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Factors associated with stillbirths in Haryana, India: a qualitative study

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Abstract

Background Each year, 2.6 million babies are stillborn worldwide, almost all in low- and middle-income countries. Several global initiatives, including the Sustainable Development Goals and the Every Newborn Action Plan, have contributed to a renewed focus on prevention of stillbirths. Despite being relatively wealthy, the state of Haryana in India has a significant stillbirth rate. This qualitative study explored the factors that might contribute to these stillbirths.

Methods This was a sub-study of a case–control study of factors associated with stillbirth in 15 of the 21 districts of Haryana in 2014–2015. A total of 43 in-depth interviews were conducted with mothers who had recently experienced a stillbirth, or with a family member. By use of reflexive and inductive qualitative methodology, the data set was coded to allow categories to emerge.

Results Two categories and several subcategories were identified. First, factors occurring before the woman reached a health-care facility were: lack of awareness of the mothers and family members; intake of sex-selection drugs during pregnancy, in order to have a male child; non-adherence to treatment for high blood pressure; lack of prior identification of an appropriate health-care facility for delivery; and transportation to a health-care facility for delivery. Second, factors occurring once the health-care facility was reached were: lack of timely and adequate management; and use of medication during labour.

Conclusion Intrapartum stillbirths are closely linked to the availability and accessibility of appropriate medical care. Timely and appropriate treatment and care, provided by a trained and skilled health worker during pregnancy and labour, as well as soon after delivery, is an absolute requirement for averting these stillbirths. This study underscores the importance of imparting and increasing awareness regarding factors that have a significant bearing on stillbirth and can be mitigated through prompt and adequate obstetric health-care services.

Keywords: India, prevention, qualitative, stillbirth, three delays model

Background

As defined by the World Health Organization (WHO) through its *International statistical classification of diseases and related health problems* (ICD-10),[1] a stillborn baby is one with no signs of life at or after 28 weeks of gestation. In 2015, the global stillbirth rate was estimated at 18.4 per 1000 births, with approximately 2.6 million stillbirths.[2] Most of these stillbirths were from low- and middle-income countries (98%), of which 77.4% were from sub-Saharan Africa and southern Asia.[2] The stillbirth rate in southern Asia was 25.5 per 1000 births.[2] In 2015, India topped the list of countries with the highest number of stillbirths, at 592 000 (22.6% of the world's stillbirths).[2]

The burden of stillbirth was not emphasized during the Millennium Development Goals era of 1990–2015 but significant efforts have refocused international efforts. As part of the Sustainable Development Goals launched in 2015,[3] it is being acknowledged that reduction and prevention of stillbirths would effectively contribute to the achievement of the SDG targets for reduction in under-5 mortality.[4] Additionally, the Every Newborn Action Plan,[5] launched in 2014, aims at reducing the stillbirth rate in every country to 10 or fewer per 1000 births, by ending preventable stillbirths by 2035. The vision is to improve the coverage of care of the mother and her baby during childbirth and the first few days after birth, as well as care of small and sick neonates, in order to have a

triple impact on investments in terms of mothers and neonates saved, as well as prevention of stillbirths.[5]

Stillbirths have higher negative psychosocial and economic effects on their families than live births.[6] Several of the risk factors for stillbirth are particularly important in low- and middle-income countries, especially in rural settings.[7–11] These risk factors include maternal age (<16 years or >35 years), parity, illiteracy, poor socioeconomic status, maternal malnutrition, maternal infections, pregnancy-induced anaemia, gestational diabetes, pregnancy-induced hypertension, inadequate health-care-seeking behaviour during pregnancy and labour, poor quality of antenatal and intrapartum care, unattended deliveries or deliveries by untrained health staff, delayed caesarean sections, and previous stillbirths. These have been previously documented as risk factors for stillbirth.[7–11] In addition, a blend of certain social, medical and obstetric factors are associated with stillbirth.[8]

Stillbirths in India are reported as part of the Ministry of Health and Family Welfare's Health Management Information System, on a monthly basis.[12] It is observed that there are very large variations across states and union territories in stillbirth numbers, as well as inconsistencies in the rates reported by different data sources, signalling the probability of inappropriate and insufficient recording and reporting of stillbirths by health-care workers at grass-roots level.[13] This concern is greater in areas that are geographically rural, where a sizeable number of deliveries take place at home. Moreover, hospital-based data are mostly incomplete and obscure, and death certificates are seldom issued in these cases.[11,14]

A verbal autopsy is an indirect interrogative method found to be helpful in such cases and is being utilized widely for determining the biomedical cause of fetal death, as well as to explore associated risk factors for framing suitable and effective interventions; information obtained from the immediate family of the stillborn child on the signs, symptoms and circumstances preceding death is used for this purpose.[9,15]

Haryana, a wealthy state located in the northern part of India, has a relatively high stillbirth rate; as per the Sample Registration Survey of 2013, the rate in the state is 8 per 1000 births, compared with the nationwide average of 4 per 1000 births.[16] Hence, an exploratory study was conducted in Haryana, with an objective to identify the factors that could have played a role in the stillbirth occurrences, based on the experiences of the mothers and their family members. This qualitative analysis was done in a subset of cases in a larger quantitative case–control study that investigated the risk factors associated with stillbirths, with a special focus on the intake of "sex-selection drugs".[17] Despite carrying a risk of severe fetal harm, use of these indigenous preparations that are thought to ensure birth of a male child is a common practice in north India.[18–20] The aim of this study was to explore the participants' experiences and perspectives regarding factors and circumstances that might have contributed to the outcome of their pregnancy.

Methods

Study setting and sample selection

This study was carried out in 15 of the 21 districts of Haryana (Ambala, Faridabad, Gurgaon, Hisar, Jhajjar, Karnal, Kurukshetra, Mahendergarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak and Sonipat) between October 2014 and January 2015. These districts were chosen purposively to geographically cover the state. The study participants (mothers of stillborn babies) were selected from a list compiled by the National Health Mission (NHM) Haryana, as part of the ongoing Maternal Infant Death Reporting System (MIDRS).[21] The MIDRS portal primarily captures facility-based stillbirths. Home-delivered stillbirths that are brought to the facilities soon after the delivery are also captured in the MIDRS system. This study restricted the enrolment of participants to two calendar months, August and September 2014, to avoid recall bias. For the case–control study, from the list of 825 stillbirths reported, 15–30 participants were randomly and proportionately selected from each of the 15 districts, resulting in 327 cases.[17] From these cases, a convenience sample of women was selected for this qualitative study.

Data collection

For the case–control study, data were gathered by administration of a verbal autopsy tool, which was adapted from the validated 2012 WHO verbal autopsy instrument,[22] with added questions on intake of sex-selection drugs.[17] The tool was pretested before the study. For cases included in this qualitative study, this was followed by an in-depth interview. The interviews were conducted by two teams led by researchers with postgraduate degrees in public health (SC [female] and AMD [male]). These researchers were specifically recruited for this study, and a detailed orientation was given to the team members prior to data collection. They were also part of the pretesting of the tools, including the interview guide developed by the authors for the study.

At the beginning of the data-collection phase, two teams led by SC and AMD visited the households of potential participants, along with the field health workers who helped in facilitating the initial rapport with the participants. The main participants were the mothers of the stillborn babies. Confidentiality was maintained in every selected case but, given the social milieu in many Indian communities as a part of which daughters-in-law of the family are not allowed to speak to strangers alone, there were some cases in which the husband and/or mother-in-law also participated, at the mothers' request. In one case of maternal death, her mother-in-law was interviewed. Using the pretested interview guide, the researcher asked each woman to narrate her own experiences and probed further to explore the sequence of events related to her pregnancy and delivery of the stillborn child. All the participants were interviewed in a uniform manner by the two teams and were asked questions based on themes in the interview guide, in order to minimize information bias. All interviews took place at the respective homes of the participants and were conducted in their local language. There were no refusals for the interviews. Field health workers accompanied the researchers and facilitated the home visits. Nobody other than the participants (and their husband and/or mother-in-law, where this occurred) and researchers were present during the interviews. Each interview was conducted over a duration of around 30 minutes, with no interview being repeated. Interviewers collected data pertaining to the mothers' experiences before, as well as after, reaching a health-care facility, for hospital as well as home deliveries; this is because home-delivered stillbirths that are brought to the facilities soon

after the delivery are also captured in the MIDRS system, and thus were included in the list obtained for selecting the sample. Notes were collected on paper forms and a unique identification number was assigned to each participant. These notes were subsequently used for translation into English and further analyses. Considering the sensitive nature of the topic, audio recording of the interviews was not undertaken.

The two teams simultaneously conducted interviews with the participants. Alongside the data collection, these interviews were also translated from local language into English and categorized into different themes. Data collection was stopped once saturation was reached.

Analysis

The interviews were translated into English and coded manually. Two research staff coded the translated data. One member of research staff read every transcript in detail and arrived at a set of codes after exploring the various patterns that emerged from the data, based on the themes. The second researcher independently coded the transcripts to broadly guide the final analyses. Variations in coding the data were reflected upon and resolved among team members, through mutual discussions. A reflexive and inductive approach was utilized to code the material, allowing the codes and categories to emerge from within the data rather than by prior identification of categories.

Reporting

The COnsolidated criteria for REporting Qualitative research (COREQ) checklist was used as a guide to report the findings of the qualitative part of the study.[23] Categories and subcategories were identified and presented. Some of the participants' quotations are presented, to illustrate the categories and findings.

Ethical considerations

Before the study was initiated, due permission for conducting the study was obtained from the state and district authorities. The proposal was submitted to and approved by the Institutional Ethical Committee of the Indian Institute of Public Health, Delhi, before commencing the study. A participant information sheet and consent form were developed for the study. Prior to conducting the interviews, the information sheet was used to explain the study objectives to the participants, and written consent was obtained from each respondent. For the participants who were illiterate, verbal informed consent was taken and a literate family member signed as witness to the consent. The data collected were maintained by, and circulated only within, the research team. The researchers ensured that there was no linkage between the responses of the participants and their personal information, such as name, address and other details, thus suitably maintaining confidentiality.

Results

A total of 43 cases were included in this qualitative study, drawn from a sample of 327 cases. Of these 327 cases, the mean age of the mothers of stillborn children was 24.7 years (standard deviation [SD] 4.2 years) and that of the fathers was 27.9 years (SD 5 years). It was found that 38.8% (127) mothers of stillborn children had completed primary school, while 94 (28.7%) mothers had completed high or senior secondary school.[17] The families of 203 stillborn children (62.1%) earned less than US$ 1527 annually, while 99 families (30.3%) of stillborn children earned between US$ 1527 and US$ 4581 annually. More than 90% of the mothers were home-makers.[17]

The "three delays" model, originally proposed for pregnancy-related mortality,[24] is commonly used to identify and categorize modifiable factors that are relevant to other adverse outcomes, including stillbirth and neonatal death.[25] These are:

- *delay 1*: a delay in the *decision* to seek care. For example, a woman may labour at home for too long because she and/or her family are afraid to present for care, are concerned about the cost of care, or do not recognize developing problems;
- *delay 2*: a delay in *reaching* care. For example, a woman in labour may not be able to find or afford expedient transportation to a health-care facility;
- *delay 3*: a delay in *receiving* adequate care. For example, a woman in labour may arrive at a hospital without any clinicians available to provide care to her, or transfer between lower- and higher-level facilities may take too long to provide effective care and prevent stillbirth.[25]

Analysis of the data collected identified several subcategories that were clustered broadly into two main categories: (i) factors occurring before the woman reached a health-care facility; and (ii) those relevant once the facility had been reached. Many of the findings in the first category related to delays 1 and 2 and those of the second category related to delay 3.

The findings are described next, illustrated as appropriate by quotes from participants. Where relevant to contextualization, selected data from the case–control study are also noted.

Before reaching the health-care facility

Awareness of the mother/family members

For participants in the study, the time taken to decide on the need to seek care was usually prolonged. Delay 1 in taking a decision to go to a health-care facility sets the immediate environment for the pregnant mothers and their fetuses that can result in a stillbirth. Primarily, this delay is a factor that is influenced by the level of awareness of the mother and her immediate family members. Some women who were aware that they needed medical assistance lacked the authority to make an informed decision regarding early care-seeking. In most Indian families, the elderly family members, who may not be fully aware of the medical situation, take these decisions. This first delay puts such women at higher risk of an adverse pregnancy outcome, as expressed by one of the participants:

> In the eighth month, I was having light pains. The pains relapsed at the beginning of the ninth month. For three consecutive days, I was in pain. My family members thought that it was happening because of the heat. (participant mother, 22 years, district 2)

While most participants chose to go directly to a health-care facility for check-ups, a few participants shared that after the onset of labour pain and/or if they felt that the baby was not

moving, they first got "examined by a dai" (traditional birth attendant), rather than reaching a health-care facility for immediate obstetric care. In such cases, besides being aware regarding the timeliness of care-seeking, reaching out to an appropriate caregiver is equally vital.

Intake of sex-selection drugs

Initially, there was reluctance on the part of most participants to divulge information regarding these preparations, but after probing further, some were found to have consumed sex-selection drugs in one form or another during their pregnancy, in order to have a male child. For instance, one participant said:

> In the second month, I took medicines for having a boy. My mother-in-law got it for me. I took the medicines in the morning and evening for 7 days. (participant mother, 24 years, district 4)

These were generally obtained from local sources and consumed during the second month of pregnancy. Their responses reflected a complete absence of awareness by the mothers and/or their family members regarding the harmful effects of these preparations.

Adherence to treatment for high blood pressure

In the case–control study, 14.7% (48) mothers of stillborn children reported a problem of high blood pressure during their pregnancy.[17] Although treatment was initiated for most of them, compliance to continuation of the medication and completion of the regimen was not observed among many. This might be due to inadequate counselling from the health-care provider and/or lack of realization among the participants of the importance of treatment for high blood pressure during pregnancy. A woman with high blood pressure, who had lost her baby, expressed that:

> My blood pressure was high from the beginning of my pregnancy, but I did not take any medicine. As soon as the ninth month began, I started to bleed but I did not go to the hospital. (participant mother, 22 years, district 11)

Lack of prior identification of an appropriate health-care facility for delivery

A majority of participating mothers and their family members had not pre-identified a health-care facility where they would want their baby to be delivered. As a result, when there were symptoms indicating an impending complication (e.g. not feeling the baby's movement, excessive abdominal pain, bleeding, etc.), they would move from one health-care facility to another seeking treatment, rather than going to the same health-care facility that they used to visit for antenatal care, thereby delaying the correct and timely management of the case. A number of stillbirths might have been averted, had the pregnant mother and her family members taken a timely decision to avail appropriate health-care services and reached a suitable health-care facility in time to cater for their obstetric needs. One participant said:

> In the eighth month, I suddenly started having pain. So we went to a local village doctor who said that the baby is not moving, and gave me some medicines for the pain. After 3–4 days, we casually went to a private hospital in [anonymized] for ultrasound, where we were told that the baby's heartbeat is not there. So, we went to a private hospital in [anonymized], where they gave some medicines and I had a normal delivery soon after, but the baby was born dead. (participant mother, 21 years, district 12)

Transportation to a health-care facility

In Haryana, transportation is provided through a state-wide public sector free-of-cost referral transport scheme to transfer patients, including pregnant women, from their home to a public health facility or to a higher referral centre from a lower-level facility. Some participants gave very positive feedback regarding the available transport facilities, as mentioned by one of the participants:

> It is very convenient. The ambulance came at the right time and took me to the hospital. (participant mother, 25 years, district 8)

Nevertheless, some others said that they faced trouble arranging for a vehicle and that they had problems contacting the ambulance service. Alternative means of transport had to be arranged in such cases. Another issue that emerged from the interviews was that some women were referred to different health facilities more than once on different pretexts (such as for ultrasound or for caesarean sections), which might have led to delay in the delivery of the child and subsequent stillbirth.

After reaching the health-care facility

Timely and adequate management

In general, as evident from the responses provided by participants, the health-care facilities are functional at all times. For many participants, the care and treatment they had received during their labour and delivery after reaching a facility was satisfactory. One respondent said:

> I did not have any problem in the hospital. Everything happened easily there. (participant mother, 27 years, district 12)

However, some others narrated undesirable experiences they faced in the hospital, such as impolite and ignorant behaviour of the health-care staff. In the case–control study, mothers of 138 (42.2%) stillborn babies reported experiences where they felt very strongly that their baby was fine until they reached the health-care facility, but died after reaching there.[17] This might have been either due to perceived negligence or delay in receiving appropriate care and services, or multiple referrals by the hospital health-care staff. During the in-depth interviews, one participant, while narrating her experience, said:

> For the whole 9 months, I was okay. The ultrasound report was also normal. When the ninth month ended, we went to the hospital but they said that the mouth of the uterus had not opened yet. Then we went to a government hospital, they said that the delivery will be normal. They tried for 5 hours to deliver but the baby's head got stuck. There, the health worker kept on trying to deliver the baby. The doctor was called

> later. He came and forced the baby out. The baby had marks on his head. (participant mother, 20 years, district 9)

Usually it is the prerogative of the hospital staff to decide whether to proceed with a normal delivery or operate on a mother. However, in this study it was found that a few mothers and their family members themselves had refused to be operated upon, despite having been advised for it, as the cost for the operation was too high in a private hospital and there was no time to go to another public sector health-care facility for the delivery. The experience of one of the mothers who faced this was as follows:

> Doctor had said that an operation has to be done, but we said no. It took 10 hours to deliver. When the baby was born, it was dead. The doctor said that the baby got suffocated, as it could not come out in time. (participant mother, 35 years, district 3)

Referrals in the health system are intended to provide optimal care and services to the beneficiaries, for a favourable outcome. However, according to some participants, they acted as a barrier to timely care and safe deliveries. The experience of being referred to a different hospital after reaching a health-care facility had significantly led to delay in seeking care, as expressed by some participants. One mother said:

> The eighth month had just started and I was having light pains. We called the ASHA[1] and she came. She took me to the hospital. Nobody was there. Then we were told to go to another hospital. The doctor there told us that the baby is no more, and then referred us to another hospital. (participant mother, 22 years, district 1)

Use of medication during labour

When probed regarding the receipt of medications during labour before delivery, some mothers reported having been administered either oral or injectable medication during labour, but the details of the medications could not be ascertained through the interviews. They were not aware of the name or nature of the medication given. They assumed that the medications might have been given either to augment labour or to subside labour pains.

> During the eighth month, my stomach started to pain in the night, we called the dai and she called a nurse who injected a medicine to subside the pains. The next day my stomach started to pain again, so we went to the doctor. He said that the baby had died during the night. (participant mother, 24 years, district 6)

> The day I was to deliver, since morning 5 am, I started to have pains. So we called the ASHA worker but it would have taken a lot of time for the car to come. Until then we called a dai. She came and gave me two injections because my pains had subsided by then. After that my baby was delivered at home around 8 pm but was born dead. (participant mother, 20 years, district 6)

While it is a protocol in health-care facilities to use injectable medication to induce labour, it should be given under supervision, with an efficient maternal and fetal monitoring system available for appropriate management, including caesarean section if required. Unfortunately, women reported such incidents of augmentation of labour before they reached the facilities or in facilities without availability of operative services. One family member explained a disastrous incident in which the mother died after a stillbirth delivery:

> At the end of the ninth month, she started to have labour pains. The baby was alive when it was about to get delivered. The doctor also said that the baby is alive and its heart beat is there. But the baby was born dead. She was given a lot of injections; 30 minutes after the baby was born, she started bleeding. We also transfused a bottle of blood but she died within 4 hours. (participant mother-in-law, 20 years (mother), district 6)

Discussion

This study explored participants' individual experiences related to the events that led to their stillbirth, and their perceptions regarding factors and circumstances that might have led to the stillbirth. The major categories that emerged from the interviews of the mothers were: lack of awareness of the mothers and family members; intake of sex-selection drugs during pregnancy, in order to have a male child; non-adherence to treatment for high blood pressure; lack of prior identification of an appropriate health-care facility for delivery; transportation to a health-care facility for delivery; lack of timely and adequate management after reaching the health-care facility; and use of medication during labour. In the quantitative part of the study, the factors that emerged as significant risk factors for stillbirths included history of previous stillbirths, preterm births at <37 gestational weeks, complications during labour, and history of intake of sex-selection drugs during pregnancy.[17]

Many participants, despite having complications during pregnancy such as high blood pressure, were unaware of the consequences of their symptoms and therefore did not consider these a reason for seeking health care. The level of education, not only of the pregnant women, but also of their family members, along with other factors such as poverty and poor familial support, tend to influence mothers' decision-making and demand for timely health care. In some cases, a dai was consulted prior to deciding to take the pregnant woman to a health facility. The knowledge and awareness of the dai regarding maternal and newborn health also play a critical role in decisions made by the mothers and their family members during pregnancy, thereby contributing to the first delay in seeking professional obstetric health-care services for early diagnosis and care.

Good antenatal care with the recommended number of visits is an important component of prevention of antepartum stillbirths. This care includes regular monitoring of the well-

[1] ASHA – accredited social health activist – is a community health worker instituted by the Ministry of Health and Family Welfare, Government of India, as part of the National Rural Health Mission.

being of the pregnant woman and the baby throughout the duration of the pregnancy, so that any complications present can be identified in a timely way for appropriate action, and averted.[26] Each 1% increase in the proportion of women completing at least four antenatal visits has been shown to reduce the intrapartum stillbirth rate by 0.16 per 1000 births.[27] In this study, although it was observed that some mothers had visited antenatal clinics and were diagnosed with pregnancy complications such as high blood pressure, compliance with the advice of the treating doctor and/or the treatment was poor. The quantitative component of the study also showed that the mothers of stillborn babies were almost twice as likely to have had high blood pressure during pregnancy as compared to the controls.[17] Previously conducted studies have reported poor compliance during pregnancy to long-term therapies, globally, with variations depending on the cost of treatment, availability of health-care facilities and awareness of patients about the importance of adherence to medication.[28] High blood pressure during pregnancy or labour is associated with increased risk of maternal and perinatal adverse outcomes, with between 5.6% and 9.4% of pregnancies complicated by high blood pressure leading to stillbirths.[29–32] This suggests that adherence to antihypertensive medication during gestation favourably influences maternal and fetal health outcomes.[33]

Apart from the medical causes and complications that have a direct role in the occurrence of stillbirths, there are certain social factors that might also have a contributory role. Consumption of locally available indigenous preparations for a male child is one such factor. It is observed that a strong desire for a male child compels families to resort to such practices. The fact that data on this issue are usually kept confidential and obscure by the community and local health-care providers worsens the problem further. Analytical studies on both major and minor congenital anomalies, as well as stillbirths, indicate a strong association between the intake of sex-selection drugs and these adverse pregnancy outcomes.[17–20]

Transport was not a major issue in Haryana with regard to the second delay. However, reaching an appropriate health-care facility took longer than the usual time required to reach a health-care facility, particularly when care was sought from higher levels of health-care facilities, as these are usually located closer to the district headquarters, which are distant from the rural residences of the pregnant women. Prevailing delay in deciding to seek care, and the added delay in reaching a health-care facility, both significantly contribute to the delay in accessing timely care and services. Studies have shown that improvement in transport services leads to increased access to maternal and child health services, which can subsequently lead to reduction in the rates of maternal and neonatal death and stillbirth.[34,35]

Guidelines for emergency obstetric care have been laid out by the Ministry of Health and Family Welfare, Government of India, but not all public health-care facilities follow them diligently. Multiple referrals during labour indicate that there is a lack of motivation to implement the protocol for care and referral within each level of the health system, thereby accentuating the need for sufficient communication and training at all these levels within the system. This also highlights the fact that there is either a lack of availability of appropriate intrapartum services and skilled personnel at the lower levels of health-care facilities within the public health system, or there is a lack of competence and confidence among the health-care service providers to deliver prompt and adequate services. In Sri Lanka, the availability of effective health-care services, provided by sufficiently trained health personnel in primary health-care centres, has invited early and efficient management of high-risk maternal and child cases, contributing to significant reduction in the number of referrals.[36]

Women who do not receive skilled care at delivery, and who do not have access to emergency obstetric care, are among those at greater risk for stillbirths.[37] Intrapartum stillbirths are closely linked to the availability and accessibility of appropriate medical care.[27,38] In the present study, a number of stillbirths were perceived by the participants to be intrapartum and could have been averted. Thus, correct diagnosis, followed by timely and appropriate treatment and care provided by a skilled health worker during labour and delivery and immediately after delivery, are vital if stillbirth rates are to be reduced. Hospital-based studies suggest that 25–62% of intrapartum stillbirths are avoidable with improved obstetric care and more rapid responses to intrapartum complications,[39] including reducing delays in seeking care.[40–42]

In this study, both oral and injectable medications were reportedly given to almost all participants who were admitted to hospital for delivery. However, accurate information on the indication for the medication was not clear. This was primarily because of undocumented practice of giving medications that might be oxytocin, misoprostol, antibiotics or vitamins. Studies conducted in the past have reported increased risk of stillbirth with unwarranted use of oxytocic drugs.[43–46]

This study highlights deplorable but preventable instances of stillbirth. Although the study features the need for appropriate decision-making and highlights the importance of antenatal and intrapartum care in efficiently managing pregnancy complications and outcomes, it has some limitations. The participants from the study belonged predominantly to rural areas, which might have caused selection bias. Secondly, during the interviews, the mothers were the primary participants, who were helped by their mothers-in-law or husbands in some instances. This might have introduced reporting bias and the data may have been misrepresented. In addition to that, given the tragic outcome, faults and delays in care-seeking on the part of the family may not have been fully revealed by the participants and their family members.

Every stillbirth is a personal tragedy for the family involved and everything possible should be done to minimize the frequency of this devastating occurrence. The objective of this study was to look into all the possible factors for both antepartum and intrapartum stillbirths. While more data related to antepartum factors for stillbirths were extracted, it was difficult to obtain specific health-system-related data for factors related to intrapartum stillbirth, owing to the scarcity of adequate medical records. It was also not possible to categorize each stillbirth as antepartum or intrapartum, since there is no system yet in India to record and report stillbirths as fresh or macerated. The timing for conducting the interviews was no more than 3–4 months after the delivery, thereby minimizing recall bias. They could not have been conducted immediately after the event, owing to its sensitive nature.

This study underscores the importance of imparting information and increasing awareness regarding factors that have a significant bearing on stillbirth, and the critical need

for prompt and adequate obstetric health-care services to minimize the number of stillbirths.

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Conflict of interest: None declared.

Authorship: PHN and SBN designed and coordinated the overall study, analysed the data and drafted the manuscript. AMD and SC designed the tools, pre-tested them, collected the data and helped with the analyses. AP and RS helped with designing the overall study and drafting the manuscript. RKG, SZ and RG coordinated with the research team to facilitate data collection, gave critical inputs and helped with finalization of the manuscript.

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References

1. International statistical classification of diseases and related health problems, 10th revision, volume 2, second edition. Geneva: World Health Organization; 2010 (http://www.who.int/classifications/icd/ICD-10_2nd_ed_volume2.pdf?ua=1, accessed 30 May 2018).
2. Blencowe H, Cousens S, Jassir FB, Say L, Chou D, Mathers C et al., for The Lancet Stillbirth Epidemiology Investigator Group. National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000: a systematic analysis. Lancet Glob Health. 2016;4(2):e98–e108. doi:10.1016/S2214-109X(15)00275-2.
3. United Nations. Sustainable development goals: 17 goals to transform our world (http://www.un.org/sustainabledevelopment/sustainable-development-goals/, accessed 17 May 2018).
4. Leisher SH, Lawn JE, Kinney MV, Kuo NT, de Bernis L, with The Lancet Ending Preventable Stillbirths Series Advisory Group and Study Group. Stillbirths: investment in ending preventable stillbirths by 2030 will yield multiple returns and help achieve multiple Sustainable Development Goals. Brief for GSDR – 2016 update. Healthy Newborn Network; 2017 (https://www.healthynewbornnetwork.org/hnn-content/uploads/975137_Leisher-et-al._Stillbirths-Investment-in-ending-preventable-stillbirths-by-2030-will-yield-multiple-returns-and-help-achieve-multiple-Sustainable-Development-Goals.pdf, accessed 17 May 2018).
5. Every newborn: an action plan to end preventable deaths. Geneva: World Health Organization; 2014 (http://apps.who.int/iris/bitstream/handle/10665/127938/9789241507448_eng.pdf;jsessionid=48507D77B47EC2EE8F74002D5C7870D8?sequence=1, accessed 17 May 2018).
6. Heazell AE, Siassakos D, Blencowe H, Burden C, Bhutta ZA, Cacciatore J et al.; Lancet Ending Preventable Stillbirths Series Study Group; Lancet Ending Preventable Stillbirths Investigator Group. Stillbirths: economic and psychosocial consequences. Lancet. 2016;387(10018):604–16. doi:10.1016/S0140-6736(15)00836-3.
7. Joshi R. Perinatal and neonatal mortality in rural Punjab. A community based case-control study. Working paper no 3. Thiruvananthapuram: Achutha Menon Centre for Health Science Studies; 2003 (https://econpapers.repec.org/paper/esswpaper/id_3a1916.htm, accessed 17 May 2018).
8. Kulkarni R, Chauhan S, Shah B, Menon G, Puri C. Investigating causes of perinatal mortality by verbal autopsy in Maharashtra, India. Indian J Community Med. 2007;32(4):259–63. doi:10.4103/0970-0218.37690.
9. McClure EM, Saleem S, Pasha O, Goldenberg RL. Stillbirth in developing countries: A review of causes, risks factors and prevention strategies. J Matern Fetal Neonatal Med. 2009;22(3):183–90. doi:10.1080/14767050802559129.
10. Saxena V, Bansal S, Chaturvedi J, Kalra BP, Chandra V, Kansal S. Investigating causes and factors associated with stillbirth by verbal autopsy in Uttarakhand. Indian J Prev Soc Med. 2011;42(1):14–18 (http://medind.nic.in/ibl/t11/i1/iblt11i1p14.pdf, accessed 1 June 2018).
11. Lawn JE, Blencowe H, Waiswa P, Amouzou A, Mathers C, Hogan D et al.; Lancet Ending Preventable Stillbirths Series Study Group; Lancet Stillbirth Epidemiology Investigator Group. Stillbirths: rates, risk factors, and acceleration towards 2030. Lancet. 2016;387(10018):587–603. doi:10.1016/S0140-6736(15)00837-5.
12. Ministry of Health and Family Welfare, Government of India. Health Management Information System. Standard Reports (https://nrhm-mis.nic.in/hmisreports/frmstandard_reports.aspx, accessed 17 May 2018).
13. Roy MP. Mitigating the stillbirth challenge in India. Lancet. 2016;387(10032):1995. doi:10.1016/S0140-6736(16)30460-3.
14. Huong DL, Minh HV, Bypass P. Applying verbal autopsy to determine cause of death in rural Vietnam. Scand J Public Health Suppl. 2003;62:19–25. doi:10.1177/140349480303100604.
15. Soleman N, Chandramohan D, Shibuya K. Verbal autopsy: current practices and challenges. Bull World Health Organ. 2006;84(3):239–45. doi:10.1590/S0042-96862006000300020.
16. Office of the Registrar General & Census Commissioner, India. Ministry of Home Affairs, Government of India. SRS statistical report 2013 (http://www.censusindia.gov.in/vital_statistics/SRS_Reports_2013.html, accessed 17 May 2018).
17. Neogi SB, Negandhi P, Chopra S, Das AM , Zodpey S, Gupta RK et al. Risk factors for stillbirth- findings from a population based case control study, Haryana, India. Paediatr Perinat Epidemiol. 2016;30(1):56–66. doi:10.1111/ppe.12246.
18. Neogi SB, Negandhi PH, Sandhu N, Gupta RK, Ganguli A, Zodpey S et al. Indigenous medicine use for sex selection during pregnancy and risk of congenital malformations: a population-based case-control study in Haryana, India. Drug Saf. 2015;38(9):789–97. doi:10.1007/s40264-015-0309-5.
19. Bandyopadhyay S, Singh AJ. Sex selection through traditional drugs in rural north India. Indian J Commun Med. 2007;32(1):32–4. doi:10.4103/0970-0218.53390.
20. Neogi SB, Zodpey S, Negandhi P, Gupta R. Use of sex selection techniques for social reasons: a menace. Indian Pediatr. 2017;54(2):99–101. doi:10.1007/s13312-017-1008-3.
21. National Rural Health Mission. Maternal and Infant Death Reporting System (http://midrs.nrhmharyana.gov.in/, accessed 17 May 2018).
22. World Health Organization. Verbal autopsy standards: ascertaining and attributing causes of death. The 2012 verbal autopsy instrument (http://www.who.int/healthinfo/statistics/verbalautopsystandards/en/index2.html, accessed 1 June 2018).
23. Equator Network. Enhancing the QUAlity and Transparency Of health Research. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups (http://www.equator-network.org/reporting-guidelines/coreq/, accessed 17 May 2018).
24. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med. 1994;38(8):1091–110. doi:10.1016/0277-9536(94)90226-7.
25. Making every baby count: audit and review of stillbirths and neonatal deaths. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/handle/10665/249523/9789241511223-eng.pdf?sequence=1, accessed 18 May 2018).
26. WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/handle/10665/250796/9789241549912-eng.pdf?sequence=1, accessed 17 May 2018).
27. Goldenberg RL, McClure EM, Bann CM. The relationship of intrapartum and antepartum stillbirth rates to measures of obstetric care in developed and developing countries. Acta Obstet Gynecol Scand. 2007;86(11):1303–9. doi:10.1080/00016340701644876.
28. Jabuya EA. Treatment compliance among women with pregnancy induced hypertension attending selected health facilities in Rachuonyo North sub-county, Homabay County, Kenya [MPH thesis]. Kenyatta: Kenyatta University 2016 (http://ir-library.ku.ac.ke/bitstream/handle/123456789/17633/Treatment%20compliance%20among%20women.....pdf?sequence=3, accessed 17 May 2018).
29. Yücesoy G, Özkan S, Bodur H, Tan T, Çalışkan E, Vural B et al. Maternal and perinatal outcome in pregnancies complicated with hypertensive disorder of pregnancy: a seven year experience of

a tertiary care center. Arch Gynecol Obstet. 2005. 273 (1): 43–9. doi:10.1007/s00404-005-0741-3.

30. Saadat M, Nejad SM, Habibi G, Sheikhvatan M. Maternal and neonatal outcomes in women with preeclampsia. Taiwan J Obstet Gynecol. 2007;46(3):255–9. doi:10.1016/S1028-4559(08)60029-7.
31. Ananth CV, Savitz DA, Bowes WA Jr. Hypertensive disorders of pregnancy and stillbirth in North Carolina, 1988 to 1991. Acta Obstet Gynecol Scand. 1995;74(10):788–93.
32. Allen VM, Joseph K, Murphy KE, Magee LA, Ohlsson A. The effect of hypertensive disorders in pregnancy on small for gestational age and stillbirth: a population based study. BMC Pregnancy Childbirth. 2004;4(1):17. doi:10.1186/1471-2393-4-17.
33. Matsui D. Adherence with drug therapy in pregnancy. Obstet Gynecol Int. 2012;2012:796590. doi:10.1155/2012/796590.
34. Mucungazi S, Wamani H, Lochoro P, Tylleskar T. Effects of improved access to transportation on emergency obstetric care outcomes in Uganda. Afr J Reprod Health. 2014;18 (3):87–94.
35. Babinard J, Roberts P. Maternal and child mortality development goals: what can the transport sector do? Washington (DC): World Bank Group; 2006 (TP-12; http://siteresources.worldbank.org/INTTSR/Resources/tp12_main_text_maternal_health.pdf, accessed 17 May 2018).
36. Karunathilake IM. Health changes in Sri Lanka: benefits of primary healthcare and public health. Asia Pac J Public Health. 2012;24(4):663–71. doi:10.1177/1010539512453670.
37. Proportion of births attended by a skilled health worker: 2008 updates. Geneva: World Health Organization; 2008 (http://apps.who.int/iris/bitstream/handle/10665/69950/WHO_RHR_08.22_eng.pdf;jsessionid=135534FF7860B30EED7CAB1583755131?sequence=1, accessed 30 May 2018).
38. Manandhar SR, Ojha A, Manandhar DS, Shrestha B, Shrestha D, Saville N et al. Causes of stillbirths and neonatal deaths in Dhanusha district, Nepal: a verbal autopsy study. Kathmandu Univ Med J (KUMJ). 2010;8(29):62–72.
39. Lawn J, Shibuya K, Stein C. No cry at birth: global estimates of intrapartum stillbirths and intrapartum-related neonatal deaths. Bull World Health Organ. 2005;83(6):409–17. doi:10.1590/S0042-96862005000600008.
40. De Muylder X. Perinatal mortality audit in a Zimbabwean district. Paediatr Perinat Epidemiol. 1989;3(3):284–93.
41. Wilkinson D. Perinatal mortality – an intervention study. S Afr Med J. 1991;79(9):552–3.
42. Wilkinson D. Avoidable perinatal deaths in a rural hospital: strategies to improve quality of care. Trop Doct. 1995;25(1):16–20. doi:10.1177/004947559502500106.
43. Iyengar K, Jain M, Thomas S, Dashora K, Liu W, Saini P et al. Adherence to evidence based care practices for childbirth before and after a quality improvement intervention in health facilities of Rajasthan, India. BMC Pregnancy Childbirth. 2014;14(1):1–12. doi:10.1186/1471-2393-14-270.
44. Deepak NN, Mirzabagi E, Koski A, Tripathi V. Knowledge, attitudes, and practices related to uterotonic drugs during childbirth in Karnataka, India: a qualitative research study. PloS One. 2013;8(4):e62801. doi:10.1371/journal.pone.0062801.
45. Jeffery P, Das A, Dasgupta J, Jeffery R. Unmonitored intrapartum oxytocin use in home deliveries: evidence from Uttar Pradesh, India. Reprod Health Matters. 2007;15(30):172–8. doi:10.1016/S0968-8080(07)30320-0.
46. Sharan M, Strobino D, Ahmed S. Intrapartum oxytocin use for labor acceleration in rural India. Int J Gynaecol Obstet. 2005;90(3):251–7. doi:10.1016/j.ijgo.2005.05.008.