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# The social autopsy: assessing innovation efforts to reduce maternal mortality in the North Aceh district, Aceh, Indonesia

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**Abstract :** Many countries, Indonesia included, are unable to achieve Millennium Development Goals (MDGs) target, especially maternal health improvement. Maternal mortality ratio (MMR) in Indonesia was 190 in 100.000 birth rates at 2014. North Aceh District, Aceh, Indonesia has high MMR and is in dire needs of health innovation policy. The previous study revealed specific issues in community cultural pattern (i.e. social, economic, and cultural phenomena) affect MMR in North Aceh District. This study develops social autopsy for maternal mortality based on Acehnese culture by the qualitative study. Autopsy Verbal Maternal (OVM) or Maternal Verbal Autopsy questionnaire was developed by applying maternal mortality track record. This study reveals that the construction of socio-cultural values and the understanding of religious teaching in North Aceh District developed a multi-parity pattern, complication disobeys, tardiness, and difficulties to access health services. This study offers a perspective model for socio-cultural reconstruction and understanding of religious knowledge in promoting maternal health.
**Keywords :** Acehnese Ethnic, maternal mortality, social autopsy, socio-cultural values construction.

## Introduction

Indonesia and many other countries are unable to achieve Millennium Development Goals (MDGs), especially in maternal health improvement. MDGs stated that maternal mortality rate (MMR) must be reduced from 400 deaths in 100.000 birth rates in 1990 to its quarter in 2015 (102 deaths in 100.000 birth rates). The global MMR at 2013 was 210 deaths in 100.000 birth rates. Meanwhile, in developing countries, the MMR was slightly higher than global average (240 deaths in 100.000 birth rates)[1]. Indonesia has a target to reduce MMR from 390 deaths at 1990 to 102 deaths at 2015[2,3]. MMR was reduced significantly to 228 deaths at 2007 but dramatically increased to 359 deaths in 2012[4,5]. MMR in Indonesia was 190 in 100,000 birth rates in 2014[6].

North Aceh District is one of the 23 districts in Aceh province which seeks to reduce its MMR. Maternal mortality case fluctuates between 13 to 20 cases annually based on a survey in 2006 to 2013. The highest peak occurred in 2014 when 29 cases occurred out of 149 total cases in the Aceh province. The cases were reduced to 15 cases in 2015. Though in 2016 the cases increased to 21 cases, as reported in September 2016. Maternal mortality in North Aceh District was caused by mostly due to direct obstetrics, such as bleeding, pre-eclampsia, and eclampsia; and indirect causes such as pulmonary tuberculosis and chronic anemia.

Furthermore, the results of this study obtained that various causes of death also influenced by social and cultural phenomena, such as slow health handling which related to subordinate, access barriers, and religious knowledge.

Waiswa stated that non-biological factors, which may contribute to maternal mortality, cannot be explored through verbal autopsy. It takes a social autopsy to investigate social influence, behavior, and health system as determinant factors of death[7]. The determinant factors of maternal death are psychosocial and cultural issues. A social autopsy is rapidly developed interview process that aims to identify the contribution of social behavior and health system barriers to death[8].

Previous social autopsy studies found specific cultural patterns of local communities related to death[9,10]. Implementation requires the integration of data[11]. A study in Bangladesh found the contributing factors for maternal mortality such as geography barriers, transportation difficulties, poverty, low education levels, and cultural practices[9]. The high prevalence of HIV-AIDS in Kenya, the health-seeking behavior in HIV-positive women[10]. Socio-economic factors were the major contributor to the delay of healthcare-seeking. Furthermore, Kelter conducted a study of literature on maternal mortality and child deaths by analyzing the Odds Ratio (OR) of healthcare-seeking behavior through verbal autopsy approach and social autopsy[8]. Kalander revealed the results of research on the investigation of the causes and factors contributing to neonatal mortality and children under five-year-old in Uganda, Dodowa, and Ghana[12].

Conformable with the MDGs targets, the fifth goal, in particular, the literature suggests the contributions of social, economic and cultural to maternal mortality are determinant factors. Bhalotra highlights the linkages between poverty and survival[13]. Blass; Wilkinson & Marmot emphasizes to the social determinants of health[14,15]. McCarthy & Maine highlights the determinants of maternal mortality[16]. Thaddeus & Maine examines the stages of the delay (slow handling) of health care[17]. Winkelman explained the relevance of culture to health[18]. The review of the theories and concepts can be concluded that the determinant of maternal mortality was multi-factors.

Maternal deaths are caused by multi-factor, among other determinants of the macro-structure of the maternal mortality[19]. The maternal mortality may cause by the inability to pay the health costs and transport[20]. Cham et al. revealed some of the reasons for delays are in the form of ignoring the severity of complications, cultural beliefs, and experiences unfavorable to the health system[21]. Adhikari found that a high fertility in Nepal women driven by their culture, which believes that the child was symbol social and economic status of the family. The culture also dictates early marriage and high parity[22]. Marchie reveals that social and cultural factors associated with maternal mortality[23]. Reproduction was not confined to biological relationships, but also social and cultural values[22,23].

## Experimental

A qualitative study was performed by deep interviews with informants. The interview searched the facts related to the events preceding the death, barriers to health services, perceptions of pregnancy, the number of children, sex, and birth control usage. Every interview used an interview guide and was recorded. Interview results were analyzed for its themes, patterns, and phenomena from various perspectives. Investigation of the case and triangulation process performed for over 12 months. The informants were the family members and health workers as the maternal mortality witnesses. 28 cases of maternal mortality in North Aceh District were studied.

The analysis process aims to find links to the various socio-cultural phenomenon and the health systems of barriers to maternal mortality. The analysis begins with describing, observing, and classifying the information from interview transcripts of the studied cases. The results of this analysis were used to develop instruments and deepen the interview process. Analyses were also conducted through data triangulation and transformation in an integrated manner. The measurement includes: (1) data segments analysis; (2) coding; (3) thematic analysis of the patterns, (4) and discovered phenomenon interpretation.

Interview data were analyzed to find keywords, themes, categories, and relationships that make up observable patterns. The analysis was developed through basic theory: it examines the condition of the cause of the symptoms or phenomena, then connect it with context and the conditions between action and consequences.

Furthermore, allegations were made based on the analysis and then examine the allegation. The final stage of the analysis was the construction of a critical and conceptual interpretation.

## Results

Social autopsy approach obtained that maternal mortality in North Aceh was not only caused by obstetric factors, but also a socio-cultural phenomenon. The position of children, children gender, family interference in decision-making and the women subordinate position of decision-making are included into the socio-cultural phenomenon. Multiparity is triggered by a number of offspring (more than four children) without birth control, non-formal education for children, and familial desire to a specific gender of the child. Multiparity is also influenced by a death history of the previous child. The Acehnese belief in traditional medicine, such as *rajah*[1], *kaoi*[2], *ieseulusoh*[3], and labor *mak blien*[4] also has a certain impact in the MMR.

The first child labor happened very quickly, we got helped by the village shaman (*paraji*). For my second and third childbirth, my wife decided to give birth at our home by calling the midwives. That childbirth was going so well, therefore I did not worry when my wife giving birth to our fourth child. I immediately left my wife to drive the midwives home after she helped us to give birth. But I was very shocked when I discovered my wife had seizures after birth.[The husband of women who suffered eclampsia on the 4$^{th}$ childbirth].

My mother always had smooth childbirth. She delivered me and my siblings with midwife assistance at home. But after last childbirth, my whole family was shocked because my mother has severe bleeding after delivered my youngest siblings. Sadly, when we arrived at the hospital, my mother had passed away before she could be handled by blood transfusion and other emergency helps. [Y, 22 years old].

Based on maternal mortality investigation in 2014 (Table 1), the dominant maternal mortality occurs after post-section Caesarean (39.3 %) due to direct obstetric causes (71.4 %), followed by hemorrhage and hypertensive disorders during pregnancy (46.4 %). Maternal mortality mostly happened in private hospitals to the 20-35-year-old women (64.3 %), junior high-school graduate (42.9 %), and had an occupation in agriculture and the service sector (57.1 %). Mostly, they have less or equal to 5 family members in their household (57.1 %) (Table 2).

**Table-1 Description of Maternal Mortality in North Aceh District**

| Description | n | % |
|---|---|---|
| **Pregnancy stages:** | | |
| Pregnancy | 5 | 17,9 |
| Birth | 3 | 10,7 |
| Postpartum | 5 | 17,9 |
| Post-Sectio Caesarea | 11 | 39,3 |
| Puerperal | 4 | 14,3 |
| **Cause:** | | |
| Obstetrics (direct) | 20 | 71,4 |
| Indirect | 8 | 28,6 |
| **Complications:** | | |
| Bleeding | 7 | 25,0 |
| Preeclampsia | 6 | 21,4 |
| Infection | 4 | 14,3 |
| Distocia | 1 | 3,6 |
| Embolism | 1 | 3,6 |
| Anesthesia complications | 1 | 3,6 |

(1)Traditional healthcare practice done by spiritual leader of the community.
(2)The grateful attitude of local community for their health.
(3)Purified water made by spiritual leader.
(4)Local childbirth helper (non-health expertises), but local people who believed was capable to help the delivering process.

| | | |
|---|---|---|
| Anemia | 2 | 7,1 |
| Chronic infection (TB) | 2 | 7,1 |
| Non-communicable diseases | 4 | 14,3 |
| **The place:** | | |
| Home | 4 | 14,3 |
| Private midwives | 1 | 3,6 |
| Hospital | 5 | 17,8 |
| Private hospital | 18 | 64,2 |

**Table- 2 Socio-Demographic Characteristic of Women**

| Characteristics | n | % |
|---|---|---|
| **Age group:** | | |
| <20 and >35 years | 10 | 35,7 |
| 20 – 35 years | 18 | 64,3 |
| **Education:** | | |
| No school | 3 | 10,7 |
| Primary school | 7 | 25 |
| Junior high school | 12 | 42,9 |
| Senior High School | 2 | 7,1 |
| College | 4 | 14,3 |
| **Accupation** | | |
| Not working | 12 | 42,9 |
| Agricultural sector | 8 | 28,6 |
| Non-agricultural sector | 8 | 28,6 |
| **Number of famiy members:** | | |
| > 5 person | 12 | 42,9 |
| ≤ 5 person | 16 | 57,1 |

## Discussion

This study revealed that the construction of socio-cultural values and understanding of religious knowledge had the contribution to maternal mortality. Some of the formed patterns were multiparity, ignorance complications, and delays in healthcare treatments. The purpose of Millennium Development Goals (MDGs) was to reduce MMR to 102 in 100,000 births rate at 2015. That goal was followed by a commitment of Sustainable Development Goals (SDGs) pursuing to reduce MMR to 70 in 100,000 birth rates in 2030. The social autopsy is needed to be applied together with medical issues related to maternal mortality. From the social autopsy, it can be obtained the socio-cultural phenomenon, health system barriers, and its effect on maternal mortality. Winkelman presented socio-cultural systems that influence health[18]. The behavior or actions of individuals or groups in the community cannot be formed, triggered, and motivated without any mental process and culture. Culture will lead, define, and influence the patterns of action and behavior in society. Of course, the reproduction behavior of a family is adjusted by the social and cultural they had followed. This view was reinforced by McCarthy and Maine, which affirmed the social, economic, and cultural as contextual determinants of maternal mortality .

### Multiparity

The traditional belief, which states that the number of children can develop the social and economic status of the family, encourages couples to have many children in their household (mostly have more than 4 children). The lack of birth control application also affects the short-gap birth between siblings and high fertility rate. Several previous studies have also revealed that multiparity is associated with age at the first marriage, the perception of the ideal number of children in the household, limited information, and the experience of previous children death [22]. The same was presented by Ahmed et al., which revealed that the utilization of health services, including modern contraception, is a factor that contributes to multiparity[24].

The high fertility rates are also influenced by the age of married couples, the parental perception about the ideal number of children, lack of information and knowledge about health, health status, and baby mortality history[22]. Some research concluded that the reproduction behavior is included to traditional value and customs of the ethnical community[16,23,22]. The risk of death is higher in certain ethnic and minorities[25]. Furthermore, the reproductive status of women is affected by the women social status. The study reveals that multiparity on Aceh ethnic is triggered by the value of children in social, economic and religious aspects of its family.

**Ignorance complications**

Multiparity affects on maternal health and pregnancy status, but the abandonment of complications and cost barriers increases the severity. Some danger signs such as edema were believed to occur several times during pregnancy. Locals at North Aceh call that symptom as "*Lhee goes basai ka lahee*[5]*".* They believe that the delivery will occur after experiencing three times of edema (in local language called *basai*/*baso*). Edema occurs when 5 months pregnancy, 7 months pregnancy, and reappeared before delivery. This phenomenon has an impact on the delayed treatment of pre-eclampsia cases. Therefore, many patients arrived at the hospital with seizures and eclamptic state because of the lack of first aid and prevention. The community of North Aceh District still relies on the traditional medicine and traditional ritual, such as "*rajah*" and *"kaoi"*. *Rajah* is still believed as an alternative treatment to pregnant women with impaired consciousness in the case of pre-eclampsia, severe anemia, and difficult births. Families will present "*Tengku*" or spiritual leader to do *rajah*. *Kaoi* is a tradition that ask the spiritual leader to perform certain gratitude rituals to God. During obstructed labor cases, the mother was often given *"ieseulusoh*", a kind of holy water that had been prayed for delivery purposes.

*Rajah* basically does not bring any negative effects to pregnant women and newly mothers, because there are no invasive actions. *Rajah* is considered as a mental support to the mother. *Ie seulosoh*, one example of *Rajah*, suggests that pregnant women and newly mother to drink a lot of water, which had been purified by the spiritual leader with certain religious pray. It is considered as healthy behavior to avoid dehydration during pregnant and breastfeeding.

Social, economic, and cultural aspects influenced the healthcare seeking behavior through three mechanisms: (1) limitations of matter; (2) behavioral; and (3) psychosocial in the human life cycle[16]. The mother's low survival rate during or after childbirth can be identified through the level of healthcare affordability, family support, and health insurance. Lack of knowledge, information, and financing can increase the death risk[13]. The facility and utilization of health services, including modern contraceptive, quality antenatal care and skilled childbirth health expertise in developing countries is influenced by economic status, education and women's empowerment[23].

**Delays in healthcare treatment**

Some cases of maternal death cannot be helped because the family and the health expert are late to recognize dangerous symptoms. Isolated location and transportation difficulties also worsen the healthcare treatment. The limited numbers of experienced and capable health expertise and blood supply inhibit action in the hospital. Thaddeus & Maine, used the approach of "The three phases of delay model" which are (1) delayed decision; (2) delayed in transport to the health facility; and (3) delayed proper treatment[17].

The first delay that leads to tardiness in women health treatment is social, culture, and knowledge aspect. As the males are always dominants to women, the pregnant women cannot be carried to the hospital without her husband's, or father's, or brother's permission (if they are not home at the time of emergency). However, that is not the main problem, since the husband, father or brother of the pregnant women is suggested to accompany the women during childbirth. The delay more likely occurs due to lack of knowledge; the family cannot recognize unhealthy symptoms, such as pre-eclampsia and eclampsia. Most of the times, it is already too late to save the women.

The second delay is geographical issues. Indonesia is a very large country with many geographical landscapes that makes uneven healthcare facility distribution. The transportation to the nearest hospital, information of healthcare facilities, and the number of healthcare facilities also issues. This geographical

(5)Pregnant and childbirth pain (*udem*)

isolation leads to the slow handling of health expertise, modern medicines, blood transfusion, and other health treatments in the hospital.

Furthermore, Waiswa et al., analyzed the determinants factor of those three phases[7]. The macro-structure of the healthcare tardiness is influenced by the social, economic, cultural, and political aspects[19]. Fifty percent of delay is due to the costs of treatment and transportation, 30% of deaths in health facilities because of slow-handling of the healthcare workers and the lack of blood donors, 20% because of the late recognition of disease symptoms[1]. A delay may occur from two hours until five days, caused by ignoring the severity of complications, cultural beliefs, and unfavorable experiences to the health system[21].

## Conclusion

Repeated cases of maternal mortality caused by the same contributing factors: (1) social and cultural values; and (2) religious understanding. A social autopsy found that Acehnese ethnically believes in the value of children in socio-economic status and religion aspect. The belief in traditional medicine and the late recognition of the danger signs of pregnancy result in a delay in the decision-making stage, the delay in reaching the facility and health treatment action. Reconstruction of the adverse socio-cultural values is needed through promoting and preventive efforts on maternal and child health programs.

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## References

1. WHO, UNICEF,UNFPA, The World Bank and The United Nations Population Division, Trends in maternal mortality: 1990 to 2013 Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division, ISBN 978 92 4 150722 6, 2014, Retrieved from http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2013/en/
2. Stalker, P., Kita Suarakan MDGs Demi Pencapaiannya di Indonesia, Targer MDGs, Jakarta, 2008.
3. Bappenas, Laporan pencapaian tujuan pembangunan millenium di Indonesia, Kementerian Perencanaan Pembangunan Nasional, Jakarta, 2010.
4. WHO Wolrd Health Statistics, Global Helath Observatory (GHO) data. WHO indicator registry, ISBN 978 92 4 069267 1 (PDF), 2015, Retrieved from http://www.who.int/gho/indicator_registry/en/.
5. Fernández, M.Á.L., Garitano, I.G., Cavanillas, A.B., Increased risk of maternal deaths associated with foreign origin in Spain: a population based case-control study, Eur J Public Health, 2011, 21, 292-294.
6. Badan Pusat Statistik (BPS), Macro International, Survei Demografi Kesehatan Indonesia 2007, Macra Calverton, USA, 2007.
7. Waiswa, P., Kalter, H.D., Jakob, R., Black, R.E., Social Autopsy Working Group. Incresed of social autopsy is needed to improve maternal neonatal and child health programes in low-income countries, Bull World Health Organ, 2012, 90, 403-303A.
8. Kelter, H.D., Salgado, R., Babille, M., Koffi, A.K., Black, R.E., Social autopsy for maternal and child death: a comprehensive literature review to examine the concept and the development of the method. International Journal of ChemTech Research, 2016, 9
9. Rahman, K.M., Olsen, A., Harley, D., Butler, C.D., Mondal, D., Luby, S.P., Sleigh, A.C., Kala-azar in Pregnancy in Mymensingh, Bangladesh: A Social Autopsy, PLoS Negl Trop Dis, 2014, 8.
10. Nyuki, R., Kimani, J., Obare, F., Warren, C., Using verbal and social autopsies to explore health-seeking behavior among HIV-positive women in Kenya: a retrospective study, BMC Womens Health, 2014, 14.
11. Guirguis-Younger, M., Runnels, V., Aubry, T., Turnbull, J., Carrying out a social autopsy of deaths of persons who are homeless, Evaluation and Program Planning, 2006, 29, 44-54.
12. Kalander, K., Kadobera, D., Williams, T.N., Nielsen, R.T., Yevoo, L., Mutebi, A., Akpakli, J., Narh, C., Margaret, G., Amu, A., Waiswa, P., Social autopsy: INDEPTH Network experiences of utility, process, practices, and challenges in investigating coauses and contributors to mortality, International Journal of ChemTech Research, 2016, 5, 44.

13. Bhalotra, S, Poverty and survival. Discussion Paper No. 5363 December 2010, IZA, Germany, 2010.
14. Blass, E., Sommerfeld, J., Kurup, A.S., Social determinants approaches to public health: from concept to practice. World Health Organization, Geneva, 2011,.
15. Wilkinson, R., Marmot, M., Social Determinants of Health The Solid Facts Second Edition. WHO, Denmark, 2003.
16. McCarthy, J., and Maine, D., A Framework for Analizing the Determinants of Maternal Mortality, Studies in Family Planning, Stud Fam Plann, 1992, 23, 23-33.
17. Thaddeus, S., and Maine, D, Too Far To Walk: Maternal Mortality in Context, Soc Sci Med, 1994, 38, 1091-1110.
18. Winkelman, M., Culture and Health Applying Medical Anthropology, Jossey-Bass, San Fransisco, 2008,
19. Gil-Gonzalez, D., Carasco-Portino, M., Ruiz, M.T., Knowledge gaps in scientific literatureon maternal mortality: a systematic review, Bull World Health Organ, 2006, 84, 903-909.
20. Dikid, T., Gupta, M., Kaur, M., Goel, S., Aggarwal, A. K., Caravotta, J., Maternal and Perinatal Death Inquory and Response Project Implementation Review in India, International Journal of ChemTech Research, 2015, 63, 101-107.
21. Cham, M., Sundby, J., Vangen, S., Maternal mortality in the rural Gambia, a qualitative study on access to emergency obstetric care, International Journal of ChemTech Research, 2015, 2, 1-8.
22. Adhikari, R., Demographic, socio-economic, and cultural factors affecting fertility differentials in Nepal, BMC Pregnancy Childbirth, 2010, 10.
23. Marchie, C.L., Socio-cultural factors as correlates of maternal mortality in Edo South Senatorial District, Nigeria, International Journal of ChemTech Research, 2016, 1, 315-317.
24. Ahmed, S., Creanga, A. A., Gillespie, D. G., Tsui, A. O., Economic Status, Education and Empowerment: Implications for Maternal Health Service Utilization in Developing Countries, PLOS ONE, 2010, 5.
25. Badan Pusat Statistik (BPS), Macro International, Survei Demografi Kesehatan Indonesia 2012, Macra Calverton, USA, 2012,

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