

Issues on Detection of Preeclampsia from Antenatal Care Data A Documentary Study in Temanggung District, Central Java Province

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Submission date: 11-May-2022 08:40AM (UTC+0700)

Submission ID: 1833430271

File name: umentary_Study_in_Temanggung_District,_Central_Java_Province.pdf (70.17K)

Word count: 2704

Character count: 15409



Issues on Detection of Preeclampsia from Antenatal Care Data: A Documentary Study in Temanggung District, Central Java Province

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Background: Preeclampsia in pregnancy contributes to maternal mortality in Central Java Province. Risk factors of preeclampsia could be early-detected by village-midwives through antenatal care (ANC) data reported in Maternal Cohort Register (MCR), which is a national standard form. Quality of data recording and reporting is crucial to ensure the accuracy in the detection of preeclampsia risk factors, and will eventually decrease maternal mortality. **Methods:** This research was an observational study. Data were collected from all documents of ANC during 2014, which were recorded in MCR by 278 village-midwives in 23 public health centers of Temanggung District. Data were analyzed descriptively. **Results:** There were more than 60 fields of data to be recorded in MCR. Our results showed that 66% of the fields were filled completely. However, the record was mostly not recorded in its proper field. We also found different way of writing a field, which may confound the interpretation of data. In preeclampsia detection, only less than 20% documents were complete and consistent. **Conclusion:** Not all of the data for preeclampsia detection was recorded accurately, thus complicate the detection of preeclampsia risk factors. Village midwives need guidelines for reporting and training on electronic recording to detect maternal risk factors accurately and timely.

Keywords: Data Quality, Maternal Cohort Register, Preeclampsia, Antenatal Care, Village Midwife, Indonesia.

1. INTRODUCTION

Maternal Mortality Rate (MMR) is a sensitive indicator for health services' quality and health facilities accessibility.¹ More than 20% cases of Hypertensive Disorders of Pregnancy (HDP) caused the maternal mortality in Indonesia during 2010–2013 (21.5%; 24.7%; 26.9%; 27.1% respectively).² Central Java Province was one of the contributors to the high MMR in Indonesia during 2012–2014 due to preeclampsia and eclampsia (28.76% in 2012,³ high blood pressure in 2013 and 2014 (23.9% and 26.4%).^{4,5}

PE is developed after 20 weeks of gestation and is characterized by hypertension and proteinuria.^{6,7} The gestational age at which proteinuria is first documented is important in establishing the likelihood of preeclampsia.⁸ Early signs of preeclampsia can be detected by regular and routine antenatal care (ANC)⁹ to all pregnant women.¹⁰ Results from ANC are documented regularly in a maternal cohort register to provide adequate data and information.¹¹

Data quality is considered as a very important resource in clinical practice. These data will improve maternal services by health officers,¹² because it provides information on diseases and response action.¹³ A poor documentation of data, inaccurate data, and limitation of data communication may worsen maternal status,¹⁴ increase funding, inefficiency,¹⁵ and poor services.¹⁶

In order to prevent morbidity and mortality during pregnancy, the Government of Temanggung District requires all village midwives to deliver ANC services based on the guidelines, and record the ANC examination in a form of maternal cohort register. Village midwives use records in the register to monitor and detect risk factor of eclampsia and anticipate their action response. In this study, the quality of data from recording and reporting of maternal cohort were described. This study also assessed whether the record can be used to detect preeclampsia timely and accurately.

2. METHOD

This study was an observational survey with a cross sectional approach. The study was conducted in District Health Office

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(DHO) of Temanggung. Data collection was done by observing maternal cohort registers from village-midwives in 278 villages from 23 PHC in 2014.

To complete the data, we also conduct discussion in a meeting of early warning system of maternal and child health (MCH) with all coordinator of midwives and representation of village-midwives from Temanggung DHO. The meeting was facilitated by Provincial Health Office (PHO) to identify factors contributed to data quality of maternal cohort register. Qualified data will then be used for detecting risk factors of preeclampsia. Data collection was coordinated by MCH officers of Temanggung DHO.

Data quality was determined from the assessment of completeness, accuracy, and consistency of maternal cohort register. Completeness of data was defined as all ANC data related to the risk factors of preeclampsia on cohort register was in accordance with the data that should be recorded or reported. Cohort register that qualifies all the criteria was categorized as complete. Otherwise it was categorized as incomplete. The accuracy of data was defined as all of the data item that helps to identify risk factor of preeclampsia on the cohort register was error-free written according to manual (guideline) for data entry. Any error found was categorized as inaccurate, while error-free was categorized as accurate.

The consistency of data was defined as all available ANC data on the cohort register to detect risk factors of preeclampsia was in accordance with the manual/guideline, and the abbreviation or code used was invariable. If the recording in the cohort was not in accordance with the definition above, it was categorized as inconsistent. On the contrary, the recording that meets guideline was categorized as consistent. Descriptive analysis was used to analyze data quality (frequency distribution, equipped with narration on errors in recording process).

3. RESULTS

3.1. Description of Data Quality According to Completeness, Accuracy, and Consistency in Supporting the Detection of Preeclampsia in Pregnancy

Assessment of the completeness was intended to describe whether village-midwives recorded all ANC data as required. In term of data completeness to support the detection of preeclampsia risk factors, more than three quarter of documents were incomplete (80,6%). The completeness consisted of age, parity, and spacing between pregnancies recording. We also found that village-midwives added data of gravidity to classify pregnant mother as nullipara or primigravidae. All data showed the description of mild risk factors of preeclampsia in pregnancy. However, the cohort data has never been used to identify severe risk factors of preeclampsia.

All data recorded must be error-free written on the cohort according to guideline (accuracy). This study showed that one-third of the documents were inaccurate (33,8%). The irregularities found were misplaced and inappropriate. There was also some unnecessary data added in the form, based on individual perception of village-midwives. For examples: Age column was filled by gravidity or the first day of the last menstrual period, or approximate day of birth, or even date; Name column was filled by the first day of the last menstrual period, body weight column was filled by GPA status (gravid, parturition, abortion).

Almost 90% of the cohort were inconsistently filled. For example, some midwives only gave checklist (✓) in the column of age or upper arm circumference, which should be a number (year, cm).

3.2. Factors Related to Data Quality

From the interviews, we found that there was no structured and function of specific monitoring and evaluation to support the data quality. The function was included as the main task of midwife coordinator at PHC level. Some coordinators revealed that they sometimes checked the data, especially when the report was not as expected. The cross-checked activities were done in monthly meeting of PHC or DHO.

The midwife did not have the written guidelines on how to record the data correctly and the operational definition of each data/indicator. They only got explanation from their coordinator or senior midwife. The lack of clarity in definitions and indicators were shown in the inconsistency of data despite the same data source. The explanation on how to fill cohort data was done through socialization from DHO to MCH coordinator at PHC level (midwife coordinator). The coordinator will then deliver the information to village-midwives at PHC meeting. However, no written guideline was available.

Village-midwives did not receive any training on recording data into the cohort register. Some midwives revealed that they only contacted the senior midwives when they faced problems. Some documents were not readable because they used handwriting that is not in accordance with the format. The system to detect error data has not existed yet. The coordinators did monitor and check, but there was no feedback to the village-midwives.

4. DISCUSSION

All of ANC data should be completely recorded properly.¹⁷ The record provides information of diseases and treatment of pregnant mother and may serve as “silent witness.”¹⁸ A good record is important to support decision making, intervention,¹⁹ communication, and quality assurance.

Incompleteness of recording may cause the loss of information of patient condition, service planning, and decision on treatment that should be given.¹³ Information loss on age, parity and spacing between pregnancy may caused undetected risk factors. Previous studies showed that those are the risk factors of preeclampsia.^{20,21} Age and nullipara were the risk factors of preeclampsia (OR = 1.95; 95%CI = 1.80–2.12 and OR = 2.04; 95%CI = 1.92–2.16).²² Age > 40 years old increases the risk of preeclampsia (RR = 1.96; 95%CI = 1.34–2.87).²³ More than 50% mother > 35 years old experienced preeclampsia (63.0%).²⁴

Data accuracy can be defined as information that is error-free and clearly indicates the purpose of information provided. Appropriate recording reflects a good health care in general, and vice versa.¹⁶ A poor documentation of data, inaccurate data, and limited communication of data may results in severe cases,¹⁴ decrease service quality, increase financing, and inefficiency.¹⁵

Almost 90% of ANC data recording on cohort register were inconsistent. Many different codes were filled into the same column. This may complicate the analysis and interpretation of data, including its utilization for early detection of preeclampsia risk factors, as well as the evaluation of pregnant mothers' condition. For example, body mass index is one of the risk factors for preeclampsia.

Qualified and timely information needs two components: resources and organization rules. It also needs monitoring and evaluation system, which consists of:

- (1) Structured, functioned and capability of monitoring and evaluation;
- (2) Guidelines of reporting, indicator, and definition;
- (3) Data management process,²⁶ and to achieve an optimal quality of data, specific procedures are needed to ensure the data quality of recording.¹⁵

Data management facilitates an easy access to information for those who need the information. Training, basically intends to increase the knowledge and skills of midwives in data management. One of the main tasks of midwives is recording and reporting the integrated.²⁶ Ideally, data collection from various sources are stored. The data then must be processed in order to compare and compile the data, while avoid duplication of data, identify and repair the data. These will ensure the accuracy and level of confidence to the data.

5. CONCLUSION

The completeness of data recording by village-midwives was less than 20%, but the accuracy reaches 66%. In term of consistency, most village-midwives filled the data in various formats, which might complicate the analysis.

Maternal cohort register basically can be used as a basis to detect risk factors of preeclampsia. However, in this study, cohort cannot be used to identify the three main symptoms of preeclampsia, i.e., excessive weight gain, high blood pressure, and proteinuria, because the record of pregnant mother was only done once and proteinuria data was not available in the cohort.

It was recommended that the assessment of data quality should be part of monitoring and evaluation activities in MCH program. Training for midwives in data recording and reporting, and also data analysis according to DHO standard are highly needed. The development of computer based application to support MCH data management and automatic assessment of risk of pregnancy and delivery are also essential.

Acknowledgment: The authors thank to the Head of Temanggung District Health Office for facilitating the study and the village-midwives who kindly provided the documents of antenatal care.

References and Notes

1. Ministry of Health Republic Indonesia, Indonesia Health Profile 2013, Ministry of Health Republic of Indonesia, Jakarta (2014).
2. Ministry of Health Republic Indonesia, Indonesia Health Profile 2014, Ministry of Health Republic of Indonesia, Jakarta (2015).
3. Dinas Kesehatan Provinsi Jawa Tengah, Buku Profil Kesehatan Provinsi Jawa Tengah Tahun 2012, Semarang (2012), Health Office of Central Java Province, The Book of Health Profile 2012 in Central Java Province, Semarang (2012).
4. Dinas Kesehatan Provinsi Jawa Tengah, Buku Saku Kesehatan Tahun 2013, Semarang (2013), Health Office of Central Java Province, Handbook of Health in 2013, Semarang (2013).
5. Dinas Kesehatan Provinsi Jawa Tengah, Profil Kesehatan Provinsi Jawa Tengah Tahun 2014, Semarang (2014), Health Office of Central Java Province, The Health Profile 2014 in Central Java Province, Semarang (2014).
6. S. Costa F. da, P. Murthi, R. Keogh, and N. Woodrow, *Revista Brasileira de Ginecologia e Obstetricia Journal, Federação Brasileira das Sociedades de Ginecologia e Obstetricia* 33 (2011).
7. E. Eiland, C. Nzerue, and M. Faulkner, *Journal of Pregnancy* (2012).
8. S. Thangaratnam, A. Coomarasamy, F. O'Mahony, S. Sharp, J. Zamora, K. S. Khan, and K. M. K. Ismail, *BMC Medicine* (2009).
9. Maternal and Child Health, Unicef Indonesia (2012).
10. P. P. Yeoh, H. Klaus, Ahmad Shauki, Noor Izza, and M. Dahlui, Assessing the Extent of Adherence to the Recommended Antenatal Care Content in Malaysia: Room for Improvement, Public Library of Science, San Francisco, CA, USA (2015), Vol. 10.
11. Pedoman Pemantauan Wilayah Setempat Kesehatan Ibu dan Anak (PWS KIA), Kementerian Kesehatan Republik Indonesia, Direktorat Jenderal Bina Kesehatan Masyarakat, Direktorat Bina Kesehatan Ibu, Jakarta (2010), Monitoring Guidelines for Local Regional Maternal and Child Health, Ministry of Health Republic Indonesia, Directorate General of Public Health, Directorate of Maternal Health, Jakarta (2010).
12. R. G. Hatta (ed.), Pedoman Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan, Penerbit Universitas Indonesia, UI Press, Jakarta (2014).
13. K. A. Wager, W. F. Lee, and J. P. Glaser, Health care information systems, A Practical Approach for Health Care Management, Second edn., Jossey-Bass A Wiley Imprint (2009).
14. L. T. Kohn, J. Corrigan, and M. S. Donalson (eds.), To Err is Human: Building a Safer Health System, Institute of Medicine, National Academy Press, Washington, DC (2000).
15. D. G. T. Arts, N. F. de Keizer, and G.-J. Scheffer, *Journal American Medical Informatics Association [Internet], American Medical Informatics Association* 9 (2002), Available from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3493771>.
16. T. Adeleke, A. O. Adekanye, K. A. Onawola, A. G. Okuku, S. A. Adefemi, and S. A. Erinle, *Journal American Medical Informatics Association* 19 (2012), Available from <http://jamia.oxfordjournals.org/content/19/6/1039.abstract>.
17. NICE, Antenatal Care, Quality Standard (2012), Available from <https://www.nice.org.uk/guidance/qs22>.
18. S. M. Donn, *Semin Fetal Neonatal Med.* 10 (2005).
19. Departement of Making Pregnancy Safer, Provision of effective antenatal care, Standards for Maternal and Neonatal Care, World Health Organization, Switzerland (2006).
20. NICE, Pre-eclampsia (2014), Available from: <http://pathways.nice.org.uk/pathways/hypertension-inpregnancy#path=view%3A/pathways/hypertension-inpregnancy/pre-eclampsia.xml&content=view-node%3Anodes-woman-at-risk-of-preeclampsia>.
21. T. T. Thein, T. Myint, S. Lwin, W. M. Oo, A. K. Kyaw, M. K. Myint, et al., *WHO South-East Asia Journal Public Health* 1 (2012).
22. K. Duckitt and D. Harrington, *BMJ* 330 (2005).
23. F. A. English, L. C. Kenny, and F. P. McCarthy, Risk factors and effective management of preeclampsia, Integrated Blood Press Control, Dove Medical Press (2015), Vol. 3.
24. Y. Etika and S. E. Hariyanto, *Jurnal Delima Harapan* 3 (2014).
25. HMN, Health Metrics Network, Framework and Standards for Country Health Information Systems, Second edn., World Health Organization, June (2008), Available from http://www.who.int/healthmetrics/documens/hmn_framework200803.pdf.
26. Keputusan Menteri Kesehatan Republik Indonesia Nomor 369/Menkes/SK/III/2007 Tentang Standar Profesi Bidan (2007).

Received: 15 September 2016. Revised/Accepted: 31 December 2016.

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