A Critical Study and Analysis on Maternal Mortality Due to Early Pregnancy and Its Impact on Community Healthcare in Reckjoani Rural Hospital at Rajarhat Block, West Bengal, India

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ABSTRACT

Maternal mortality remains a significant public health issue, particularly in rural regions of developing countries. Early pregnancy (pregnancy among adolescents and young women) is a major contributor to maternal deaths, resulting in profound impacts on community health and well-being. This study focuses on Reckjoani Rural Hospital in Rajarhat Block, West Bengal, to explore the prevalence, causes, and effects of maternal mortality due to early pregnancy.

The objective of the study focused on the below

1.   To determine the incidence of maternal mortality among early pregnancies in Reckjoani Rural Hospital.

2.   To identify the primary causes contributing to maternal deaths in young mothers.

3.   To analyse the impact of these deaths on community healthcare and overall community health.

A mixed-method approach was employed, combining quantitative data from hospital records (2023-2024) with qualitative information and data through personal interviews. Quantitative data were analysed to identify trends and common causes of maternal deaths, while qualitative data provided insights into the socio-economic and cultural factors that are influencing early pregnancies and maternal health results and outcomes.

The study found that maternal mortality among early pregnancies in Reckjoani Rural Hospital is alarmingly high. Key factors contributing to these deaths include lack of access to prenatal care, inadequate healthcare infrastructure, socio-economic barriers, and cultural practices. The qualitative analysis revealed that early marriage, limited education, and poverty are significant underlying contributors to early pregnancies. The impact on community healthcare is profound, with increased healthcare costs, emotional and psychological stress on families, and loss of productive workforce being notable consequences.

Maternal mortality due to early pregnancy in Reckjoani Rural Hospital presents a critical public health challenge. To conduct the study on this issues it requires a multi-focused approach, including implementation of minimum marriage age laws at panchayat ,an elective village council in India level, improving healthcare

infrastructure, enhancing access to education, and implementing community-based awareness to delay the age of first pregnancy. Strengthening healthcare policies like Janani Suraksha Yojana (JSY), Weekly Iron and Folic Acid Supplement (WIFS) programmes under National Health Mission (NHM) by continuous effort by health workers, teachers and block official, increasing community awareness are essential steps towards reducing maternal mortality and improving community health outcomes in Rajarhat Block, West Bengal.

Keywords: Maternal Mortality, Early Pregnancy, Community Healthcare, Reckjoani Rural Hospital, Rajarhat Block, West Bengal, Public Health.

INTRODUCTION

Maternal mortality stays a critical healthcare challenge, particularly in low-and middle -income nations. It refers to the maternal death during pregnancy, labor or within 42 days of termination of pregnancy due to various related complications. Early pregnancy, typically in women under 20, poses a higher risk due to biological immaturity, socio-economic constraints, and inadequate healthcare services. The research titled "A Critical Study and Analysis on Maternal Mortality due to Early Pregnancy and its Impact on Community Healthcare in Reckjoani Rural Hospital at Rajarhat Block, West Bengal" investigates the causes of maternal death, healthcare delivery during antenatal periods, the nature of maternal sufferings, socio-economic status, and its societal impact.

Reckjoani Rural Hospital in Rajarhat Block, West Bengal, serves a predominantly low to moderate socioeconomic area. The hospital oversees 34 sub-canters with around 5-8 healthcare providers each. These providers manage public health programs, including registration of pregnant women, antenatal check-ups, referrals, transportation to delivery canters, vaccination, and counselling.

Despite progress in some health indicators, West Bengal still faces challenges in reducing maternal mortality, especially in rural areas. Early marriage, lack of education, inadequate healthcare infrastructure, cultural practices, and media influence on adolescents contribute to early pregnancies and maternal deaths. The research aims to analyse both clinical and non-clinical aspects, including communication with healthcare providers, service accessibility, patient counselling, and the overall hospital environment.

The study seeks to identify the root causes of high maternal mortality, communication gaps between patients and institutions, and areas for improvement. It aims to inform evidence-based strategies to enhance patient care in Reckjoani Rural Hospital. The research is part of a broader effort to emphasize patient-cantered care and integrate feedback from patients' families into quality improvement initiatives. The findings are relevant not only to Reckjoani Rural Hospital but also to healthcare institutions globally, aiming to improve care quality and reduce maternal mortality.

By critically analysing maternal mortality due to early pregnancy and its broader impact on the community, the study aims to develop targeted interventions to improve maternal health. It contributes to the discourse on maternal health in rural India, offering insights into effective strategies for similar settings. The research holds practical implications for healthcare administrators, policymakers, and practitioners, providing valuable insights for strategic decision-making, resource allocation, and performance improvement.

The research on maternal mortality due to early pregnancy in Reckjoani Rural Hospital represents a pioneering effort to understand the complexities of early pregnancies and their implications for healthcare delivery and patient outcomes. By combining scholarly inquiry with practical relevance, the study aims to advance knowledge, inform practice, and inspire positive change in healthcare organizations. It sets a precedent for excellence in healthcare research, sex education, and service provision, contributing to a healthier, more resilient society.

LITERATURE REVIEW

As per the **World Health Organization (WHO),** maternal death rates have essentially reduced universally however it remain unfortunately high in low-and middle income nations (LMICs). Maternal mortality proportion (MMR) is characterized as the quantity of maternal death per 100,000 live births.

According to **Mosha et al., (2009)** adolescents are more prone to experience complications like obstructed labor, pre-eclampsia, and postpartum haemorrhage due to their physiological immaturity.

Studies by **Khan et al., (2006).** Has highlighted that limited access to quality prenatal care and emergency obstetric services significantly increases maternal mortality risks. In rural and underserved areas, the absence of skilled maternal delivery attendants and poor referral systems contribute to higher mortality rates.

Cleland et al., (2006) suggests that Economic constraints limit access to healthcare, education, and family planning services, contributing to higher rates of early pregnancy and associated mortality.

Gage, (2007), suggest that cultural practices and societal expectations often encourage early marriage and childbearing. In many communities, early pregnancy is normalized, which affects the uptake of preventive health measures.

Harrison et al., (2013) suggest that children born to adolescent mothers are much prone to health issues, like malnutrition as well as infant mortality. The absence of maternal care impacts the child's growth and development.

As per the studies by **Higgins et al., (2014).** to The death of a mother can lead to psychological trauma for surviving family members. The disruption of family dynamics and community structures can have longterm social repercussions.

According to **Miller et al., (2016),** lower educational attainment is linked to higher rates of early marriage and childbearing. Educated women are more likely to delay childbirth and seek appropriate healthcare.

Patel et al., (2018), suggested that early pregnancy often intersects with poverty, lack of education, and inadequate access to healthcare, exacerbating the risks associated with childbirth

According to **Muthengi et al., (2020)** states that maternal mortality due to early pregnancy imposes significant economic burdens on families and communities. The loss of a mother often leads to financial instability and increased poverty.

RESEARCH METHODOLOGY

Research Design:

This research project adopts a blended method research design, with configuration of both quantitative and qualitative approaches. Qualitative methods, include the structured interviews and content analysis will be utilised to gain information into healthcare facilities, Quantitative methods, including surveys questioner among target population and data analysis of the circumstances of maternal mortality rate, will be utilized to gather numerical data and identify the primary causes of maternal death & it's after effects on socio economic demography.

Population and Sample:

The population of interest for this study includes primary stakeholders, patient parties, medical professionals, and NGOs within the target market. A purposive sampling technique will be employed. The sample size for the survey will vary on the sub centre wise population, representing a diverse demographic and geographic range to ensure the generalizability of findings.

Data Collection Methods:

In this study of maternal death. was based on data analysis and question answer session after getting information of maternal death. All the question answer sessions done after receiving consent from respective families.

• Data collection is based on following ways

i) Deceased Mother registered who are residing at Rajarhat Rural & Peri Urban area

ii) Maternal death registered in Reckjoani Rural Hospital from other side of Rajarhat block

• Question & Answer sessions will include

Several questions & answer sessions, in each deceased mother's house both paternal & in laws. Conversations done in several sessions which included husband as well as family members of both sides. Conversations also done in neighbourhood in the same process.

A MDSR (Maternal Death Survey report) Committee was formed which included medical officers, Public Health Nurse, ASHA, ANM and this committee is responsible for all types of Data Collection regarding the maternal death. After Data collection this committee prepared a report and send it to higher authorities.

Qualitative data analysis will involve content analysis to identify patterns, themes, and key insights from interviews and textual data. Quantitative data Analysis will incorporate expressive measurements, like frequencies and rates, to sum up review reactions, as well as inferential insights, like correlation analysis and relapse investigation.

After this type of data collection and conversations sessions, Maternal mortality due to early pregnancy in rural contexts like Reckjoani Rural Hospital can stem from various interconnected factors:

Data Analysis :

The study was conducted among 2944 total registered cases of pregnant woman (PW) including Teenage mothers & rest all mothers with age > 20 years. The study was done by splitting of teenage Pregnancy (15% with numbers 439) & normal Pregnancy (85% with numbers 2505).
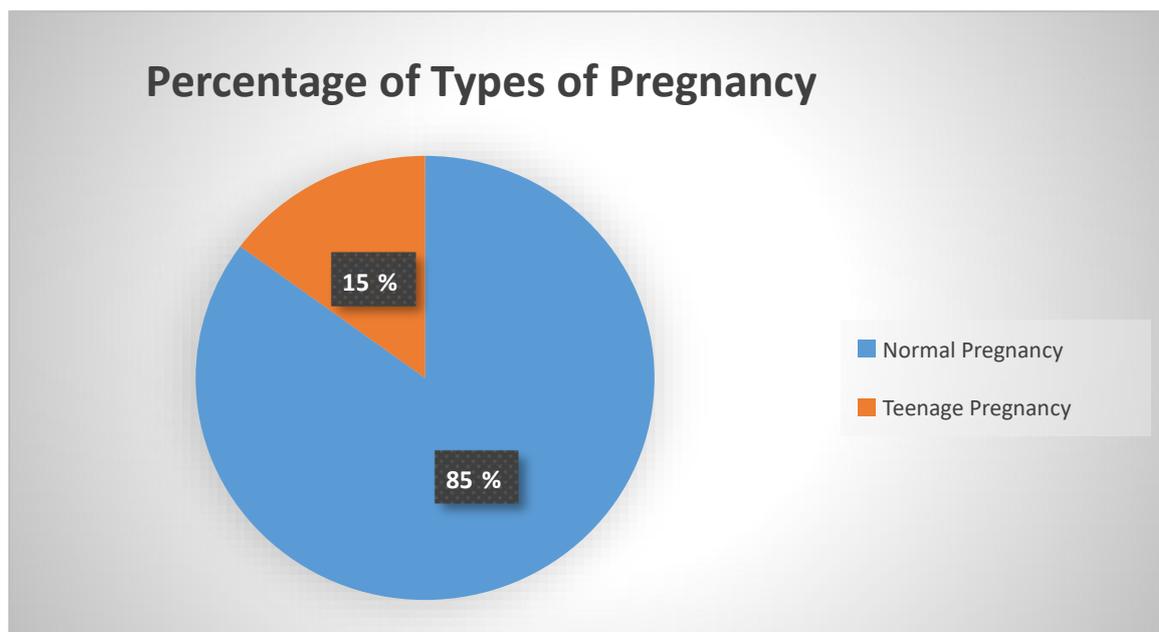

Chart-1 –Percentage of Type of Pregnancy at Reckjoani Rural Hospital at Rajarhat Block, West Bengal (March 2023 – April 2024)

The Number of maternal death occurred at Reckjoani Block(Rural & Peri Urban Area) is twelve (12) in number from April 2023 to March 2024. Based on this data the following data analysis have been fabricated as below. The study showed the alarming incidence of maternal death which include Seven (07) Teenage Pregnancy death

(58% of Death) and five (05) of Normal Pregnancy Death (42% of Death)
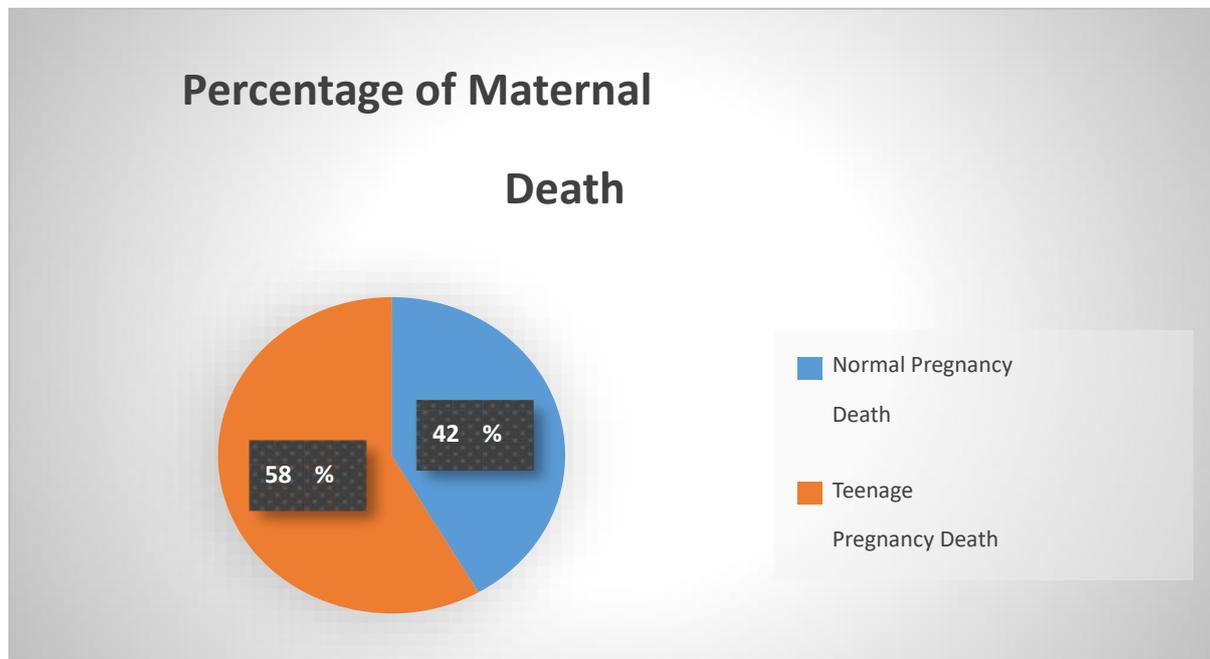

Chart-2 –Percentage of Maternal Death at Reckjoani Rural Hospital at Rajarhat Block, West Bengal (March 2023 – April 2024)

The study also analysed the maternal deaths occurred in various Sub Centre wise (S/C) under Reckjoani Rural Hospital at Rajarhat Block, West Bengal. There are total 34 numbers of Sub-Centres among them 11 Sub-Centres have recorded maternal death. The Maximum % is 17% & it has occurred in Sub-Centres – R.B-II under Reckjoani Rural Hospital at Rajarhat Block, West Bengal.
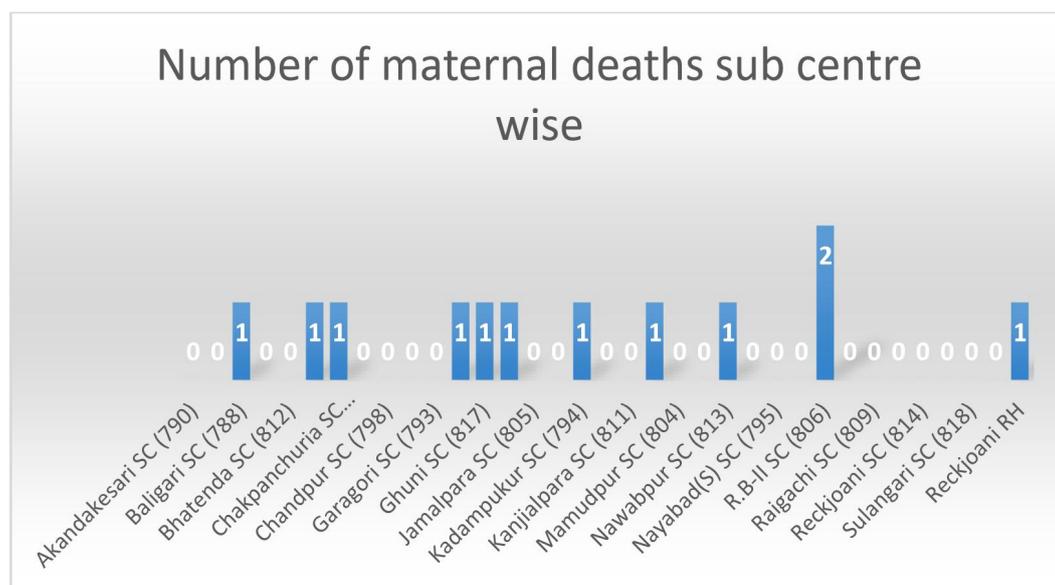

Chart-3- The Maternal death was distributed geographically among the 34 numbers of Sub-Centres at Reckjoani Rural Hospital at Rajarhat Block, West Bengal

The Study shows the cause of maternal death as reflected in death certificates. The maximum deaths are occurring due to Haemorrhagic shock (PPH – Post Partum Haemorrhage) with Sepsis which is 58%. The second most cause of death are Cardio respiratory failure and Acute severe respiratory distress which both accounts to 17%.These causes are acute in nature and occurred during delivery procedure. The Phase of death which is maximum during Post-Partum (11 No.) in comparison to Intra Partum (01 No).
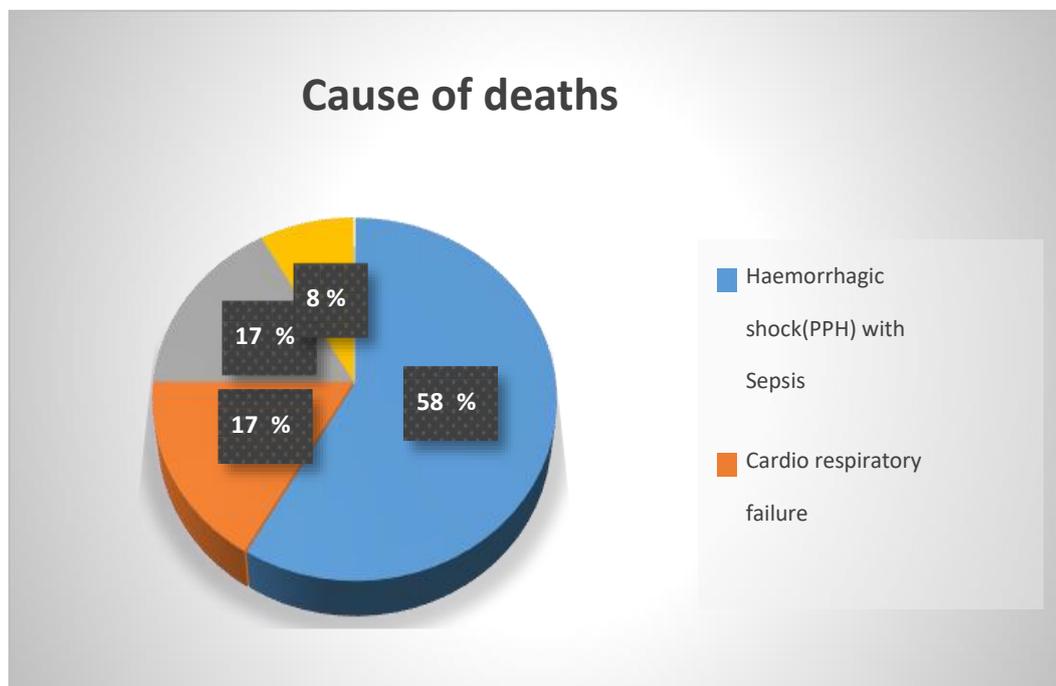

Chart-4 -The cause of maternal death as reflected in death certificates Reckjoani Rural Hospital at Rajarhat Block, West Bengal

On further study and investigation it was observed that the maternal death is highest in Prime Gravida & lowest in 2nd Gravida.

In respective of 2nd Gravida who are below 26 years experienced their 1st pregnancy when they were around 20 years of age which is very alarming. This is the same case also with 3rd Gravida who are above 26 years.
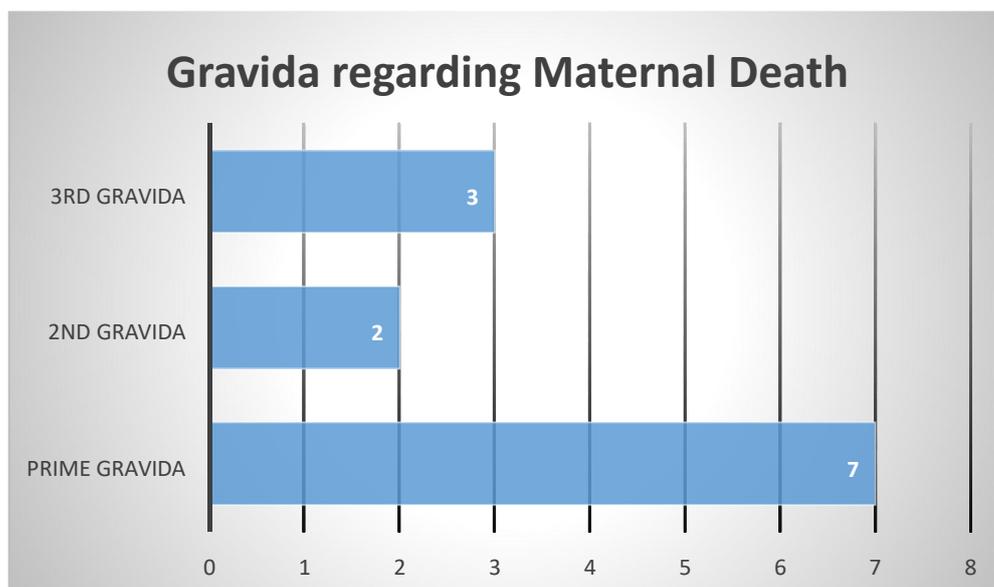
Chart -5-The Chart is showing Gravida wise maternal death which is highest in Prime Gravida & lowest in 2nd Gravida at Reckjoani Rural Hospital at Rajarhat Block, West Bengal

Teenage pregnancy is very vulnerable & causes most of the maternal death However, the Anti-Natal Care (ANC) Status of maternal death which is highest among the deceased mothers who have taken all ANC facilities. This is also alarming situation regarding proper assessment of high risk pregnancy. The shows that the highest maternal death (83%) in Rural areas .

To take the study further a qualitative study was done with the Several questions & answer sessions, in each deceased mother's house both paternal & in laws. Conversations was also done in several sessions with the husband of the deceased woman as well as family members of both sides. Conversations was also done in neighbourhood in the same process. The findings of the questioner are a follows -

The questions have been asked regarding maternal death to the family members of the patient after receiving consent & keeping confidentiality as follows-.

A. Questions asked to husband of the deceased Pregnant Women (12 numbers) with the set of Questions as per the guidelines of the Government of West Bengal , India under various parameters in the feedback form.
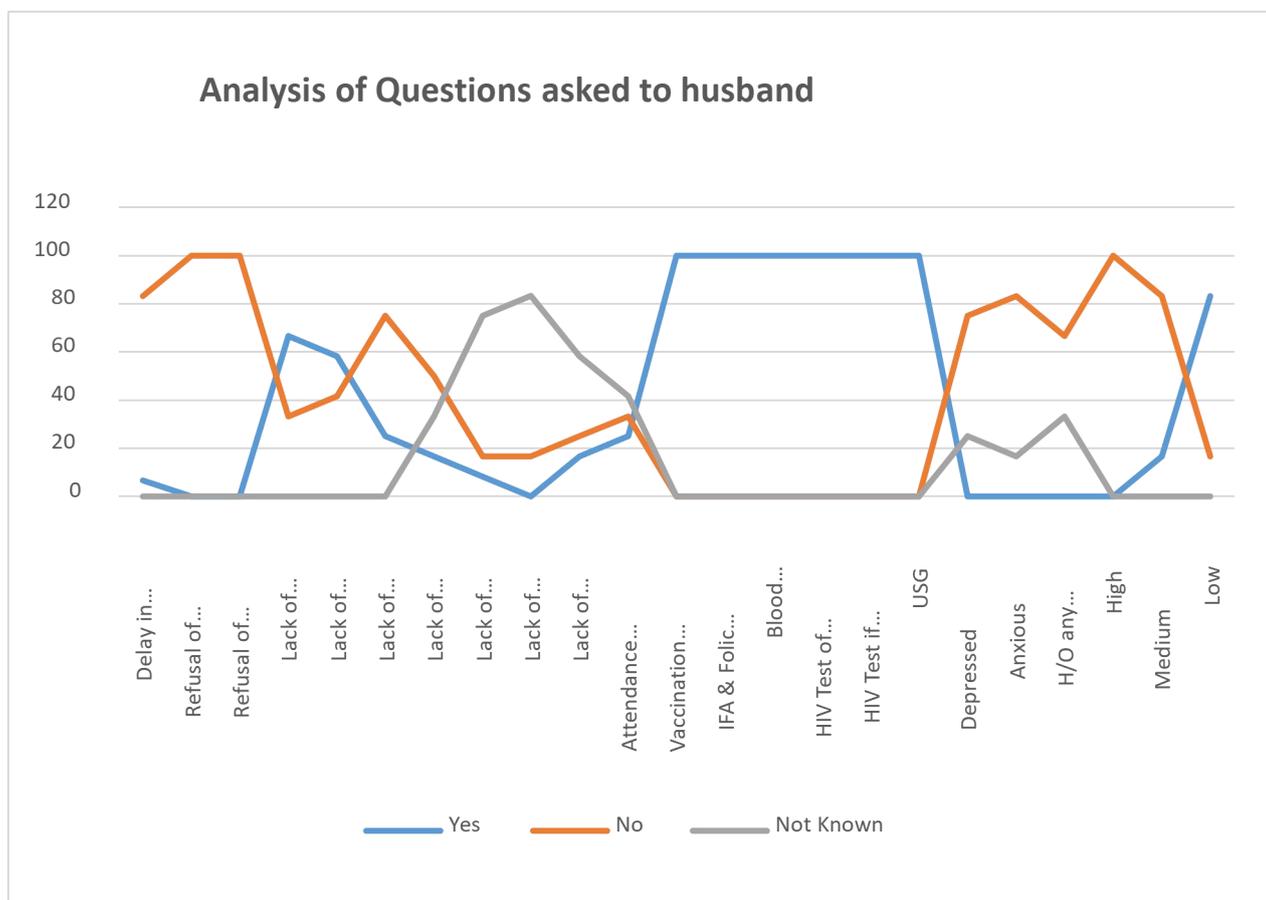

Chart-6 -The above Chart shows the questions asked to the husband of the deceased pregnant women at Reckjoani Rural Hospital at Rajarhat Block, West Bengal

The significant reasons for Maternal Deaths are as follows-

1. Absence or lack availability of transport from home to medical services facilities

2. Alarming Low Attendance to **Pradhan Mantri Surakshit Matritva Abhiyan** (PMSMA) Clinic

3. Poor /low Economic condition of the population.

B. Questions asked to the Relatives (Paternal and In laws) of the deceased Pregnant Women (88 numbers) including both male and females with the set of Questions as per the guidelines of the Government of West Bengal, India under various parameters in the feedback form.
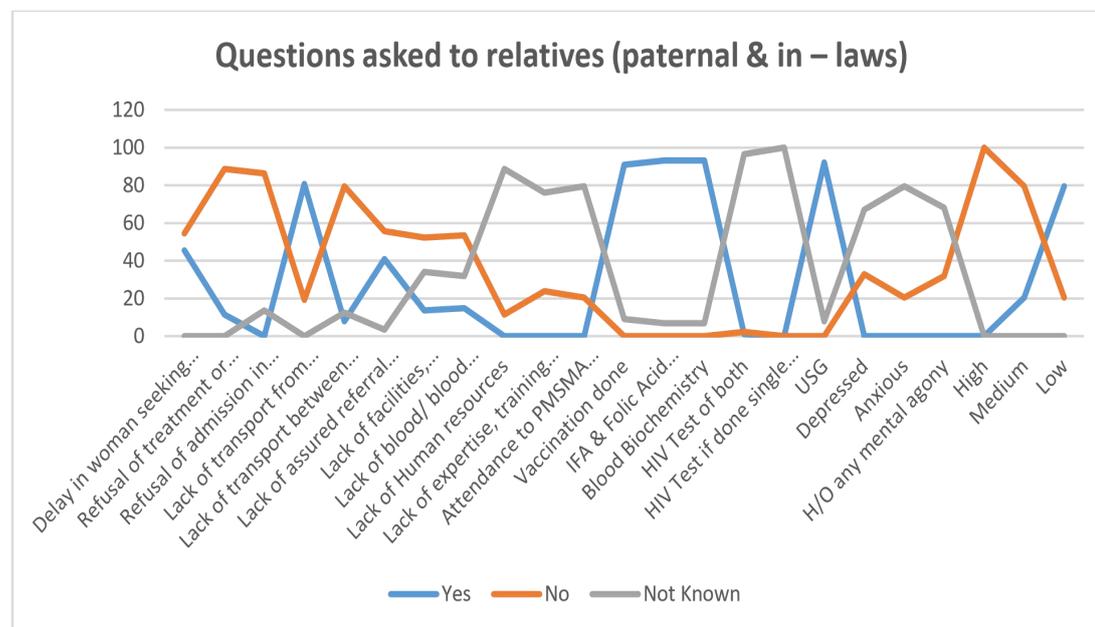

Chart-7 -The above Chart shows questions asked to the relatives (Paternal & in – laws) of the deceased mother at Reckjoani Rural Hospital at Rajarhat Block, West Bengal

The chart shows that some major causes of Maternal deaths are as follows-

1. Absence or lack availability of transport from home to medical services facilities

2. Alarming Low Attendance to **Pradhan Mantri Surakshit Matritva Abhiyan** (PMSMA) Clinic

3. Poor /low Economic condition of the population.

4. Mother's mental health is questionable.

C. Questions asked to Neighbours of the deceased Pregnant Women (214 Numbers) including both male and females with the set of Questions as per the guidelines of the Government of West Bengal, India under various parameters in the feedback form.
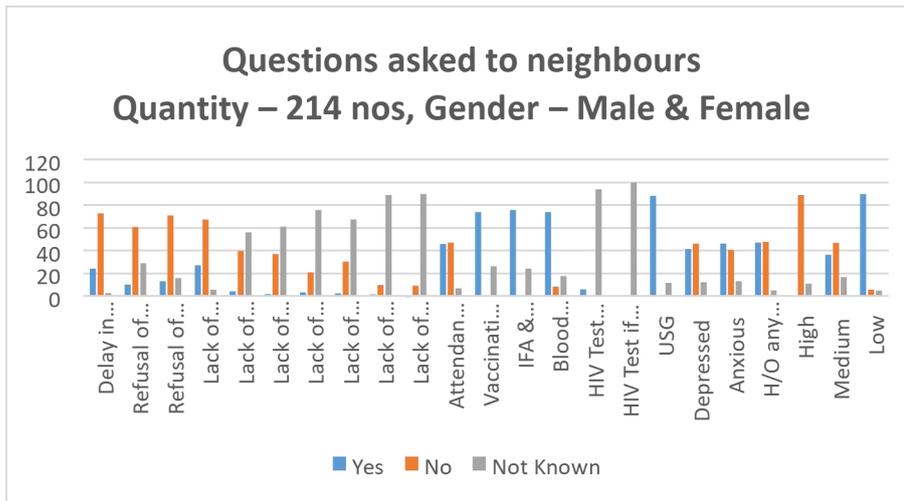
Chart-8 The above Chart is showing questions were asked to the neighbours of the deceased mother at Reckjoani Rural Hospital at Rajarhat Block, West Bengal

The chart shows that some major causes of Maternal Deaths are

1.   Absence of transport from home to medical services facilities in the locality.

2.   Alarming Low Attendance to **Pradhan Mantri Surakshit Matritva Abhiyan** (PMSMA)   Clinic

3.   Poor /low Economic condition of the population.

4.   Mother's mental agony is questionable.

RESULTS

The findings of the study had impact on various aspects like maternal death, teenage pregnancy, upbringing of the child and many Social and Psychological factors as below -

Maternal Mortality

•   The study showed that there were twelve (12) numbers of maternal death occurred in last 12 months that shows roughly one (01) maternal death is occurring per month

•   The study reveals that out of 12 Maternal Death there was Seven (07) deceased mothers who were teenage which accounts to around 58% of the total death.

•   It was observed that major cause of maternal death occurred due to Haemorrhagic shock (PPH – Post Partum Haemorrhage) with Sepsis which is 58% of the total cause of death. The second most reason of death are Cardio respiratory failure and Acute severe respiratory distress which both accounts to 17% of total maternal death. These causes are acute in nature and occurred during delivery procedure.

•   The study shows Maximum maternal deaths are occurring in rural areas or belong to a low socio economic family background and most of the maternal deaths are recorded in Government facilities.

•   There was a clear communication gap observed between patient and their family and health care facilities in norms of Anti-Natal Care (ANC) care, **Pradhan Mantri Surakshit Matritva Abhiyan** (PMSMA) Clinic attendance and failure to identify high risk mother during early stages of pregnancy.

Teenage pregnancy

- It was observed that out of total 439 teenage pregnancies recorded in between April 2023 and March 2024, three (03) pregnant mothers whose age are below 15 years.

- The qualitative study through the questioner shows lack of proper education & sex education including lack of proper counselling among adolescent girls & boys.

- There is a sign of failure to reach eligible couple and motivated them for family planning including the early teenage marriage in the area.

Impact in our society

- The study also shows a high impact on the Psychological impact due Loss of a young females which causes mental & emotional sufferings to the family.

- There are many families where the deceased mother is one of the earning member of the family and thus leading to Financial impact to the family.

- And most important the study also revealed that upbringing of child is hampered which may lead to physical ill health & depression of the child.

DISCUSSION

The study aimed to critically analyse maternal mortality due to early pregnancy and its impact on community healthcare at Reckjoani Rural Hospital, Rajarhat Block, West Bengal. This section discusses the findings, implications, and recommendations based on the collected data and analysis.

Maternal death:

- There should be good Coverage by increasing the number of **Pradhan Mantri Surakshit Matritva Abhiyan** (PMSMA) Clinic and ANC check-up canters.

- There should be detailed information about care of mother and preferably in regional language and it should be made available at the Sub Centre level.

- Proper observation of mother should be encouraged at home by family members and regular visit by the ASHA workers and ANC to be made robust and monitored by the healthcare providers. This should include, periodical Laboratory tests, Medication, supplements and Nutrition specially for the teen age Mothers.

Teenage pregnancy:

- The local administration should ensure proper education & sex education to all the teenagers, whereas schools can be used as a good platform for such awareness.

- There should awareness among all the Eligible teenage couple about complications arising due to early age of pregnancy.

Child of deceased mother

- The Baby of the deceased mother should be monitored properly on time to time basis on vaccination, nutrition, good emotional and mental support to child from family & neighbours

Impact in our society:

- The local and the state government should educate for both girls & boys and proper counselling should be given on timely basis to all the adolescent boys and girls of the locality.

- Government and more NGOs should come forward for providing mental support & financial help to the children of deceased mothers. This will help the child of deceased mother & family members to overcome agony & distress

CONCLUSION

The study "A Critical Study and Analysis on Maternal Mortality due to Early Pregnancy and its Impact on Community Healthcare in Reckjoani Rural Hospital at Rajarhat Block, West Bengal" provides crucial insights into the multifaceted issue of maternal mortality in this specific rural setting. Through a combination of quantitative data and qualitative insights, several key findings and implications were identified.

The research highlighted a significantly high maternal mortality rate in Reckjoani Rural Hospital, primarily attributed to early pregnancy among young women. The major causes of maternal mortality included haemorrhage, & sepsis, Cardio-Pulmonary failure and Acute Coronary Syndrome complications. Social and economic factors, such as Financial variables and poverty, lack of knowledge and education, and limited access to hospital and healthcare facilities , were found to be critical contributors.

The findings underscored severe deficiencies in healthcare infrastructure, including inadequate healthcare facilities and a shortage of medical support systems. Additionally, there was a notable lack of community awareness regarding the risks of early pregnancy and the importance of maternal healthcare. Geographic and financial barriers further hindered access to essential healthcare services.

Addressing maternal mortality due to early pregnancy requires a comprehensive approach involving improvements in healthcare services, effective policy implementation, and active community engagement. By tackling the socio-economic factors and empowering women, significant development can be made in reducing the percentage of maternal mortality and enhancing overall community healthcare. The observations and from this study recommends a critical foundation for developing targeted strategies to improve maternal health outcomes in Reckjoani and similar rural settings.

RECOMMENDATIONS

The study provides several actionable recommendations:

- **Healthcare Services**: Upgrade medical facilities, provide regular training for healthcare providers, and ensure timely intervention and support for pregnant women.

- Anaemia should be controlled by enhancing Anaemia control programmes in schools & in facilities on regular basis. Senior WIFS & Junior WIFS (Weekly Iron & Folic Acid Supplement) should be strictly followed & monitored by higher officials.

- **Policy and Governance**: Strengthen maternal health policies by increasing the marriageable age to 21 years, establish robust monitoring and evaluation systems, and introduce new policies to address identified gaps.

- **Community Initiatives**: Launch education campaigns on the dangers of early and teen age pregnancy and maternal health through registering eligible couple as early as possible & thereby initiating continuous counselling for family planning and sex education, and form community support groups for pregnant women.

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