
Blood Drain: A Threat to Maternal Health in Zimbabwe

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Abstract: Maternal death due to haemorrhage is common in developing countries. The clinical and physiological aspects of maternal bleeding are well researched and better known whereas the social, cultural and religious beliefs are not well understood. These cause delays that increase the risk of maternal death. This study sought to close that gap by using qualitative data from twelve (12) focus group discussions with women aged 19 to 49 years and six (6) key informant interviews with traditional and spiritual community birth attendants. These discussions were conducted in five (5) rural districts of Zimbabwe. A grounded-theory approach was used to analyze the data and verbatim quotes are presented with the results. The study found that, among women of child-bearing age, harmful maternal bleeding through the vagina and menstruation are regarded as synonymous. In some cases, harmful maternal bleeding is regarded as a normal and expected feminine experience, a shameful subject for discussion, the body's self-cleansing process or a necessary occurrence during maternity. In other cases, women fear to raise false alarms. These social constructions of maternal haemorrhage tend to prolong the time between the incidence of bleeding and the instance of receiving appropriate care or death. The researchers conclude that maternal death due to haemorrhage headlines a bigger story involving delays in recognizing danger and deciding to seek care. Interventions must involve women, partners and/or husbands, households and communities to address harmful social norms, beliefs and attitudes towards vaginal bleeding.

Keywords: Zimbabwe, Socio-cultural, Religion, Attitudes, Beliefs, Haemorrhage, Maternal Risk

1. Introduction

Bleeding through the vaginal opening is a common experience with most women. It occurs to different people in different forms at various times, particularly during pregnancy, child-birth and within forty-two days after delivery or termination of pregnancy. Vaginal bleeding during pregnancy and child-birth is known as obstetrical or maternal hemorrhage [1, 2], but it can also occur inside the abdominal cavity often with fatal consequences [2].

The physiological experience of maternal bleeding can generate beliefs, attitudes and perceptions. The converse is also possible, whereby beliefs, attitudes and perceptions influence the biological process and its consequences. In general, it has caused untold suffering, not only among women, but also humanity at large. In this paper, the researchers look at how attitudes, beliefs and perceptions of

vaginal bleeding shape the risk of maternal mortality in Zimbabwe, whose maternal mortality ratio has risen to unprecedented levels in over two decades to 650 per 100,000 live births in 2015 from 283 per 100,000 live births in the 1990s [3, 4].

Research has focused on post-partum haemorrhage (PPH), whose definition is considered arbitrary and problematic, although generally agreed to be blood loss of more than one pint (500ml) after vaginal delivery or more than two pints (1,000ml) after Caesarean delivery [1, 2, 5]. Early or primary PPH occurs within 24 hours of delivery and secondary PPH may occur after that [1, 2, 6]. Problems have been noted around estimations of blood loss during delivery [5, 7, 8]. Furthermore, the retrospective diagnosis of blood loss is usually for research and not very useful for preventive purposes [6]. WHO notes that severe bleeding can cause maternal death within hours if not attended and

recommends timely management and treatment, including the use of oxytocin after child-birth [9]. Unfortunately, this approach is also reactive rather than proactive [6-8] and excludes women, households and communities from being part of the solution.

Clinical diagnostics for PPH includes women with pregnancies ≥ 20 weeks and excludes those of lower gestational age [1, 2, 5, 6]. Thus, bleeding earlier in the pregnancy is less understood although it can also be fatal. Besides, costs related to seeking medical care and duration of hospital stay can have negative socio-economic effects [10]. Maternal haemorrhage is the single most significant cause of maternal mortality worldwide, accounting for 25 to 30 percent of all maternal deaths [9, 11, 12]. Every day, approximately 830 maternal deaths occur from preventable causes, including maternal bleeding [9]. Globally, severe haemorrhage is the most common direct cause of maternal mortality with 8.7 million cases, 83,000 of them being reported in 2015 [9, 13].

Although maternal haemorrhage is a global problem, there are clear differences between developed and developing nations. In the United States of America for example, PPH accounts for over 11 percent of maternal deaths [10, 14]. This is comparable to 13 percent in the United Kingdom [15]. In Zimbabwe, the rates are slightly higher at around 17 percent [16, 17], although accurate data are not always easy to come by. The global maternal mortality rates have declined in the past decade [9], but much more greatly in the developed than developing world [9, 11, 12]. About 99 percent of all maternal deaths due to severe bleeding are in low- and middle-income countries, compared to only one percent in industrialized nations [1, 9, 18]. A huge proportion of these deaths are highly preventable through early identification of risk factors, quick diagnosis, timely and active management of the third stage of labour [9, 11, 12, 15, 20, 21].

The patterns of hemorrhagic maternal deaths point to inefficient and ineffective responses in the developing world. Higher case fatalities may also be due to fragile health systems coupled with presence of comorbidities that reduce women's tolerance of blood loss [6]. The developed world also struggles with severe PPH related to anaemia during pregnancy [22-25], obesity [26] or use of medical drugs in late pregnancy [27, 28]. Much more importantly, there is limited understanding on the phenomenon of maternal bleeding and the antecedent risk factors that lie outside of clinical settings.

The major challenges with most studies on maternal haemorrhage are several-fold. Firstly, they focus on PPH at the expense of ante-partum and intra-partum haemorrhage. Yet it is known that heavy bleeding in the first trimester heightens the risk of miscarriage and other obstetric complications [29, 30]. Although spotting and light episodes of bleeding are less likely to be fatal, especially if only lasting one to two days [29-31], women are less likely to understand these clinical delimitations. Secondly, current research has obsessed with the biological issues without exploring the underlying religious and cultural aspects.

Thirdly, most of the studies are fixated with bleeding after vaginal and Caesarean deliveries [1, 2, 5-8], yet bleeding can occur with other modes of delivery. Lastly, the studies have been confined to health facilities and excluded women, households and communities, where bleeding often starts. This study examines maternal haemorrhage as a biomedical phenomenon and as a religious and socio-cultural construct. This study shows how attitudes, beliefs and practices around vaginal bleeding increase maternal risk through delays in recognizing danger and deciding to seek appropriate care [32].

2. Methods

Qualitative data from twelve (12) focus group discussions (FGDs) and six (6) key-informant interviews (KIIs) were analysed. These data were collected from five (5) rural districts of Zimbabwe, namely Makonde, Marondera, Mt. Darwin, Nyanga and Insiza. Two FGDs were conducted in each district except in Nyanga and Insiza, where three FGDs were conducted. These districts were part of a broader study on the patterns and determinants of maternal mortality in Zimbabwe [17]. Data from these five districts were extracted because they had most insights around maternal bleeding. After 12 FGDs and six KIIs, the researchers reached a saturation point, i.e. a stage where it was felt that recruiting more participants would not add new dimensions and insights on the subject.

2.1. Focus Group Discussions (FGDs)

The researchers conducted 12 FGDs with child-bearing women aged 19 to 49 years. This approach was chosen for its convenience. FGDs were facilitated by the researcher and two research assistants using a semi-structured FGD guide. FGDs had between eight (8) and twelve (12) participants and were conducted at rural health centres with women seeking either antenatal or postnatal care services. The participants included pregnant women and those with children under two years of age. Convenience sampling was used by making prior arrangements with clinic staff. The researchers visited clinics that had specific days scheduled for antenatal and postnatal care.

Most rural clinics in Zimbabwe dedicate one day in the week to maternal and new-born care services. These days are generally referred to as baby-scale days (*mazuva eskero yevana*) and are carefully selected to coincide with the cultural weekly holiday (*chisi*) that is enforced by village heads. On such days, women rest from their routine agricultural activities, which affords them time to visit the clinic. In collaboration with clinic staff, women who satisfied the inclusion criteria were provided with information on the study and requested to participate in a focus group discussion, after providing verbal consent.

2.2. Key Informant Interviews (KIIs)

Six (6) KIIs were conducted with community birth

attendants using a semi-structured KII guide, tailored along the FGD guide. Three (3) of the key informants were traditional birth attendants (TBAs) and three (3) were spiritual birth attendants (SBAs). The aim for including KIIs was not representativeness but to get perspectives associated with maternal haemorrhage from non-clinical service providers. Since community birth attendants (CBAs), both spiritual and traditional, are outlawed in Zimbabwe, it was difficult to identify, reach and interview them. Therefore, the referral technique was used, whereby FGD participants directed the research team to the CBAs.

2.3. Data Management and Analysis

Qualitative data from FGDs and KIIs were captured through note-taking and audio-taping. The discussions/interviews were conducted in Shona and Ndebele languages, depending on the area, but were translated into English during transcription. Emerging themes linked to vaginal bleeding or maternal haemorrhage were identified and re-coded. The output displayed results in the form of a stem-and-leaf diagram, where the stems and leaves represented themes and supporting issues, respectively. The analysis extracted *ad verbatim*, the most cogent quotes made by focus group discussants that captured more accurately the deeper and most representative sentiments prevailing around the group. In most cases, these were captured under the stem-category where broad themes were recorded and subjected to further interrogation through probing. In the narrative, the supporting facts are articulated using information from the 'leaf-categories' of the qualitative analysis.

2.4. Ethical Issues

The study was approved by the Medical Research Council of Zimbabwe (Ref: MRCZ/B/423). It respected freedom to participate and adhered to research principles pertaining to privacy and confidentiality. FGD and KII respondents provided verbal consent to respond to be interviewed and audio-taped. Verbal consent was selected, firstly because the purpose of the study and expectations from the interviews were also done verbally. Secondly, some respondents requested that they did not want the interviews to appear formal, as would happen if consent forms were written and signed. Verbal consent was therefore audio-taped as provided for and approved by the Medical Research Council of Zimbabwe. It was also explained that participation was voluntary and withdrawal could be done at any time with no negative repercussions. Participants were also instructed not to respond to questions that they were not comfortable with.

3. Results

The methodology resulted in an opportunistic sample that had twelve focus group discussions (FGDs) with women of child-bearing age and six key informant interviews (KIIs) with female CBAs, all from the selected rural areas. The educational levels of FGD participants ranged from primary to secondary. The ages of the key informants ranged from 39 to 72 years, while FGD participants ranged from 19 to 49 years. Table 1 below summarizes the demographic characteristics of the FGD participants and key informants.

Table 1. Socio-demographic Characteristics of Study Participants.

Characteristics	Focus Group Discussions	Key Informants
Number of Respondents	12 Groups (81 Participants)	Six (3): Two (3) SBAs and Three (3) TBAs
Residence	All Rural	All Rural
Sex	All Female	All Female
Age	Range: 19 – 49 years 32 completed O-level	Range: 39 – 72 years 3 completed O-level
Level of Education	42 completed primary; no O-Level 7 did not complete primary	2 completed primary only 1 did not complete primary (eldest)
Marital Status	67 married/cohabiting 9 polygamous 5 not married.	1 widowed 3 married/co-habiting 2 not established but not living with husbands

The study findings are presented in the following thematic sections where relevant citations from the raw data are analysed for major thoughts and general sentiment. This qualitative inquiry explored individual, household and community perceptions and interpretation of maternal haemorrhage. It also looked at how this increases maternal risk through delays. The sub-topics are the researchers' interpretation and re-presentation of dominant ideas emerging from the results.

3.1. Women Bleed Through the Vagina by Nature, Any Problem

Maternal haemorrhage can be associated and confused with menstruation – a natural and rhythmic occurrence. Unexpected bleeding, which is not in sync with regular

menstrual patterns, is interpreted as irregular menses. A focus group participant in Makonde summed up this perception in the following remark:

'I don't see any reason to panic because blood is coming out of the vagina. Any woman capable of giving birth must have a vaginal blood flow every month' (Focus Group Discussion, Makonde)

The above sentiment shows that women are conditioned to normalize vaginal blood flow. Apparently, this conditioning is propagated by an ignorance of what is normal and abnormal bleeding. It appears that women have an expectation of rhythmic monthly blood flow during menstruation. Irregular bleeding, spotting or staining can be associated with menses rather than complications of pregnancy. This tragedy of association leads to delays in

recognizing maternal danger.

3.2. *It is Shameful to Discuss Genitalia*

Another dimension to the problem of vaginal bleeding is that it concerns the genitalia, which are a conservative area for public discussion. In Shona culture, it is generally considered shameful or improper to talk about private parts, particularly the female genitalia or reproductive system. In fact, there is no modest language for genitalia, apart from that which is considered irreverent, immoral and vulgar. In some instances, it is regarded as talking about sex in public. A focus group discussant in Marondera succinctly expressed this predicament when she remarked:

‘Even if you are worried about the bleeding down there (from the vagina), who do you talk to? It’s a private matter of the private parts’. (Focus Group Discussion, Marondera).

Apart from invoking feelings of shame among some women, female genitalia are also revered as sacred and hallowed. They are subliminally conceived as the source of generations and, to avoid vulgarity and sexual explicitness, are referred to as ‘*sikarudzi*’ – the procreator. The hallowedness of female genitalia is acknowledged even among men, amongst whom the worst form of unbearable insult is when a mother’s genitalia is mocked subtly or explicitly. The secrecy associated with genitalia extends to sexually transmitted diseases, infections and other complications. Nonetheless, in the unlikely event that genital problems must be discussed, the audience is carefully selected. By the time such a decision is made, serious delays would have already set in.

3.3. *A Woman’s Body Self-cleanses Through Bleeding*

Vaginal bleeding is also interpreted as the process by which the woman’s body cleanses itself, particularly during pregnancy or soon after child-birth. It is believed that a vaginal blood flow is a way of expelling ‘bad blood’. Bad blood (*ropa rakaipa*) and misfortune (*munyama*) are said to be related. It is also believed that the power of curses, hereditary diseases and inherited disabilities is activated in bad blood.

As such, vaginal bleeding is perceived as a means of expelling material from spontaneous abortions, ectopic pregnancies (that develop outside the fallopian tubes) and molar pregnancies, whereby abnormal tissue grows inside the uterus (*chimimbamutekwe*). A spiritual birth attendant in Insiza remarked:

‘When a woman delivers a dead baby, it is an answer to prayer because she has expelled death, which was lingering in her body. Spontaneous abortion (*kusveedza*) is an expulsion of curses and demons from the body. If not expelled, they may claim the woman’s life’. (Personal Interview, Insiza)

Abortion complications can directly cause maternal death but when they are spiritualized the risk increases several-fold. The sentiment above shows that maternal bleeding is anticipated, indeed celebrated, even among community birth

attendants. The irony is that a danger sign is inversely perceived as a sign of health and well-being.

In other instances, bleeding is expected among women who experience painful menstruation (*jeko*) as this is also believed to be an outlet for polluted blood. The thought of releasing contaminated blood extends to nasal bleeds (*mututu*) and other injuries where they are regarded as a divine way of protecting a person from future misfortune or illness. Such bleeding is expected to subside naturally, upon which it is believed that all the bad blood has streamed out. This is a paradox, where bleeding is construed as necessary for health and life, whereas in most instances it signifies physical injury and threat to life.

3.4. *The Foetus Self-cleanses and Baths*

Maternal bleeding can be associated with foetal development processes. Irregularities noted with vaginal blood flows are sometimes attributed to the interference of the pregnancy itself. A traditional birth attendant in Mt. Darwin remarked:

‘If you are pregnant, you should understand that some discharges come from the baby as it relieves or baths itself (*kugeza*). What must be worrying is seeing no discharge or blood flow. Of course, it should be different from menstrual blood’. (Personal Interview, Mt. Darwin)

It is evident from the quotation above that abnormal vaginal blood flows or discharges are assumed to be foetal interference or accepted as a sign of foetal growth and development. Whereas this would normally be a danger sign outside pregnancy, the pregnancy is assumed to have mediatory effects on the frequency, timing, amount and duration of bleeding.

3.5. *Bleeding Is a Necessary and Inevitable Life-giving Process*

In some contexts, maternal haemorrhage can assume religious dimensions. Just like with culture, some religious beliefs tend to underplay the dangers of vaginal bleeding. Quoting scriptures, a spiritual birth attendant in Nyanga explained that:

‘Blood is life. GOD makes it clear that the life of all living animals, including people, is in the blood (Leviticus 17:11, 14). Again, Jesus Christ had to shed His blood to give us life (John 10:10). Giving birth is a bloody affair, for without blood there cannot be life’. (Personal Interview, Nyanga)

The above sentiment shows that bleeding is not only expected during pregnancy, delivery and after child-birth but also desired. While the spiritualization of maternal bleeding does not trivialize associated danger, it appears to demand martyrdom from women, who should be like Jesus Christ who “had to shed his blood to give... life”. It also refutes implied notions of bloodless child-birth, but calls on a woman to bravely bear any associated pain.

3.6. *Bleeding is Preparation or Healing of the Birth Canal*

It is also believed that prolonged blood flow is not a

problem. Coupled with lack of knowledge about how much blood and for how long the bleeding should take place, post-delivery bleeding is often ignored and sometimes trivialised. A traditional birth attendant in Makonde remarked:

'Delivery is tough work. When the baby comes out from the other world, it travels a difficult road with the assistance of ancestors. This road suffers damage and obviously takes time to heal. So, the woman should rub herbs into her vagina to quicken the healing process. As expected, some water, fluids and blood will come out but the wells (*matsime*) soon dry up. What nature injures, it heals!' (Personal Interview, Makonde)

It can be noted from the quote above that the key issues include incorrect interpretation of post-partum haemorrhage. While acknowledging that bleeding indicates physical injury, the severity is underplayed and the injury treated as normal. Secondly, maternal haemorrhage is expected to naturally subside since it was caused by a natural process. Thirdly, there is a vicious cycle of harmful responses initiated by wrong diagnosis. These include insertion of herbs in the vaginal opening, which can subsequently cause reproductive tract infections and lead to serious delays in seeking appropriate care.

4. Discussion

This paper set out to explore major attitudes, beliefs and practices around maternal haemorrhage and how subsequent delays contribute to maternal mortality in Zimbabwe. It is instructive to note that haemorrhage is a major cause of maternal death in the developing world than in developed states [9, 11, 12, 15, 16, 18] yet research on religious and socio-cultural factors is minimal. The different fatality rates seem to mirror contextual perceptions, interpretations and responses given to haemorrhagic complications, rather than incidence.

Maternal haemorrhage can occur at any point in the pregnancy continuum, from pregnancy itself, through labour and delivery to the puerperium. Despite extensive research around PPH [1, 2, 5-7, 20] to date, whether patterns of haemorrhage in early pregnancy are related to haemorrhage in subsequent stages is not clear. Furthermore, the relationship between incidence of haemorrhage in one pregnancy and the next is not clear. In addition, most research on haemorrhage has been biomedical [1, 5-7, 20] and focused on clinical events, and less on the underlying social, cultural and religious factors. This qualitative enquiry shows that although maternal haemorrhage is a natural phenomenon caused by the breaking of tissue during child-birth, it can be interpreted differently through social and religious lenses. Although, almost all women bleed during maternity, the risk to maternal health hinges on *how much* bleeding occurs and *for how long*.

Apparently, bleeding is generally associated with physical injury, for which the remedy, as is normally believed, lies within clinical settings. The paradox is that fatal maternal haemorrhage does not manifest with observable physical

injury. This paper partially corrects that misconception and invites biomedicine and social science to collaborate on maternal haemorrhage and relevant interventions.

The study also shows that vaginal bleeding and femininity are almost synonymous. There appears to be a subtle but harmful belief that women *normally* bleed through the vaginal opening and therefore *must* bleed during pregnancy. Unfortunately, such a belief is held and propagated by women themselves who, from sexual debut or menarche to menopause, are so accustomed to vaginal bleeding that they cannot easily differentiate between the normal and the harmful. Consequently, women are likely to perceive vaginal bleeding as a rhythmic monthly occurrence and a symbol of their femininity. This bio-socialization tends to subdue women's emergency reflexes with respect to vaginal blood flow.

Indeed, while an irregular amount, frequency, texture, colour or duration of vaginal blood flow would be a good indicator of danger, there is no standard difference between what is usual and what is not and this has been an area of conflict, controversy and confusion even in clinical experimental settings [2, 5]. As a result, subjective interpretations lead to delays in recognizing danger and deciding to seek institutional health care. What is not easy to establish now are the cognitive motions through which individual women go at the sight of vaginal blood flow. Further research must appeal to behaviour models to understand how individual knowledge, attitudes, beliefs and intentions affect perceived/actual control on subsequent maternal behaviours.

Owing to the perceptual proximity between maternal haemorrhage and menstruation, when either occurs without pain, women tend to normalize and ignore it. The results indicated that only painful menstruation (*jeko*) causes women to seek urgent attention. Painless bleeding is not treated as a sign of maternal danger, yet clinical research shows that heavy bleeding in the first trimester is strongly associated with miscarriage or other complications [29-31]. In contexts where fertility is prized, it is possible that women take prompt action for painless bleeding because they fear losing the pregnancy more than the need to manage the bleeding itself. The tragic reality, however, is that pain rather than blood flow is *the* sign of danger.

Results show that maternal bleeding is sometimes regarded as a cleansing process by the woman's body or the foetus. The challenge is that abnormal haemorrhagic manifestations, that are plainly different from menstrual bleeding, are treated as normal. Just as there are disagreements around definitions and manifestations of blood loss in clinical experiments [5], women also find it difficult to differentiate between menstrual and pregnancy-induced bleeding, thereby distorting threat and severity [17]. Since vaginal bleeding is not triggered by visible physical injury or tearing of tissue, it is not easily associated with harm. Vernacular reference to menstruation as 'bathing' (*kugeza*) is a misleading linguistic notation for this social construct. However, it appears that the concept of bathing is related to self-cleansing by either the

foetus or the woman's body.

The study also shows that maternal bleeding goes beyond haematology (the branch of medicine focusing on the study of blood). It is also a social phenomenon and a spiritual symbolism for life. This is possibly because it is juxtaposed with other feminine life events such as conception, pregnancy, labour and the post-delivery period. Inadvertently, the socio-cultural and religious conjectures suggest that pregnancy and child-birth *must* be literally bloody. Granted that most women in Zimbabwe are spiritual or superstitious, the symbolism of blood and life, together with its counter-symbolism to death, cannot be overemphasized. However, the antithesis is that maternal bleeding is the only instance where bleeding is associated with life and vitality, when everywhere else it symbolises danger and death.

Another notable phenomenon revealed in this study is *social expectancy*, whereby women look forward to bleeding. This anticipation is reinforced through religious beliefs, which take bleeding as an inevitable part of the pregnancy and delivery process. Such beliefs can underplay the impact of bleeding and lead to delays in recognizing danger. Nonetheless, there seems to be a latent acknowledgement of the hazards associated with maternal bleeding, but it is outweighed by an emphasis of the necessity of endurance or, if need be, martyrdom.

It can be argued that maternal bleeding does not directly kill women as implied in most biomedical investigations [1, 2, 5-8, 21]. Such deaths can be avoided using known, tested and low-cost methods [9, 11, 12, 15, 20, 21]. On the contrary, delays in accessing effective and adequate responses to maternal haemorrhage are the real problem in developing countries, which explains huge differences in case fatalities [1, 18-20]. Yet, the major problem lies in a limited understanding of the problem of maternal bleeding. This failure to define the problem clearly is a major barrier to proper responses. For too long, maternal haemorrhage has not been linked to its socio-cultural and religious foundations that cause delays. Subsequently, interventions have been fixated with what clinicians can do to treat [7, 8], not what individuals, households and communities can do to prevent it.

The authors acknowledge a few weaknesses intrinsic to this study. Firstly, the convenient approach that was used to select FGD participants from women seeking health care at clinics might have introduced bias. It is likely that the resulting opportunistic sample excluded participants with unique socio-cultural and religious characteristics, who could not seek health care from clinics. As such, the researchers are left wondering whether the results would have been similar had they randomly selected participants from the community. Secondly, and most importantly, this paper leaves a huge gap in understanding the supply side issues of blood and related services. However, this provides an opportunity for further inquiry into how blood products and blood transfusion services affect maternal risk in Zimbabwe. The researchers think that a focused study on processes, procedures and

protocols, covering procurement, processing and provision of blood services could reveal supply-side dynamics, otherwise not accessible through demand-oriented study like this one. Thirdly and lastly, this study is mainly explorative and does not link knowledge, attitudes, beliefs and practices around maternal bleeding to the actual event of maternal death. Perhaps more rigorous studies, with better data, can estimate the odds of death among rural women in Zimbabwe who bleed in the community.

5. Conclusions

This paper has revealed that maternal haemorrhage can be a major, but highly avoidable, maternal risk in Zimbabwe as in the rest of the developing world. Maternal bleeding threatens the entire child-bearing continuum – from the antenatal period, through labour and delivery, to the post-partum period, although current clinical research has focused on the latter. A new dimension revealed is that, while maternal bleeding is a natural biological experience, socio-economic, cultural and religious beliefs, attitudes, perceptions and interpretations can lead to delays, which are sometimes fatal. It can therefore be argued that maternal haemorrhage would not kill women just by itself, were it not for the aggravating effects of delays caused by religious and socio-cultural factors. Maternal survival chances in Zimbabwe can be improved with appropriate interventions and timely responses as in the developed countries. Fatalities from maternal haemorrhage can be stemmed by addressing social norms that ignore, trivialize or expect vaginal bleeding, while simultaneously strengthening blood services.

A methodological insight ensuing from this study is that asking the right questions greatly helps in getting proper answers to address the highly preventable problem of hemorrhagic maternal deaths. This may prove to be a lot more difficult than anticipated, as it involves a socio-cultural and religious evolution of society. Maternal health care interventions must involve not only women, but also their partners, husbands, households and communities. In all these efforts, sustainable results can only be guaranteed when coupled with strong health systems. Finally, a complete understanding of the effects of blood and bleeding on maternal outcomes can only be achieved with a more rigorous analysis of reliable data that also covers the supply and service provision aspects.

Competing Interests

The authors declare that they have no competing interests.

Authors' Contributions

Munyaradzi conceived the study, collected the data, analysed them and wrote the manuscript. Marvellous contributed to the conception of the study and participated in its design and coordination and was the chief reviewer of the manuscript. Memory participated in the data collection,

critical review of the manuscript for coherence and assisted with the analysis of qualitative data. All authors read and approved the final manuscript.

References

- [1] Baskett TF. Complications of the third stage of labour. *Essential Management of Obstetrical Emergencies*. 3rd ed. Bristol, England: Clinical Press; 1999. 196-201.
- [2] Sentilhes L, Vayssière C, Deneux-Tharoux C, et al. Postpartum hemorrhage: guidelines for clinical practice from the French College of Gynecologists and Obstetricians (CNGOF): in collaboration with the French Society of Anesthesiology and Intensive Care (SFAR). *European Journal of Obstetrics & Gynecology and Reproductive Biology* 2016 March, 198: 12-21.
- [3] Central Statistical Office (Zimbabwe) and Macro International Inc. 1995. Zimbabwe Demographic and Health Survey 1994. Calverton, Maryland: Central Statistical Office and Macro International Inc.
- [4] Zimbabwe National Statistics Agency and ICF International. 2016. Zimbabwe Demographic and Health Survey 2015: Final Report. Rockville, Maryland, USA: Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International.
- [5] Andolina K, Daly S, Roberts N, Tolosa J, Wapner R. Objective measurement of blood loss at delivery: is it more than a guess? *American Journal of Obstetrics & Gynecology* 1999; 180: S69.
- [6] Smith, JR. Postpartum Haemorrhage. Personal Blog. 2018. Department of Obstetrics and Gynecology and Diagnostic Imaging, Credit Valley Hospital, Ontario, Canada.
- [7] Sosa CG, Althabe F, Belizán JM, Buekens P. Risk factors for postpartum hemorrhage in vaginal deliveries in a Latin-American population. *Obstetrics & Gynecology* 2009; 113(6): 1313-9.
- [8] Lutomski J, Byrne B, Devane D, Greene R. Increasing trends in atonic postpartum haemorrhage in Ireland: an 11-year population-based cohort study. *British Journal of Obstetrics and Gynaecology*. 2012 Feb. 119(3): 306-14.
- [9] WHO. Factsheet on Maternal Mortality. WHO, Geneva, 2018.
- [10] Marshall AL, Durani U, Bartley A, Hagen CE, Ashrani A, Rose C, Go RS, Pruthi RK. The impact of postpartum hemorrhage on hospital length of stay and inpatient mortality: A National Inpatient Sample-based analysis. *American Journal of Obstetrics and Gynecology* 2017; 217: 344. e1.
- [11] World Health Organization. Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF, and UNFPA. 2004. Geneva, World Health Organization
- [12] World Health Organization. The World Health Report 2005: Make Every Mother and Child Count. 2005. Geneva, Switzerland, WHO Press
- [13] Lancet. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet*. 388 (10053): 1459–1544; 1545–1602. October 2016.
- [14] Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-Related Mortality in the United States, 2011-2013. *Obstetrics & Gynecology*. 2017; 130(2).
- [15] Knight M, Nair M, Tuffnell D, Shakespeare J, Kenyon S, Kurinczuk JJ (Eds.) on behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care - Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2013–15. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2017. p.iii.
- [16] Munjanja SP. Zimbabwe Maternal and Perinatal Mortality Study: 2007. Ministry of Health and Child Care, 2007, Harare, Zimbabwe.
- [17] Dodzo MK. Patterns and Determinants of Maternal Mortality in Zimbabwe: 1999 – 2016. Un-published Thesis for a Doctoral Degree in Demography, 2018, University of Zimbabwe, Harare.
- [18] Haeri. S. and Dildy G. A. Maternal mortality from hemorrhage. *Seminars in Perinatology*, 2012 Feb; 36(1): 48-55.
- [19] Berg CJ, Atrash HK, Koonin LM, Tucker M. Pregnancy-related mortality in the United States, 1987-1990. *Obstetrics & Gynecology* 1996 Aug. 88(2): 161-7.
- [20] Program for Appropriate Technology in Health (PATH). Postpartum hemorrhage prevention and treatment website. 2011.
- [21] Bingham D. and Jones R. Maternal Death from Obstetric Hemorrhage. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 2012. July – August, Vol. 41, Issue 14, Pages 531–539
- [22] Isah H. S., Fleming A. F., Ujah I. A. O., Ekwempu C. G. Anemia and Iron Status of Pregnant and Non-Pregnant Women in the Guinea Savanna of Nigeria. *Annals of Tropical Medicine and Parasitology*. 1985; 79(5): 485–93.
- [23] Massawe S. N., Urassa E., Lindmark G., Moller B., Nystrom L. Anemia in Pregnancy: A Major Health Problem with Implications for Maternal Health Care. *African Journal of Health Sciences*. 1996; 3: 126–32.
- [24] Van den Broek N. R., Letsky E. A. Etiology of Anemia in Pregnancy in South Malawi. *American Journal of Clinical Nutrition*. 2000; 72: 247S–56S
- [25] New S, Wirth M. Anaemia, pregnancy, and maternal mortality: the problem with globally standardised haemoglobin cut-offs. *British Journal of Obstetrics and Gynecology: An International Journal of Obstetrics and Gynecology*, 2015; 122: 166–169.
- [26] Blomberg M. Maternal obesity and risk of postpartum hemorrhage. *Obstetrics & Gynecology* 2011; 118: 561–8.
- [27] Hanley, GE; Smolina, K; Mintzes B; Oberlander TF; Morgan SG. Postpartum Hemorrhage and Use of Serotonin Reuptake Inhibitor Antidepressants in Pregnancy. *Obstetrics & Gynecology*: March 2016 - Volume 127 - Issue 3 - p 553–561
- [28] Haelle T. Venlafaxine Tied to Increased Postpartum Haemorrhage Risk, *Medscape Medical News*, February 15, 2016; Accessed 18 June 2018.

- [29] Hasan R, Baird DD, Herring AH, et al. Association between First-Trimester Vaginal Bleeding and Miscarriage. *Obstetrics and Gynecology*, 2009 Oct; 114(4): 860–867.
- [30] Patel NG, Patel MS, Shah SR et al. Study of outcome of pregnancy in patients with first-trimester bleeding per vaginum. *International Journal of Advanced Medicine* 2014; 1(3): 230-233
- [31] Harville EW, Wilcox AJ, Baird DD, Weinberg CR. Vaginal bleeding in very early pregnancy. *Human Reproduction*, 2003; 18: 1944–1947.
- [32] Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Social Science and Medicine* 1994; 38 1091-1110.