To What Extent Do Ecological Factors of Behavior Contribute to the Compliance of the Antenatal Care Program in Dumai City, Indonesia?

This article was published in the following Dove Press journal:
Risk Management and Healthcare Policy

Hetty Ismainar¹
Hertanto W Subagio²
Bagoes Widjanarko^{1,3}
Cahyono Hadi⁴

¹Doctoral Program, Faculty of Public Health, Diponegoro University, Semarang, Indonesia; ²Department of Nutrition, Faculty of Medicine, Diponegoro University, Semarang, Indonesia; ³Department of Health Promotion, Faculty of Public Health, Diponegoro University, Semarang, Indonesia; ⁴Department Obstetrics and Gynecology, Faculty of Medicine, Diponegoro University, Semarang, Indonesia

Purpose: Maternal mortality rate (MMR) in Indonesia is still relatively high, at 305 per 100,000 live births (2015). Routine visit to antenatal care is the best way to reduce MMR. In spite of this, the number of antenatal care visits among pregnant women is still low. This study aimed to measure the influence of behavioral ecological factors with the compliance of pregnant women to visit antenatal care.

Patients and Methods: Study population was pregnant women living in Dumai City, Indonesia. This study was a quantitative research design with a cross-sectional. We used the cluster system to select participants. A total of 369 subjects participated with a gestation age between >12 until 40 weeks. The data were collected by face-to-face interviews using validated questioners. The analysis was done by bivariate analysis using the Spearman correlation test. Multivariate using multiple linear regression.

Results: This study showed that factors of the ecological model of behavior were related to antenatal care compliance (p value<0.05) with a coefficient correlation (0.330–0.569). Multivariate analysis showed that all variables associated significantly (adjusted R^2 ; 0.104–0.311). Five variables were dominant; knowledge, cultural beliefs, family support, friend support, and health facilities with adjusted R^2 = 0.518.

Conclusion: Five factors in an ecological model of behavior, such as knowledge, cultural beliefs, family support, friend support, and health facilities, proportion (51,8%) of contributing to antenatal care compliance. We recommend a health district program to make services more accessible to pregnant women. Health education programs need to increase the knowledge of pregnant women and families to provide support in antenatal care compliance. Local governments shall improve antenatal care quality by mapping, planning, and evaluating this program.

Keywords: pregnant women, behavior, knowledge, culture, family support, health facilities

Introduction

The third target on the first point in the Sustainable Development Goals states that the framework of sustainable development is to promote healthy living and promote prosperity for all. To achieve this, the maternal mortality rate must be <70/100,000 by 2030.¹ In 2015, MMR in the world was 216/100,000, still not on the target (102/100,000), while MMR in Indonesia was still 305/100,000 live births.^{2,3}

Several programs, such as “the safe motherhood program” (1990), the “Gerakan Sayang Ibu” (movement to support mother), “the Making Pregnancy Safer strategy” (2000), and “The Expanding Maternal and Neonatal Survival” program (2012) have been launching. However, the MMR remains high.

Correspondence: Hetty Ismainar
Doctoral Program, Faculty of Public Health, Diponegoro University, Jl Prof Sudarto SH, Kampus UNDIP Tembalang, Semarang 50275, Indonesia
Tel +62 812 751 4764
Fax +62 24 746 0044
Email ismainarhetty@yahoo.co.id

The effort to reduce MMR should be a concern about antenatal care (ANC) and maternal education.⁴ Therefore, the provision of Antenatal care services can detect complications and the high risk of pregnancy⁵. Antenatal care compliance is the behavior of pregnant women to visit health care facilities for the identification of high-risk pregnancies.

Globally, a four-time visit to Antenatal care prove to be able to reduce MMR.^{6–8} Meanwhile, in developing countries, only 31% of pregnant women receive services from trained health workers.⁹ Therefore, in low-income and developing countries, antenatal care visits must be increased.^{10,11}

The government of Indonesia stated 95% coverage of antenatal care visits as a program's standard. There was a decrease in antenatal care visits from during the period 2012–2016, from approximately 90.1% decline to 85.3%. One of the lowest of the Antenatal care visit was Riau province (76.1%). We conducted this study in Dumai city, which has the minimum coverage in Riau province (71.5%).²

Several studies have also examined the compliance of antenatal care. There are many factors causing compliance, such as characteristics, behavior, poor service quality, including facilities, human resources competencies, socio-economic, and socio-cultural.^{12,13} Based on Green theory, individual behavior is affected by three domains; knowledge, attitude, and practices.¹⁴

If we want to reduce maternal mortality rate, antenatal care compliance among mothers should be improved. Many factors affect the compliance of Antenatal care. The element of the ecological is intrapersonal factors (characteristics, attitudes, knowledge, beliefs), interpersonal factors (family support, friends and community leaders support), institutional factors (health facilities), community factors (media, and public policy).¹⁵ Unfortunately, there is no evidence regarding the involvement of behavioral ecological factors toward antenatal care visit compliance of pregnant women. This study aims to measure the components of the ecological model of behavior change as recommendations for improving antenatal care programs.

Materials and Methods

Study Design

Quantitative research with cross-sectional design. The framework theory of an ecological model of behavior was applied to describe antenatal care compliance embracing social circumstances.

Study Site

We conducted the study during the fourth month in 2019 (February-June), in Dumai City, Riau Province, Indonesia. We did our research in all of seven sub districts namely; West Dumai, East Dumai, Bukit Kapur, Sungai Sembilan, Medang Kampai, and South Dumai. These sub district were the lowest antenatal care visit coverage in Riau Province.

Study Subject

The total of pregnant women in Dumai City was 11,499. Considering that the ANC examination program starts in the first trimester, we applied a gestational age of more than 12 weeks as an inclusion criterion and obtained a number of 9,057 pregnant women as study population. Samples size was 369 based on calculations using proportional stratified random sampling and distributed based on proportion to the sub district area. Sample distribution were: West Dumai (42 subjects), East Dumai (84 subjects), Bukit Kapur (48 subjects), Sungai Sembilan (43 subjects), Medang Kampai (19 subjects), Dumai center (51 subjects), and South Dumai (82 subjects).

We selected respondents using simple random sampling and visit them base on the address. Three respondents did not complete the questionnaire (drop out), and two women were not willing to be respondents, then we selected and replaced the same procedure. Selection of the participants as seen in [Figure 1](#)

Ethical Consideration

The Ethics Committee for Health Research, Faculty of Public Health, Diponegoro University, issued ethical clearance for this study (No.240/EA/KEPK-FKM/2018). Each participant signed written informed consent.

Variables

The variables in this study consisted of the characteristics of respondents, namely: age, education, occupation, pregnancy trimester, and parity. The independent variable consists of: attitudes, knowledge, cultural beliefs, husband support, family support, friend support, community leaders support, health facilities, media, and public policy. The dependent variable is antenatal care compliance.

The definition of attitude in this study is how pregnant women think about their behavior during pregnancy and antenatal care visits. For example: consuming Fe tablets, tetanus injections, time of prenatal care visits, attitudes to pregnancy risk. The question of knowledge told about what

Figure 1 Selection of the participants.

is the opinion of pregnant women about knowledge during pregnancy. The time of prenatal care visit, early detection of risk factors, weight gain during pregnancy, the function of calcium tablets, and counseling about the birthing process.

The question of cultural beliefs told about myth during pregnancy, food consumption, check pregnant to a shaman, and risky. The question of husband, family, friend, community leaders support talked about financial, transportation, mentality support, and pregnancy advice. The issue of health facilities, health workers, describes service in a health facility, health workers competencies and, health insurance. The question of media explained to get health information via television, social media, newspaper, magazine. The question of public policy about labor fees, health insurance, and free health facility policies. The Independent variable is antenatal care compliance, to found their experience, activities, reasons, and desires to carry out pregnancy check-ups visit, join in pregnant women class, check pregnant on schedule or not.

Data Collection

Data were collected using a structured questionnaire. The validity and reliability of the questionnaire are carried out in a sub-district that has characteristics equivalent to the study group (Rumbai sub-district). There were 30 respondents participated. The test is carried out twice until the questionnaire valid and reliable was declared. For validity test: comparer $r^{(table)} (0,36) > r^{(counts)}$ and the reliability test used Cronbach alpha > 0.6 . Totally 63 questions were valid and reliable.

The questionnaire of ten independent variables consisted of attitude (8 points), knowledge (11 points), cultural beliefs (5 points), support from husband, family, friend, community leaders (totally 15 points), health facilities (7 points), media (4 points), public policy (5 points). The dependent variable is antenatal care compliance (8 questions). Independent and dependent variable collected data used discrete numeric with an interval scale (disagree-1-2-3-4-5-6-7-8-9-strongly agree).

We selected ten midwives as enumerators. We did a three-day training to standardize the skill of enumerators and distributed them in seven sub-districts. For larger areas, such as West Dumai, South Dumai, and Bukit Kapur, were placed, two enumerators. The questionnaire was collected by face-to-face interviews. On average, the enumerators spent 45 minutes to interview and fulfill the questioners. Each enumerator interviewed, on average, 3–5 participants per day and sent it to the supervisor on the same day.

Data Analysis

The researcher checked and coded the completed questionnaires. A Research member will input the data to the computer. Collected data were entered twice and double-checked to minimize errors. Data were analyzed using a computer program. We calculated frequencies, percentages, mean, median, and Standard Deviation.

The Bivariate analysis used the Spearman rank coefficient correlation; p -value < 0.05 was considered statistically significant. Spearman rank coefficient measures the degree of

association between the behavior of pregnant women according to the ecological approach to antenatal care compliance.¹⁶ Multivariate analysis using multiple linear regression. We also conducted normality tests, multicollinearity, autocorrelation, and linearity tests for data validity.

Results

Study Characteristics

Characteristics of pregnant women in this study include age, education, occupation, gestational age, and parity. Distribution of respondent characteristics in pregnant women (Table 1).

Table 1 presents the dominant group of age was <35 years (84,8%). Prominent characteristics were low education (elementary and junior high school), 69.9%. The majority of pregnant women are unemployment (82,4%), and they were multigravida (69,9%).

The cause of antenatal care compliance consists of many factors. In this bivariate analysis, we will explain the correlation coefficient between the independent variables to ANC compliance, and we used the Spearman coefficient correlation (Table 2).

Table 2 shows that all variables were significantly correlated (p -value <0,05). Six variables have moderately

correlated associated (>0.25–0.50); there are attitudes, cultural beliefs, husbands support, community leaders, media, and public policy. Four variables were strongly correlated (>0.50–0.75); knowledge, family support, friend support, and health facilities.

Multivariate data analysis used multiple linear regression with the backward method.¹⁷ There are two stages carried out in this analysis, namely partial (sub-structure I and combination (sub-structure II) (Table 3).

Table 3 shows that all independent variables of the ecological model of behavior have a significant correlation (p -value<0,05). The partial analysis (sub-structure I), found that all independent variables contributed to antenatal care compliance in this region. All independent variables (X) are regressed with the dependent variable (Y). The elimination of variable X was based on the smallest F-value (F_{partial}) and whether or not the variable X in the model was also based on F-value (F_{table}).

They have six models until the value of each variable did not have p -value >0,05. Finally, the combined analysis (sub-structure II) has five independent variables that contributed to the antenatal care compliance proportion by 51.8% (adjusted $R^2=0.518$). There are knowledge, cultural beliefs, family support, friend support, and health facilities.

Table 1 Characteristics of Pregnant Women Over 12 Weeks in Dumai City, Indonesia. 2019

Characteristics	n=369	%
Mothers age (years)		
17–20	24	6,5
21–35	289	78,3
36–48	56	15,2
Education		
Elementary school	62	16,8
Junior high school	196	53,1
Senior high school	83	22,5
Diploma	10	2,7
Bachelors degree	18	4,9
Occupation		
unemployed	304	82.4
employed	65	17.6
Pregnancy trimester		
Third	180	48.8
Second	189	51.2
Gravidity*		
Multigravida	258	69.9
Primigravida	111	30.1

Notes: *Gravidity is the number of times a mother gets pregnant. Multigravida, if pregnant for more than one time. Primigravida, if pregnant for the first time.

Discussion

ANC Compliance

This study showed that five factors contributed to antenatal care compliance, such as knowledge, cultural beliefs, family support, friend support, and health facilities. Many health

Table 2 Spearman Coefficient Correlation an Ecological Model of Behavior to Antenatal Care Compliance in Dumai City, Indonesia, 2019

Variable	Mean	Median	SD	Coefficient Correlation	p-value (< 0.05)
Attitude	5.66	6	1.33	0.374	0.000
Knowledge	6.22	6	1.34	0.553	0.000
Cultural beliefs	5.93	6	1.75	0.330	0.033
Husband support	7.43	8	1.41	0.383	0.000
Family support	6.44	7	1.86	0.557	0.000
Friend support	5.52	5	1.81	0.508	0.000
Community leaders support	4.84	5	1.99	0.410	0.000
Health facilities	6.96	7	1.43	0.569	0.000
Media	5.66	6	1.99	0.440	0.000
Public policy	6.50	7	1.61	0.429	0.000

Abbreviations: SD, standard deviation.

Table 3 Summary of Multivariate Analysis

Variable	Unstandardized Coefficient B	Beta Coefficient	t	p-value <0.05	r	R ²
Partial (Substructure I)						
Attitude	0.439	0.387	8.030	0.000	0.387	0.149
Knowledge	0.626	0.558	12.870	0.000	0.558	0.311
Cultural beliefs	0.278	0.323	6.536	0.000	0.323	0.104
Husband support	0.410	0.385	8.000	0.000	0.383	0.149
Family support	0.436	0.538	12.221	0.000	0.538	0.289
Friend support	0.426	0.511	11.393	0.000	0.511	0.261
Community leaders support	0.314	0.414	8.717	0.000	0.411	0.172
Health facilities	0.585	0.554	12.753	0.000	0.554	0.307
Media	0.331	0.437	9.302	0.000	0.437	0.191
Public policy	0.408	0.436	9.278	0.000	0.436	0.190
Combined (Substructure II)						
	Standardized Coefficient B	t-value	p-value<0.05	R	R ²	Adjusted R ²
Knowledge	0.287	6.662	0.000	0.724	0.525	0.518
Cultural beliefs	0.088	2.261	0.024			
Family Support	0.214	4.385	0.000			
Friend Support	0.169	3.561	0.000			
Health facilities	0.244	5.541	0.000			

Abbreviations: R, coefficient determinant.

problems in pregnant women can be prevented and detected by health workers during antenatal care visits. In Indonesia, pregnant women should attend four times (once in 1st trimester, once in 2nd trimester and twice in 3rd trimester), as stated in the national program.

Many theories and research findings indicate factors causing low antenatal care compliance include: education, knowledge, attitudes, perceptions, trust, economic status, social culture, family support, quality of health workers, competence, facilities, access, quality of service, distance to health facilities.^{18–22} Impacts caused by mothers and child health include anemia, hemorrhagic, hypertension, premature and low birth weight.^{23–26}

Each region has a different problem. So it is necessary to identify the contributing factors. Mothers must have the awareness to conduct antenatal care visits to check their pregnancy. If there is a risk during pregnancy, it can be handled early and appropriately by health workers. By then, we may expect the decline of MMR in Indonesia.

Knowledge and Cultural Beliefs

This study showed that knowledge and cultural beliefs contributed to Antenatal care compliance. The majority of respondents have low education so that health workers have difficulty doing health promotion for pregnant women. Pregnant women still use traditional birth attendant services

as an alternative to checking pregnancy for convenience reasons. They will go to health workers if the pregnancy is risky and cannot be handled by a shaman. It has become a family tradition.

Based on planned behavior and reasoned action of theory, individual behavior influenced by perceptions, norms, and culture.^{27,28} The level of education and work status affected their mindset. Mothers who are living in rural areas and having poor knowledge and social status tend to reduced antenatal care visits.^{29,30}

Because of the community trust to a shaman is profound, health workers need to collaborate in serving pregnant women. Start by mapping the number of pregnant women, health services, and health promotion. The goals are to reduce morbidity and mortality in pregnant women.

Family and Friend Support

Interpersonal factors significantly influence antenatal care compliance, especially family and friend support. The local culture in this area induces pregnant women to obey advice from their parents. It may influence decision making in choosing health services for pregnant women. In this area, the opinions of families, especially grandmothers, are still highly considered. There is a hereditary culture from their ancestors about habits that are not allowed for pregnant women. So it is difficult for health workers to provide health education for pregnant women.

Another study in Mexico City, which has relatively low socio-economic characteristics, found that women who did not live together with their husbands tended to receive family support.³¹ Therefore, families and people around pregnant women also need to be given health education to improve their knowledge. This process requires the participation of health workers in realizing this program.

Health Facilities

The study showed that health facilities and the availability of health professionals contributed to antenatal care compliance. The reason is the long distance to access health facilities. Public transportation is also an obstacle in this area, especially in four sub-districts, namely: Sungai Sembilan, South Dumai, Bukit Kapur and Medang Kampai. So for Antenatal care visit is still low. Even for the Sungai Sembilan sub-districts, they have to use a boat to go to a health facility. The availability of midwives is limited because of its rural areas. Communication, public facilities, and benefit finance is still the biggest obstacle in this area.

Research in Ethiopia also found the same reason, and another factor is financial constraints.³² The other factors, such as referral process, communication, midwife competence, also become obstacles in this area. Appropriate health professionals also determined indicators of the success of the public health facilities in carrying out its programs. The low quality of health services will hamper the growth and quality of life of the community.

Media

The study revealed that information from the media does not contribute to antenatal care compliance. The reason is because of the unavailability of supporting infrastructures such as electricity supply, road access, internet networks, and transportation. Whereas study in Canada said that the role of media was very influential in improving the participation of pregnant women in the health program. Examples of social media used were Facebook, Twitter, local online, online discussion forums, and websites.^{33,34}

The mass media industry is growing rapidly nowadays. That can be seen from television, radio, media companies, newspapers, magazines, and other media even though information about health for pregnant women was rare. Dumai City is a sub-urban area. Access to the province capital is within 6–8 hours. Electricity supply was also minimal. There are four sub-districts located in marginal areas, so that the use of mass media, television, and access

to health information is still lacking, especially the internet was useless.

Public Policy

This study demonstrated that public policy factor does not affect to antenatal care compliance. Some policies such as health insurance, health workers distribution, midwife competences, and finance or incentive system have proven not to support antenatal care visit compliance.

The role of the Health Ministry and the Regional Civil Foundation is crucial in the distribution regulation of health workers. Recruitment of health workers and infrastructural capacity to provide good quality care remains a challenge.³⁵ The placement and training of midwives in some areas are inadequate. The establishment of data-based programs still needs to be improved.^{36,37}

Relevant incentive patterns for health workers in the region can increase the interest and motivation to retain in the field. Some experts said that the provision of basic salary could only make employees feel safe, but unable to provide motivation. Incentives related to performance can increase motivation and productivity.^{38,39} The regulation of wages must be base on the characteristics and capabilities of local governments. Local governments must take low budget problems seriously so that the quality of health services will improve.

The commitment of the government can reduce the maternal mortality rate.⁴⁰ The participation of all institutions is needed, including the Ministry of Health of the Republic of Indonesia, Ministry of Finance, Dumai City Health Department, Primary Health Care, hospitals, and the participation of the whole community to commit to reducing maternal mortality in Indonesia.

Limitations

This study has some limitations. The design of this study was cross sectional. We can only come to the conclusion that five variable which were knowledge, cultural beliefs, family support, friend support, and health facilities support 51.8% of the model.

The categorization of the independent variables has several consequences, the inconsistency of the respondent answered because it is based on individual perceptions. The retrospective of an interview about antenatal care compliance may lead to recall bias. This research method should be combined or improved with a qualitative design to obtain more behavior observation or experiment design for future research.

Conclusion

Five factors in an ecological model of behavior, such as; knowledge, cultural beliefs, family support, friend support, and health facilities, contribute 51.8% of antenatal care visit compliance. We suggest that the level of knowledge and skills of pregnant women must be increasing as well as improves family and friends support the mother to come to antenatal care clinics. Future research should identify the barriers to prenatal care utilization to make a better program.

Acknowledgments

We thank those who participated in this research. We appreciate pregnant women, the staff of District Health Officer, and public health workers of Dumai City for their corporation in facilitating our research.

Author Contributions

First authors contributed to data analysis and drafting. All authors revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Disclosure

All authors have no conflict of interest related to conducting and reporting this study.

References

- Osborn D, Amy C, Ullah F *Universal Sustainable Understanding the Transformational Challenge for Developed Countries. Report of A Study by Stakeholder Forum.*; 2015.
- Kementerian Republik, Indonesia R. *Profil Kesehatan Indonesia.* Indonesia; 2016.
- Sustainable Development Goals. *Indicator and Monitoring Framework for the Global Strategy for Women's, Children's, and Adolescents' Health (2016–2030)*; 2016.
- Campbell OMR, Graham WJ. Maternal Survival 2 Strategies for reducing maternal mortality: getting on with what works. *Lancet.* 2006;368(9543):1284–1299. doi:10.1016/S0140-6736(06)69381-1
- Carroli G, Rooney C, Villar J. How effective is antenatal care in preventing maternal mortality and serious morbidity? An overview of the evidence. *Paediatr Perinat Epidemiol.* 2001;15(suppl. 1):1–42. doi:10.1046/j.1365-3016.2001.0150s1001.x
- Shafqat T, Fayaz S, Rahim R, Saima S. Knowledge and awareness regarding antenatal care and delivery among pregnant women. *J Med Sci.* 2015;23(2):88–91.
- Javali R, Wantamutte A, Md M. Socio-Demographic Factors Influencing Utilization of Antenatal Health Care Services in a Rural Area – a Cross-Sectional Study. *Int J Med Sci Public Heal.* 2014;3(3):308–312. doi:10.5455/ijmsph.2013.231220131
- Habib F, Hanafi MI, El-Sagheer A. Antenatal care in primary health care centers in Medina, Saudi Arabia, 2009: a cross-sectional study. *East Mediterr Heal J.* 2011;17(3):196–202.
- Brouwere V, De, Tonglet R, Lerberghe W, Van Lerberghe W. Strategies for reducing maternal mortality in developing countries: what can we learn from the history of the industrialized West? *Trop Med Int Heal Vol.* 1998;3(10):771–782. doi:10.1046/j.1365-3156.1998.00310.x
- Sumankuuro J, Crockett J, Wang S. Antenatal care on the Agenda of the Post-Millennium Development Goals in northern Ghana. *Int J Innov Appl Stud.* 2016;18(2):341–352.
- Finlayson K, Downe S. Why Do Women Not Use Antenatal Services in Low- and Middle-Income Countries? A Meta-Synthesis of Qualitative Studies. *PLoS Med.* 2013;10(1):1–12. doi:10.1371/journal.pmed.1001373
- Naariyong S, Poudel KC, Rahman M, Yasuoka J, Otsuka K, Jimba M. Quality of Antenatal Care Services in the Birim North District of Ghana: contribution of the Community-Based Health Planning and Services Program. *Matern Child Heal J.* 2012;16(8):1709–1717. doi:10.1007/s10995-011-0880-z
- Adamu YMAHMS, Beutler E. Barriers to the use of antenatal and obstetric care services in rural Kano, Nigeria. *J Obstet Gynaecol.* 2009;22(Issue(6)):600–603. doi:10.1080/0144361021000020349
- Green LW, Kreuter M. *Health Program Planning an Educational and Ecological Approach.* Mc, Graw Hill, Boston; 2005.
- Glanz K, Rimer BK. *Theory at a Glance: A Guide for Health Promotion Practice.* Washington, DC: National Cancer Institute; 2005.
- Redding EM, Maria Teresa Ruiz-Cantero, José Fernández-Sáez, Marta Guijarro-Garvi. Gender inequality and violence against women in Spain, 2006– 2014: towards a civilized society. *HHS Public Access.* 2017;31(2):82–88. doi:10.1016/j.gaceta.2016.07.025
- Samosir N, Siagian P, Bangun P. Analisa Metode Backward dan Metode Forward untuk Menentukan Persamaan Regresi Linear Berganda. *Saintia Mat.* 2014;2(4):345–360.
- Abor PA, Abekah-Nkrumah G, Sakyi K, Adjasi CKD, Abor J. The socio-economic determinants of maternal health care utilization in Ghana. *Int J Soc Econ.* 2011;38(7):628–648. doi:10.1108/03068291111139258
- Essendi H, Mills S, Fotso J. Barriers to Formal Emergency Obstetric Care Services ' Utilization. *J Urban Heal Bull New York Acad Med.* 2010;88(2):356–369. doi:10.1007/s11524-010-9481-1
- Zere E, Tumusiime P, Walker O, Kirigia J, Mwikisa C, Mbeeli T. Inequities in utilization of maternal health interventions in Namibia: implications for progress towards MDG 5 targets. *Int J Equity Health.* 2010;9(16):1–12. doi:10.1186/1475-9276-9-16
- Say L, Raine R. A Systematic review of Inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. *Bull World Health Organ.* 2007;85(10):812–819. doi:10.2471/BLT.06.035659
- Okonofua F, Imosemi D, Igboin B, et al. Maternal death review and outcomes: an assessment in Lagos State, Nigeria. *PLoS One.* 2017;12(12):1–11. doi:10.1371/journal
- Susanti AI, Sahiratmadja E, Winarno G, Sugianli AK, Susanto H, Panigoro R. Low Hemoglobin among Pregnant Women in Midwives Practice of Primary Health Care, Jatininggar, Indonesia: iron Deficiency Anemia or? B-Thalassemia Trait? *Hindawi.* 2017;2017:1–5. doi:10.1155/2017/6935648
- Tuncalp O, Hofmeyr GJGA. Prostaglandins for preventing postpartum hemorrhage. *Cochrane Syst Rev.* 2012;15(8):18–24. doi:10.1002/14651858.CD000494.pub4
- Upadya M, Rao ST. Hypertensive disorders in pregnancy. *Indian J Anaesth.* 2018;62(9):35–41. doi:10.4103/ija.IJA_475_18
- Goldenberg RL, Culhane JF, Iams JD, Romero R. Epidemiology and causes of Preterm Birth. *Lancet.* 2008;371(9606):75–84. doi:10.1016/S0140-6736(08)60074-4
- Fishbein M, Ajzen I. Belief, Attitude, Intention, and Behavior: an Introduction to Theory and Research. *Am Sociol Assoc.* 1977;6(2):244–245. doi:10.2307/2065853

28. Tarar MA, Khan YN, Ullah MZ, Salik MH, Akhtar S, Sultan T. Knowledge and attitude; pregnancy and antenatal care among young agrarian & non-agrarian females in Faisalabad District, Pakistan. *Pakistan J Agric Sci.* 2019;56(1):261–273. doi:10.21162/PAKJAS/19.7730
29. Noh J, Kim Y, Lee LJ, et al. Factors associated with the use of antenatal care in Sindh province, Pakistan: A population-based study. *PLoS One.* 2019;14(4):1–11. doi:10.1371/journal.pone.0213987
30. Ali H, Ali A, Mahmood QK, Jalal A, Ali SR. Antenatal Care: accessibility Issue among Pakhtun Women in Malakand, Pakistan. *Isra Med J.* 2018;10(6):362–366.
31. Fernández LE, Newbj A. Family Support and Pregnancy Behavior among Women in Two Mexican Border Cities Apoyo familiar y comportamiento durante el embarazo. *Front Norte.* 2009;22(43):7–34.
32. Tolefac PN, Halle-ekane GE, Agbor VN, Sama CB, Ngwasiri C, Tebeu PM. Why do pregnant women present late for their first antenatal care consultation in Cameroon? *Mater Heal Neonatol Perinatol.* 2017;1–6. doi:10.1186/s40748-017-0067-8
33. Shere M, Zhao XY, Koren G. The Role of Social Media in Recruiting for Clinical Trials in Pregnancy. *PloS one.* 2014;9(3). doi:10.1371/journal.pone.0092744
34. Prieto VM, Matos S, Alvarez M, Cacheda F, Manuel A. Twitter: A Good Place to Detect Health Conditions. *PLoS One.* 2014;9(1):1–11. doi:10.1371/journal.pone.0086191
35. Munabi-babigumira S, Nabudere H, Asimwe D, Fretheim A, Sandberg K. Implementing the skilled birth attendance strategy in Uganda: a policy analysis. *BMC Health Serv Res.* 2019;19(655):1–15. doi:10.1186/s12913-019-4503-5
36. Friberg IK, Venkateswaran M, Ghanem B, Frøen JF. Antenatal care data sources and their policy and planning implications: a Palestinian example using the Lives Saved Tool. *BMC Public Health.* 2019;19(124):1–11. doi:10.1186/s12889-019-6427-8
37. Shiffman J, Sultana S. Generating Political Priority for Neonatal Mortality Reduction in Bangladesh. *BMC Public Health.* 2013;103(4):623–631. doi:10.2105/AJPH.2012.300919
38. Finlay W, Martin JK, Paul M, Roman TCB. Organizational Structure and Job Satisfaction: do Bureaucratic Organizations Produce more Satisfied Employees? *Adm Soc.* 1995;27(3):427–450. doi:10.1177/009539979502700306
39. DeSantis VS, Durst SL. Comparing Job Satisfaction among Public- and Private-Sector Employees. *Am Rev Public Adm.* 1996;26(3):327–343. doi:10.1177/027507409602600305
40. Governance commitment to reduce maternal mortality. A political determinant beyond the wealth of the countries. *HHS Public Access.* 2019;57:313–320. doi:10.1016/j.healthplace.2019.05.012

Risk Management and Healthcare Policy

Dovepress

Publish your work in this journal

Risk Management and Healthcare Policy is an international, peer-reviewed, open access journal focusing on all aspects of public health, policy, and preventative measures to promote good health and improve morbidity and mortality in the population. The journal welcomes submitted papers covering original research, basic science, clinical & epidemiological studies, reviews and evaluations,

guidelines, expert opinion and commentary, case reports and extended reports. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/risk-management-and-healthcare-policy-journal>