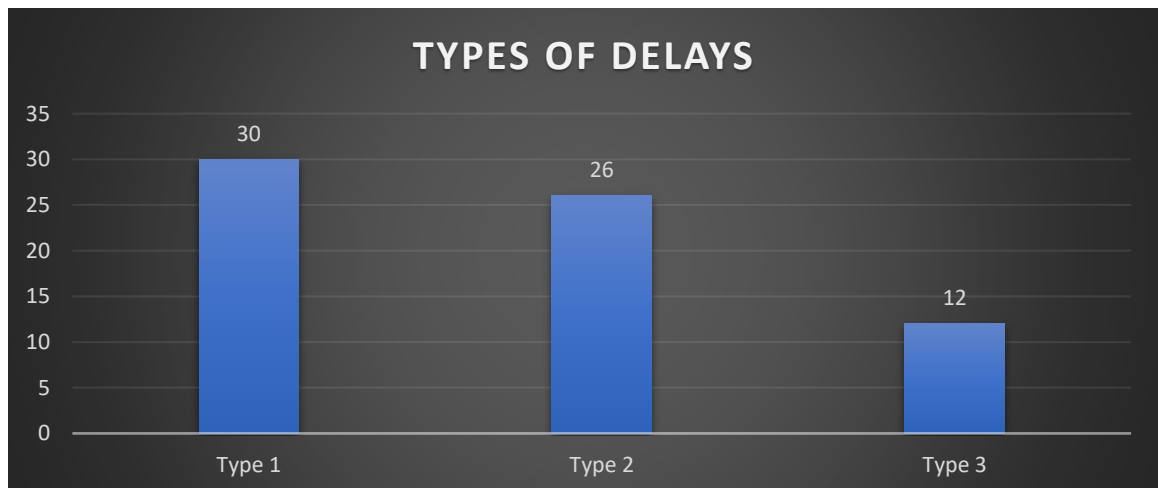


FIGURE 10 - Frequency distribution of type of delays associated with maternal deaths

Interpretation-

30 deaths were caused due to type 1 delay, 26 were due to type 2 delay & 12 due to type 3

delay. Most of the maternal deaths were caused due to type 1 delay.

11. Frequency distribution of causes of type 1 death

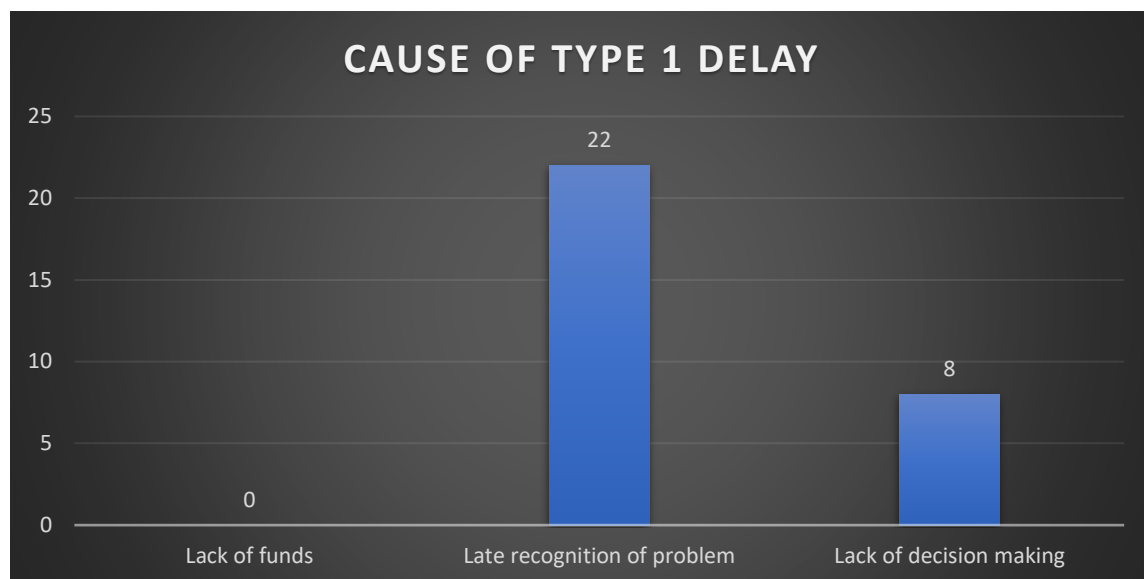


FIGURE 11 - Frequency distribution of causes of type 1 delay

Interpretation-

Out of all the type 1 delays, 22 were due to late recognition of the problem whereas 8 were due to lack of decision making in the right time.

12. Frequency distribution of anemia among women

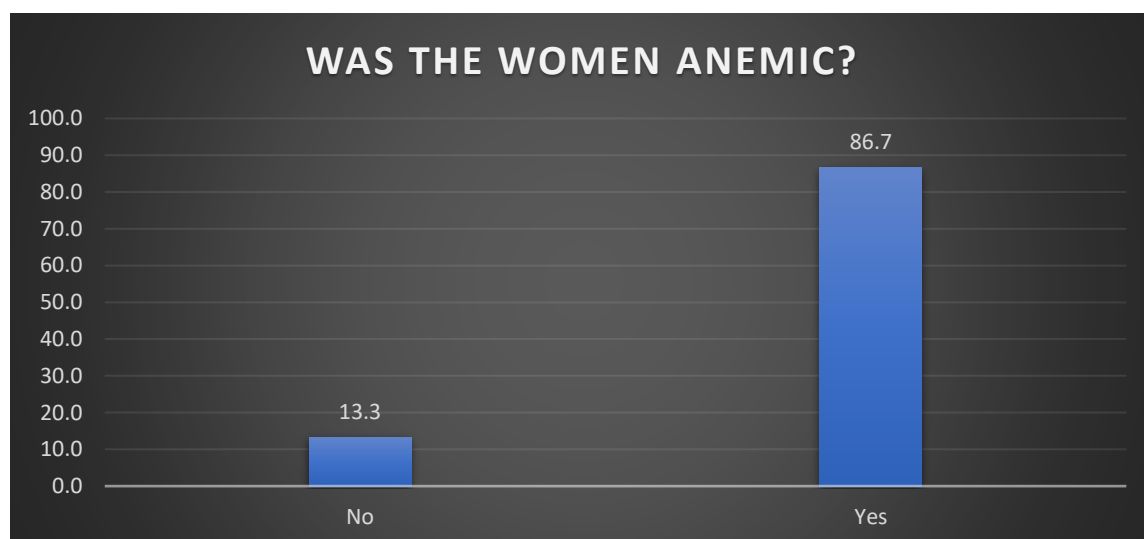


FIGURE 12 - Frequency distribution of anemia among women

Interpretation-

This graph shows that of all the pregnant women 87% (39) were anemic.

DISCUSSION

Maternal death is often a consequence of a long and complex chain of delays, and only in few cases death can be attributed to a specific event.

In this study 87% had multiple delays, with maximum maternal deaths due to first delay followed by second delay & then third delay. This result differs from those in a study of Madhya Pradesh, in which the most common type of delay was 2nd delay followed by 3rd & 1st delay. It seems that local sociocultural practices are playing important role in affecting the different level of delays in different areas. Hence, the steps to reduce these delays should be in such a way that it is socially acceptable, affordable, and accessible.

In this study main cause of most of the deaths were PPH (40%) followed by puerperal sepsis (31%) & eclampsia (11%). Similar findings have been reported by a systematic review, conducted by WHO, demonstrating hemorrhage and hypertensive disorders as the major contributors to maternal deaths in developing countries

LIMITATIONS

- Since the interviews were conducted from 4 weeks after death to 2 years of death, recall bias might be present. To minimize or avoid this bias, 2 respondents per case were interviewed.
- As the sample size (43) is very small, the results cannot be generalized for all maternal deaths, but nature of the results can be generalized to Valsad district because of similar socioeconomic status and cultural beliefs.

RECOMMENDATIONS

- Sensitization of the stakeholders regarding significance of maternal death.
- Ensuring timely registration & proper follow-up of all the pregnant women.
- Identification of all the pregnant ladies & their regular home-based care by ASHA worker & ANM is essential.
- Knowledge & awareness about obstetric complications along with early referrals & good transport facilities can reduce maternal mortality.
- Improving the quality of care at health facility level & referral system is paramount and likely to result in further reduction in maternal mortality in Valsad.
- Supervision of all the care-providers is necessary.
- Regular visits & audits should be made to all the health facilities of the district by the concerned district health officials. High Priority Talukas must be paid more attention.

SUPPLEMENTARY

Annexure 1 – Questionnaire

Q.1 Name-

Q.2 Age-

Q.3 Caste-

Q.4 Literacy status-

1. Illiterate
2. Upto 8th standard
3. Upto 12th standard
4. Graduate

Q.5 Occupation of woman-

1. Housewife
2. Agriculture laborer
3. Cultivator
4. Non-agriculture daily wage laborer
5. Govt. employee
6. Pvt. Employee
7. Business

Q.6 Age at marriage-

1. 18-25 years
2. 26-30 years
3. 31-35 years
4. > or = 36 years

Q.7 Date of death-

Q.8 Place of delivery

1. Home delivery
2. Institutional delivery

Q.9 Type of death-

1. Abortion
2. Antenatal
3. During pregnancy
4. Post partum

Q.10 Cause of death-

1. Postpartum hemorrhage
2. Hypertensive disorders
3. Sepsis
4. Puerperal sepsis
5. Obstructed labour
6. Ruptured uterus
7. Others (mention, if any)

Q.11 Gravida-

Q.12 Para-

Q.13 Abortions-

Q.15 Number of ANC checkups-

1. One
2. Two
3. Three
4. Four

Q.16 Anemia

1. Yes
2. No

Q.17 Type of delay-

1. Type 1
2. Type 2
3. Type 3

Q.18 Cause of type 1 delay-

1. Lack of finances
2. Late recognition of the problem
3. Lack of decision maker at place

Q.19 Cause of type 2 delay-

1. Long distance
2. Late referrals
3. Multiple referrals
4. Transport

Q.20 Cause of type 3 delay-

1. Delay in getting blood
2. Delay in surgery
3. Lack of skilled manpower at the facility

Q.21 Any referrals?

1. Yes
2. No

Q.22 Number of referrals?

1. 1
2. 2
3. >2

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