

Introduction

Background

According to the WHO report (2008), the Indonesia Maternal Mortality Rate (MMR) continues in the high range of 420/100.000 live births, while coverage of births assisted by skilled providers is still low. Even with the most recent estimate of 240 maternal deaths per 100,000 live births (UN, 2011) Indonesia's MMR remains among the highest in East Asia. Indonesia will need considerable extra efforts to meet the fifth Millennium Development Goal of 102 maternal deaths per 100.000 live births by 2015 (World Bank, 2010). The maternal deaths are due mainly to five major causes in order of incidence: hemorrhage, eclampsia, infection (sepsis), abortion complications and obstructed labor (UNFP Indonesia, 2011). These causes often occurred during or immediately after delivery and in many cases it was the untrained Traditional Birth Attendants (TBA) or family members who attended the birth (MoH, 2003).

Often women simply do not receive the essential obstetric care that may save their life. According to the Ministry of Health (MoH) (2008), 23% of Indonesian women were using a TBA for their last pregnancy. The percentage is higher in rural than urban areas (33.8% and 11.9% respectively). In some regions, like Banten, West Java, West Sulawesi, East Nusa Tenggara and Papua, more than 50% of women used TBAs for their delivery. They also had estimates of higher maternal death rates than other areas. A review of a sample of maternal deaths audits from West Java (n=210) in 2009 (World Bank, 2010) revealed that a large majority of women, who died due to childbirth-related causes, relied on TBAs for delivery, were referred too late and even when referred did not get appropriate treatment.

However, the uses of TBAs are preferable for some community members

especially in rural area. Preference for TBAs is tradition, because of TBA's interpersonal skill, special care, and respect for local customs (Koblinsky, 2000; Titaley, 2010). Research from three West Java districts, found that some communities' members, perceived the village midwives as too young and inexperienced; whereas TBAs were more mature, patient and caring compared with midwives (Titaley, Hunter, Dibley&Heywood, 2010). Most Indonesian women also preferred the TBA because they met emotional, spiritual, and cultural needs by incorporating prayers and herbs into their delivery practice, which was seen as part of the normal birth ritual (Dursin, 2000).

In an effort to gain a deeper understanding of the impact of tradition on antenatal care, researchers (Agus&Horiuchi,2012) conducted a study of 145 women, in a rural area of West Sumatra. The self-completed questionnaire asked about traditional beliefs, choice of TBA and antenatal care (ANC). They found that parity was significantly association with a low number of ANC visits during pregnancy. Moreover, women's choice of using a TBA was influenced by the traditional beliefs in their community. Family members were also an influential factor for women deciding to seek medical care in many parts of Indonesia. The previous study indicated that women who were encouraged by their family to seek ANC were associated with higher traditional belief scores. The reason why so many women delivered with TBAs maybe related to these socio-economic and cultural factors (Sychareun,Hansana, Somphet, Xayavong, Phensavanh&Popenoe, 2012; UN, 2011). In any society, the role of the TBAs often reflects the culture and the social organization.

Estimates indicate that 60% of births in the developing world occur outside a healthy facility and 47% are attended by TBAs (WHO, 1997). The Indonesian government launched programs and specific strategies to reduce maternal

mortality resulting from untrained birth attendants. Several of the strategies were providing training for TBAs and increasing the number of midwives especially in the rural areas (Gani, 1996). This effort to increase access to trained birth attendants was initiated by the WHO in 1987 in Nairobi, Kenya, through the launching of the Safe Motherhood Initiative, aimed at ensuring women have a safe pregnancy and childbirth. Furthermore, beginning in 1990, Indonesia has given serious attention to increasing the number of midwives in all areas of Indonesia. Since that time, over 50,000 village midwives (*BidanDesa*) have been placed in rural areas. However, despite Indonesia's strong governmental commitment of investment for interventions, MMR in Indonesia remains stubbornly high.

There are many barriers that stop women from accessing care, even when it is available such as cultural norms (Behruzi, Hatem & Fraser, 2010), negative attitudes from health care providers (Andaleeb, 2001; Peterson, 2004), lack of access to health services (Browser, 2010) and perceptions of quality of care that women have received in the formal health sector (Gage, 2007). Researchers (Agus, et al. 2012) conducted focus group discussions (FGD) with 16 women in a rural area of West Java. They found that midwives sometimes did not have time to wait until the process of delivery progressed normally; they instituted a medical intervention to shorten delivery time whereas TBAs were found to be more tolerant and patient. They were also noted to have more experience and accessibility than midwives.

What are the problems in those situations? Is it the quality of care, which is influential? Unfortunately, little is known about the quality of care provided or the health outcomes. Very crucial implementation is needed to encourage women to receive appropriate care during pregnancy and labor.

Health providers need to consider women's needs. It has long been recognized that women, in particular, are subject to poor quality of care in reproductive health

services across the developing world (UN, 2011). There is growing evidence that patient satisfaction correlates with better quality of care (Jha, Orav, Zheng & Epstein, 2008; Reese, 2009). Receiving information or clear explanations from health care staff also contributed significantly to the overall patient satisfaction. The WHO uses the term 'responsiveness' in preference to 'patient-centered care'. Responsiveness describes how a healthcare system meets people's expectations regarding respect for people and their wishes and communication between health workers. What is the care provided at health centers? Horiuchi, Kataoka, Eto, Ogura & Mori, (2006) noted that care provided at birth centers as 'women centered care' (WCC) consisted of four elements: respect, safety, holism, and partnership. The goals are the general well being of women, potentially leading to the women's empowerment. Women who gave birth at birth centers had the highest care satisfaction when compared to clinics and hospital. Moreover, there was a significant correlation between WCC and care satisfaction during antenatal checkups (Iida, Horiuchi & Porter, 2011). WCC is also a dimension of high-quality health care.

Objective

To identify the factors influence of the women's choice of maternal services compare to the midwife and the TBA.

The specific aims were: (1) to examine influences of women's background, knowledge, traditional beliefs, family opinion toward choice of health care providers, (2) to examine influences of choice of care provider toward evaluation of care, (3) to examine influences of choice of care providers toward maternal and infant outcomes.

Significance of this study

In Indonesia, most of the pregnant women are more likely to receive care

from the TBAs than the midwives, especially in rural areas. The result of this study may help advance the improvement of care in the midwives practice by providing additional understanding women's needs. Moreover, this study will help improve midwives care and provide the opportunity to benchmark the practice's quality of care. In addition, the survey addresses improving partnerships between midwives and TBAs. Based on the findings, solutions will be proposed, aimed at increasing mothers and baby health during pregnancy and childbirth.

Study Framework

The outcomes model (Holzemer, 1994) was used to detect women's satisfaction for midwife and TBA services. Variables were applied to the model. On the horizontal axis were women's background and became the inputs; women's preferences were the processes. The evaluations of care including actual care, perception of care and health outcomes were applied to the outcomes. The vertical axes were the clients, providers and settings; however, the clients were the only focus for the outcome evaluations. (Table 1)

Definitions of Terms

Quality of care: This is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (IOM, 1996). According to Donabedian (1996) quality of care is the extent to which actual care is in conformity with present criteria good care.

Quality of care during pregnancy: All care provided during pregnancy and childbirth period to women and their family.

Evaluation of care: According to the medical dictionary, evaluation of care is the effectiveness of care plans and interventions are an ongoing activity. It serves

to direct reassessment of patient status, the reordering of priorities, new goal setting, and revision of nursing care as indicated (Keane, 2003).

Midwife: Based on the International Confederation of Midwives (2005) a midwife is a person who, having been regularly admitted to a midwifery educational program, duly recognized in the country in which it is located, has successfully completed the prescribed course of studies in midwifery and has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery. In this study the health care provider include the doctor midwife and nurse with additional education. Base on the IOM definition health care provider is an individual who provide health services or a person who is trained and license to give health care, also a lace that is licensed to give helath care. In additions, in Indonesia, ANC is defined as pregnancy-related health care provided by amedical professional such as general practitioner, obstetrician, gynecologist, nurse, midwife, or villagemidwife (IDHS, 2007)

*Preference for midwife:*Preference is shown whereby the woman delivered at a hospital(government or private) or midwifery clinic and public health center.

Traditional Birth Attendant: According to the WHO Alma Ata definition (WHO 1992), “a TBA is a person - usually a woman - who assists the mother at child birth and who initially acquired her skills delivering babies by herself or working with other traditional births attendants (TBA).

Preference for TBA: Preference is shown whereby a woman delivered with a TBA even if she went to a midwife to check their pregnancy.

Literature review

Antenatal Care

A review of studies from various countries indicated that the ANC utilization rate is still low due to many factors, which need to be examined such as socio-demographic features, knowledge of social support and ANC services (Hung, 2002; Simkhada, Teijlingen, Porter & Simkhada, 2007). Although, ANC indicated does not appear substantially to reducing maternal health services, however ANC utilization leads to increase neonatal survival (Darmstadt et al., 2006). Low quality of care such as negative attitude from health care provider (Andaleeb, 2001; Peterson, 2004), one a reason for the women stop seeking the health services. Maternal and children welfare is not only related to health services provided by government and private organizations, it is also related to characteristics of women as mothers for example: education, economic status, culture, environment, and professional development (Hoesein, 2001). A study in XienKhouang Province, Lao PDR (Ye, Yoshida, Rashid & Sakamoto, 2010) showed that significant predictors of ANC utilization were level of education, income, knowledge, attitude, distance to service, availability of public transportation, cost of transportation, and cost of services.

Education. Many studies found that women's education was the dominant factor in the utilization of ANC in developing countries (Nielsen, 2001; Erci, 2003; Alexandre, Saint-Jean, Crandall & Fevrin 2005; Ciceklioglu, Soyer & Ocek, 2005; Erlindawati, Chompikul & Isaranurug; 2005; Effendi, Isaranurug & Chompikul 2008; Ye, et al. 2010). Women with better education were more likely to receive the recommended number of ANC visits (Nielsen, 2001; Erci, 2003; Gage, 2007). The husband's education was also an important predictor of the wife's decision to seek ANC services (Miles-Doan & Brewster, 1998; Nielsen, Liljestrand, Thilsted, Joseph,

Hedegaard, et al. 2001;Alexandre, et al., 2005). A study in Bali in Indonesia showed that other barriers contributing to the low number ANC rates included lack of knowledge about the benefits of ANC (Withers, 2007).

Income and occupation. Women who had higher incomes believed that attending ANC led to early detection of danger signs and were highly motivated to comply with their physician (Fetohy, 2004). Also, family income proved to be one of the most significant predictors of ANC service utilization and women with higher incomes were more likely to have obtained ANC services than were women with low incomes (Ye, et al., 2010). Women who were employed had significantly more visits and earlier initiation of ANC (Erci, 2003;Erlindawati et al., 2005).

*Culture, beliefs, and attitudes.*Muslims were more likely to seek routine ANC in India than other religious groups (Pallikadavath, Foss, & Stone, 2004). Several factors related to the low number ANC rates in Indonesia (Bali Province) were traditional beliefs and unfamiliarity with formal health care providers (Withers, 2007). Women who had a positive attitude were more likely to receive ANC services than those who had a negative attitude (Ye, et al., 2010).In Nepal, mother-in-lawsreported they do not have a tradition of going for antenatal check-ups (Simkhada, et al., 2010).

Availability. Women whose village had a residing village health nurse were more likely to have at least five visits to ANC. Also, having a health center like having a village health nurse increased ANC visits.(Nielsen et al., 2001;Gage, 2007; Ye et al., 2010).

Accessibility. Women who lived in rural areas were more likely to received ANC than women in urban areas (Mekonnen&Mekonnen, 2003). Contrariwise, a study from Haiti, (2005), found that mothers in rural areas received less than four visits during pregnancy compared to those in the urban area who had more than

five visits during pregnancy (Alexandre et al., 2005). In Indonesia a low number prenatal visit rates was related to lack of transport (Withers, 2007).

Support system. Social support from her family significantly increased the frequency and early initiation of ANC (Erci, 2003). Likewise, Matsumura&Ghubaju(2001) found that women from extended or joint families received more ANC than women from nuclear families.

Information acquired. Information acquired was a significant predictor for ANC utilization programs (Erlindawati et al., 2005). Having more education was one of the factors influencing the knowledge level about maternal health care. Education was found to have the most powerful influence on the knowledge score of maternal health (Zhao, Kulane, Gao, &Xu, 2009). Of the research reviewed the majority of pregnant women with low education levels did not use or barely used ANC services.

TBA and Midwives

In many parts of the world and especially in developing countries, women are using TBA services during their pregnancy and delivery. For example, Tuguminize (2005) found that TBAs were popular with pregnant women in Uganda for a number of reasons: 1) women delivered in positions of their choosing; 2) TBAs were not expensive; 3) the TBAs identified with the mothers and shared similar beliefs; 4) TBAs were tolerant, kindly, did not scold or shout at the women and offered credit to those who could not immediately pay and 5) they had a good reputation, for instance the TBAs identified problems early and made timely referrals.

Some of the reasons for high antenatal visit drop-outs in Maluku, Indonesia were: 1) women perceived the need for a center midwife only if there was a problem; 2) women were more comfortable with TBAs because she spent more

quality time with them and used a barter system for payment; 3) women feared they could not afford to pay the cost of the health center midwives and 4) women did not have confidence in the new village midwives because they were often young, unmarried, and inexperienced (Bongiovanni, 1996).

However in some areas of the world, women are switching from the use of lay people and TBAs to midwives. Despite the overall growth in the use of midwifery services at birth, there is still large proportion of women who cannot, or do not, access care. Then, in some settings midwifery services are none existent. Yet, even where services do exist, women often find them hard to access, culturally inappropriate and user-fees are too high and not affordable for some women (UN, 2011).

Quality of Care

The quality of health care involves not only the clinical care aspects, but also the non-clinical aspects, well known as health system responsiveness: dignity, prompt attention, autonomy, confidentiality, choice of provider, clear communication, social support and basic amenities (Valentine, de Silva, Kawabata, Gostin, Hodge et al., 2008). Moreover, the Institute of Medicine (IOM) report identified six elements of high-quality health care: effective, patient centered, timely, efficient, equitable, and safe with patient satisfaction or experience emerging as another quality indicator (Pelletier & Beaudin, 2008). Bruce (1990) pointed out three elements of quality of care: structure of the program, the service-giving process itself, and the outcome of care, particularly with respect to individual knowledge, behavior, and satisfaction with services. According to the American Academy of Nursing Expert Panel (Mitchell & Lang, 2004) positive inputs of high quality of care are: achievement of appropriate self-care,

demonstration of health-promoting behaviors, health-related quality of life, perception of being well cared for, and symptom management to criterion. Negative outcomes included: mortality, morbidity, and adverse events.

The IOM definition of quality of care is: the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. The care should be based on the strongest clinical evidence and provided in a technically and culturally competent manner with good communication and shared decision making (Feld, 2007; Pelletier et al., 2008). Harteloh, (2003) reviewed multiple conceptualizations of quality and concluded with a very abstract definition: "Quality [is] an optimal balance between possibilities realized and a framework of norms and values". The IOM (1996) has designed six "aims" for improving the delivery of care: safe, effective, patient centered, efficient, timely, and equitable with improving patient outcomes as a goal.

While better quality of care will positively impact the women's satisfaction, provider-patient relationship also influences patient satisfaction (Wong, Leung, Cheung, Yam, Yeoh & Griffiths, 2011). Women receiving traditional care reported higher levels of satisfaction with care provided by community midwives than women receiving flexible care, that is timing agreed on between women and midwives (Jewell, Sharp, Sanders, & Peters, 2000). Also satisfaction of ANC services was a significant predictor for ANC utilization (Erlindawati et al., 2005).

Researchers have explored other dimensions of quality care. One aspect of poor quality of care is a lack of health facility back-up for midwifery staff to rely on in case of complications (UN, 2011). Further more, Atinga, Abekah, Nkruman & Domfeh (2011) using an exploratory study with 324 respondents found that the

five-factor model, support/care, environment of the facility and waiting time-determined patients' satisfaction with the quality of healthcare delivery. Also one's subjective perception of health was found to be positively associated with health care utilization and satisfaction (Jang, Kim & Chiriboga, 2005).

Several studies have shown that patient satisfaction can be associated with patient characteristics, including age, gender, educational level and health status (Young, Meterko & Desai, 2000; Crow, Gage, Hampson, Hart & Kimber, 2002; Bautista, Glen & Shetty, 2007). Wong, et al. (2011) found that quality dimensions such as type of health care organization, tangible services and intangibles services influenced global patient satisfaction. Four aspects of satisfaction with care are: including patient involvement, respect for patient dignity, and availability of doctor and explanation of danger signs after discharge (Wong, et al., 2011). Similar findings were found in a Thai study (Liabsuetrakul, Petmanee, Sanguanchua & Oumudee, 2012) of 2822 women, these researchers found that health responsiveness such as dignity, autonomy, confidentiality, communication, prompt attention, social support and basic amenities influenced women's satisfaction of care.

Methods

Research Design

This was a comparative descriptive cross section design for comparing women's choice of maternal health services midwife versus TBA.

Sample

Inclusion criteria. Participants were selected through eligible criteria under the following conditions: 1) married women had experienced birth within two years; 2) women living in the rural or urban village and 3) women capable of communicating in the Indonesia language.

Study site

The research was conducted in the five villages of Parung, West Java an area having both urban and rural areas with many villages. In Indonesia, each district has a public health center responsible for the sub district and their village level midwifery clinic that supports one midwife per village. In the rural areas, one midwife per village is available, whereas TBAs are not so easily identified and therefore the number cannot be calculated. On the other hand, in the urban area, midwives are easily accessed; there are many midwives providing private care, practicing within the hospitals, clinics and public health centres. Even if TBAs were available in the urban areas the number would be small compared to the rural area. Basically, the women have a chance to choose which caregiver they want.

Sampling

Recruitment. Participants were recruited using a convenience sampling method. Public Health Center and Integrated Care Post were requested. The

selection of areas was based on the public health office data. The data from public health centre guided the researcher in selecting the geographical area. Questionnaires were distributed and collected from June to September 2012. Data collection was conducted once.

Sample size. The WCC-questionnaire (23-item) **<Appendix 1>** was used to measure the main outcome of this study. Therefore, the estimation of sample size was based on Polit & Beck's, (2008), recommendation for increasing power by having ten respondents per item. Considering the dropout rate to be 25% from the preliminary studies and missing data around 10% the sample size, 354 women were needed. The final sample size was 371 women, which was enough to measure the main outcome.

During the study period, there were 400 questionnaires distributed to women eligible for participation; 376 (94%) were returned and after questionnaires with incomplete data were excluded leaving 371 (92.7%) for final analysis.

Procedure for conducting the study

The researcher chose the district hospital based on convenience sampling. Then, submitted the research proposal to that district health office. After the ethics committee approval, the researcher explained the study to the district health office to gain their cooperation. The researcher obtained data about the areas selected from the community health centre and received their permission for the study. The researcher, using convenience sampling, recruited participants from the community, public health center and the *Pos Pelayanan Terpadu / Posyandu* (Integrated Care Post). The researcher and trained an Indonesian assistant researcher (volunteer) distributed the questionnaires to the women who met the inclusion criteria. In order to reduce selection bias, the midwives, public health nurses, and nurses were

not involved in the participant recruitment process. The assistant researcher collected the questionnaires that had been placed in a secure collection box.

The substruction

Figure 1 is a substruction model showing the relationship between the concepts to be measured in terms of inputs, processes and outcomes and the measurements (Holzemer, 1994). Below are the explanations of model structure of research inputs, processes, and outcomes as applied to this study.

Inputs

Women's background. Features that may affect women's preference of caregiver services and also may affect the mother and infant outcome and receiving ANC visit characterize this two-part 26-item section. Section one asks about women's characteristics: age, income, background education, insurance status, working status and encouraging status (9 items). Section two includes basic knowledge of pregnancy (8 items) and traditional beliefs questionnaire (9 items).

Processes

Women preference for caregiver. Women were asked to answer the 15-item section about their preferences for caregiver services. Items ask were about accessibility, sharing culture, cost and attitude of caregiver.

Outcomes

Evaluation of care. The main outcome of this research were factors affecting women's choice of maternal health services. According to the previous studies, the number of ANC visits was close to the national average (Agus, & Horiuchi, 2012). The researcher found that women were still influenced by their family to received ANC during pregnancy. Moreover, traditional beliefs were one of the factors motivating women to seek the TBA during pregnancy. Therefore, evaluation

of care was measured by using two tools the: (1) 23-item WCC questionnaire and (2) 3-item satisfaction with care.

Instruments

These instruments were translated from English into Indonesian as a language familiar to most Indonesians. The questionnaire used in this study includes three sections. In section (I) are three instruments to capture women's characteristics, basic knowledge and traditional beliefs; section (II) measures women's preference for caregiver and section (III) includes actual care, women's perception of care (WCC questionnaire) and satisfaction questionnaire and health outcomes.

Section one

Section one contains two sub-sections. The first is about women's characteristics (total 9 items). The second section is about their knowledge (total 8 items) and traditional beliefs (total 9 items) **<Appendix 1>** and was developed by this researcher.

Basic knowledge of pregnancy questionnaire

The concept of measurement. Women's knowledge consists of eight nominal level-items: "yes" if they *agree* and "no" if they *not agree*. Higher points mean that women have more knowledge and the lower point means they have less knowledge.

Development of Instrument

The basic knowledge questionnaire was created from pilot study I (Agus&Horiuchi, 2012) and developed based on a literature review. Based on the results of pilot study I, where over 80% women answered correctly, the researcher increased the difficulty level of the questions.

Traditional beliefs questionnaire

The concept of measurement. This nine-item instrument measures whether women follow or do not follow traditional beliefs. Using a 5-point Likert-type scale the responses ranged from: 'strongly agree' to 'strongly disagree'. Total scores could range from 9 to 45 points. The higher score means that women welcome traditional beliefs from their community.

Development of instrument, validity and reliability. The traditional beliefs questionnaire was created based on two studies: pilot study I using data from 145 women in eight villages of West Sumatra (Agus&Horiuchi, 2012) **<Appendix 2>**, and a qualitative study within preliminary study II (Agus, Horiuchi& Porter, 2012) **<Appendix 3>**. There were five items about traditional beliefs. The reliability of these factors based on Cronbach's α was 0.49. Because, the reliability was low on the previous study the author conducted a focus group to learn women's perception of traditional beliefs and thus, other beliefs emerged (Agus, et al., 2012). Thus, additional items were made yielding a nine-item questionnaire.

The instrument was tested on 371 women. Construct validity for traditional beliefs was established using a factor analysis using promax rotation, two factors emerged: 1) delivery is a normal way; 2) follow the relatives. The coefficient alpha for all 9 items was 0.861 indicating high internal consistency. The coefficient alpha range for factor was 0.732 (factor 2) and 0.835 (factor 1).

Preference for caregiver

This section contains two subsections. The first is about preference for a midwife and the second one is about preference for a TBA. Preference for a midwife consists of 10 items and preference for TBA consists of 12 items. On both sections of

the questionnaire the women were asked to indicate their preference using a 5-point Likert-type scale. The responses ranged from: 1) *strongly disagree*, to 5) *strongly agree*. The higher the points on these two scales the more likely they preferred a TBA or midwife.

Development of instrument, validity and reliability. The preference for caregiver questionnaire was created from preliminary study I using data from 145 women in eight villages in West Sumatra (Agus&Horiuchi, 2012). This researcher developed the questionnaire. There were 22 items regarding preference. Preference for midwife consisted of 10 items. The scores range from 36 to 50 (Cronbach's α 0.7). The responses ranged from: '*strongly agree*' to '*strongly disagree*' on a 5-point Likert-type scale. Preference for a TBA consisted of 12 items with the scores ranging from 25 to 60. Coefficient α was 0.90 which was higher than preference for a midwife. Preference for a midwife consists of seven items and preference for a TBA consists of eight items **<Appendix 1>**.

In this study the number of items was reduced from 22 to 15. After an item-to-item analyses, some items were too similar yielding $r > 0.66$. In addition this author's questionnaire had some similar question as Iida's (2010) WCC questionnaire. Therefore seven items were deleted. The questionnaire was tested on 371 participants followed by a factor analysis to determine the validity of this instrument. Two factors emerged: 1) preference for TBA and 2) preference for midwife. Cronbach's alpha was calculated to assess reliability (N=371). The Cronbach's alpha for the total items was 0.687, and indicating a low level of internal consistency. However, the coefficient alpha for each factor was higher than the total with items ranging from 0.804-0.919.

Women Centered Care (WCC) questionnaire. The WCC-pregnancy

questionnaire was a questionnaire developed by Iida (2010) based on literature review and a WCC concept analysis (Horiuchi, et al., 2006). In addition, the items were developed based on interviews of three pregnant women and five post partum women. There are 50 items asking women if they agreed or disagreed using a 5-point Likert-type scale; 1) *strongly disagree*, to 5) *strongly agree*. Score ranged from 50-250 points.

Reliability and validity of the questionnaire. The coefficient α of this scale was .98. To establish content validity of this questionnaire, five women who had experienced childbirth responded to the WCC-pregnancy questionnaire. Convergent validity was found between perception of WCC and care satisfaction, WCC with the Labor Agency Scale (LAS) and WCC with the Maternal Attachment Questionnaire. Based on construct validity using factor analysis, six factors emerged; (1) feelings of encouragement, (2) being respected, (3) trusting the caregiver, (4) effective interaction, (5) help in decision-making, and (6) non threatening manner (Iida, 2010).

WCC questionnaire short version. Iida provided approval to use the WCC (personal communication January 15, 2012) then it was translated from Japanese to English with back translation from English to Japanese. Iida made a short version of WCC questionnaire in response to this researcher's request (M. Iida personal communication February 9, 2012). Each item of WCC asked if they disagreed or agreed using a 5-point Likert-type scale from 1) *strongly disagrees*, to 5) *strongly agree*. The second analysis found that 23 items were selected based on the highest factor loadings (Cronbach's $\alpha = .95$) **<Appendix 1>**.

Validity and reliability of the instrument. The short 23-item WCC exploratory

factor analysis was conducted to examine construct validity. Principal component analysis and promax rotation were selected. After factor analysis, two of Iida's (2010) four factors were merged. According to the analysis of each item for 371 women in West Java, four operational factors emerged. (1) Factor one, feeling of encouragement, which is a combination of Iida's (2010) three factors (decision making, effective interaction and feeling encouragement) and has 11 items (0.42-0.85); (2) Factor two: trusting the caregivers (0.54-0.91); (3) Factor three: being respected (0.344-0.854) and (4) Factor four: non-threatening manner (0.85-0.92). The reliability of these four factors based on Cronbach's alpha was over 0.70 for each factor, and ranged from 0.78- 0.90 (**Table 2**)

Satisfaction of Care

Satisfaction of care instrument. To assess women's satisfaction with their caregiver's service during pregnancy and childbirth they rated their experience on a 10 point scale where "0" is extremely *dissatisfied* and "10" is *extremely satisfied* regarding the following three items: (1) Were you satisfied with the ANC that you had received?; (2) Would you recommend the care to other women? And (3) would you want to receive the same care again? A mean scale score (range 0-10) was calculated in which a higher score indicates higher satisfaction **<Appendix 1>**.

Data analysis

Data were analyzed as follows: 1) Descriptive statistic such as mean, median, quartiles and percentage were used to summary the women background descriptions; 2) *t*-test was used for comparing, traditional beliefs score, TBA score and midwife score between two groups midwife and TBA; 3) Chi-square test was used to compare categorical data; 5) Pearson's correlation coefficient was used to

check the relationships between variables; 6) Exploratory factor analysis with promax rotation was conducted in this study and 7) The structural equation modeling (SEM) was used to examine whether the women background, preference for caregivers affected women satisfaction. To assess the fitness of the model to the data, the following fitness measures were used: the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). These data were calculated through SPSS ver. 19.0 and AMOS version 19.0.

Ethical consideration

This study was conducted based on ethical principles: do no harm, voluntarily participation, anonymity and protection of privacy of personal information. Both the Ethics Review Board in St. Luke's College of Nursing Tokyo, Japan (approval number: 12-003) and the district health office (*dinaskesehatankabupaten*) (No. 421/3859 Promkes-SDK) approved this study. Informational letters were distributed to participants and included the objectives and significance of this study, the procedure and ethical considerations. The letters were translated from English into Indonesian as a language familiar to most Indonesian. The objectives and significance of this study and the procedures and ethical considerations were explained to the health care staff (volunteers) to gain their cooperation and assistance in this study **<Appendix 4>**.

Explanation to participants. The explanation included these points: Participant of this is by your free will; You will not be disadvantaged in receiving health care if you do not consent to participate in this study; You have the right to quit this study at any time without penalty; You will receive a small gift after participating in this study.

Data usage. For personal information protection, research results are only used for this study and not for another purpose. The collected data will be kept in a safe place for at least three years. After publication, all data will be shredded and eliminated. This study will be the doctoral dissertation of St. Luke's College of Nursing and will be published in the related conference.

Results

Characteristics of the women

The average of the women aged was 30.5 years (SD = 6.5), range from 18-48 years. The majority of the overall sample was under 35 years 277 (74.7%) with 94 (25.3%) over 35 years and older. Two hundred and fortysix (66.3%) were finished with their basic education and only 125 (33.7%) had finished secondary education. No differences between income between less than IDR 1.000.0000 (185; 49.9%) and IDR 1.000.000 or more (186; 50.1%). The majority of the women did not work 315 (84.9%) and only 56 (15.4%) worked as a civil servant and laborer. In addition, most of the women were primiparous 234 (63.1%) and the other multiparous women were 137 (36.9%). (See **Table 3**)

The samples were divided into two groups for analysis; of the 371 women participated on this study, 207 (55.8%) women had a choice of the midwife for delivery and 164 (44.2%) women chose of the TBA for delivery. Several items were associated with the choice of the midwife and the TBA. Women who had finished basic education more likely went to the TBA for delivery and were significantly different compared to the women who finished secondary education ($p < .001$). As a group primiparous 145 (70%) had delivered with the midwife, which was statistically significant compared to the multiparous ($p = 0.001$). However, women who were deliver with the TBA 145 (88.4%) used self pay for usual payment of health care service and had a significant association compared to the midwife group ($p = 0.001$).

The majority of the women (88.4%) received 4 or more ANC visits and chose the midwife for delivery. This was statistically significant compared to those women who chose the TBA for delivery ($p < .001$). Most of the women 135 (65.2%) had more time to midwife, which was significantly different than the women who had went to the TBA for delivery ($p < .001$).

For factors were associated with encouraging women to choose the maternal health services were divided into two groups; my self and the others. Whereas, a

family group (husband, mother-in-law and mother) as encouraging persons were more likely to encourage women to go the midwife for delivery, which was statistically significant compared to encouragement of the women to go to the TBA ($p < .001$). There were no significant differences among women's age, income, working and encouragement to get ANC with type of health care assistance for delivery.

Complications during the last pregnancy

Considering the total sample, the most frequent complication of their previous pregnancy was hypertension, followed by anemia and caesarian section. Complications were analyzed based on midwifery or TBA delivery. As can be seen in **Table 4**, the number of women who had risk complications during their pregnancy and chose a midwife for delivery were significantly higher 43 (20.8%) for having a caesarian section compared to the three (1.8%) women who delivered with the TBA ($p = 0.031$). However, 47 (28.7%) of the women who experienced hypertension were delivered with the TBA, which was statistically significant compared to women who delivered with the midwife ($p = 0.031$). On the other hand, women who experienced an infant death 20 (9.7%) went to the midwife for delivery, which was statistically significant for the women who chose the TBA for delivery ($p = 0.009$). Women (5.3%) having a low birth weight infant were assisted by the midwife for delivery and significant association compared to the women who assisted with the TBA (p value = 0.023). No relationship was found between experiences of anemia, miscarriage and preterm infant and type of provider for assistance delivery.

Basic knowledge of pregnancy and delivery assistant

The average mean score of basic knowledge was 5.93 out of 8 (SD = 1.086) range 1 to 7. The majority of women scored highly in the knowledge section (**Table 5**). In sixth out of eight items, 80% of women answered correctly. Most (96%) of the women in the villages were aware that “to keep a normal process during pregnancy,”

they needed to go to ANC”.

In addition, they were very knowledgeable of ANC examination (93.5%) and the 88.7% knew that problems during pregnancy such as fainting, bleeding, edema, hypertension, required going to the hospital. However, only 65.8% answered correctly that severe headache is not a normal sign during pregnancy and about 24.4% did not know headache is one sign of high blood pressure.

For the all items in the basic knowledge section only two were statistically significant with delivery assistant. First were women who were going to the TBA where 64 (39%) agreed that “severe headache is a normal sign during pregnancy” which was significantly different for the women who were going to the midwife and who were more likely to answer correctly (p value= 0.034). For the second item: “the problem during pregnancy such as faints, bleeding, edema, hypertension, needs to go to hospital” 15.2 % of the women who chose TBA answered now which was higher and statistically significant compared to the midwife group (p = 0.025).

Comparison of scores among delivery assistance

The average mean score of traditional beliefs was 25.95 out of 45 (SD = 6.330) with range 8 to 37. The average mean score of preference for TBA was 22.37 out of 40 (SD = 6.27) with range 7 to 36. Preference for midwife average mean scores was 24.10 out of 35 (SD = 3.29) with range 14-31.

It was the higher score of the women who chose the midwife for delivery in the preference for the midwife questionnaire, which was significantly associated compared to the women who were choosing the TBA for delivery (M = 25.12, SD = 2.989, t = 7.20, p <.001)(**Table 6**). On the other hand, the total score of traditional beliefs questionnaire was higher for the women who gave birth with the TBA compared to the women who gave birth with the midwife (M = 28.99, SD = 4.27; M = 23.54, SD = 6.66, respectively, t = -9.57, p <.001). The trend of traditional beliefs score was quite similar with preference for the TBA questionnaire, which was women who chose the TBA had a higher mean score of preference for the TBA

questionnaire compared to the women who were choosing the midwife ($t = -14.72$, $p = 0.001$).

Comparison of WCC pregnancy questionnaire scores and delivery assistant

The average mean score of WCC-pregnancy questionnaire was 84.32 out of 115 (SD = 10.40) range 53 to 110.

The WCC-pregnancy questionnaire mean scores were overall high between the midwife and the TBA group. Average mean score ranges were 79.98-87.76 (SD= 7.99 – 10.59) indicating that women perceived experiencing WCC. The total score of WCC-pregnancy questionnaire for women who delivered with a midwife group as providing WCC was a significantly higher mean score compare to TBA group ($M = 87.7$, $SD = 8.87$; $M = 79.98$, $SD = 10.59$, respectively, $t = 7.54$, $p < 0.000$). **Table 7** shows score of the subscales of WCC-pregnancy questionnaire. The factor “feeling encouragement” showed the most difference among the other subscale scores “trusting the care giver”; “being respected”, and “non threatening manner”, between the midwife score and TBA score ($M = 40.86$, $SD = 64.43$; $M = 36.72$, $SD = 5.74$, respectively, $t = 7.62$, $p < 0.000$) (Table 7).

Comparison of the satisfaction of care and delivery assistance

The average mean score of total satisfaction was 19.68 out of 30 (SD = 3.87) with range 3 to 23. Women who delivered with the midwife had a significantly higher score of the satisfaction with care ($M = 20.27$, $SD = 3.89$, $t = 3.32$, $p = 0.001$) compared to those women who were delivered by the TBA. For the all questions about satisfaction between women who delivered with the midwife and the TBA, the mean score of the midwife group were overall high. The question about: “would you recommend for the other women” showed significant association with level of satisfaction of caregivers ($t = -0.46$; $p = 0.001$)(**Table 8**).

Correlation among WCC, satisfaction and the preference for caregivers

A correlation coefficient was used to examine WCC's correlation among preference and satisfaction of care. The correlation between WCC and satisfaction of care was $r=0.378$, $p<.001$; WCC with preference for the midwife was $r=0.729$, $p<.001$ and WCC with preference for the TBA $r=-0.527$, $p<.001$. This showed that WCC was more correlated to the women preference for the midwife during their last pregnancy and less correlated to the satisfaction of care. However, the women perceiving WCC were negatively correlated with preference for TBA (**Table 9**).

Structural equation model 1: Preference for caregiver

Figure 2 shows the model of choice of caregivers, which is significantly different. The SEM analysis showed that the largest association with a positive correlation was between traditional beliefs and preference for caregivers (0.93). Preference for caregivers is determined in terms of the difference between the midwife and the TBA. The model showed that the largest association accounting for a negative correlation was between women's knowledge and traditional beliefs (-0.47). It also found that traditional beliefs had a direct effect to family encouragement (-0.37). In addition family encouragement had a significant association with preference for caregivers (-0.35). In this SEM model, the component of traditional beliefs was strongly associated with preference for the caregivers (0.93). This model also explained that the traditional beliefs are positively correlated with the preference for TBA and negatively correlated with preference for the midwife. The modified model also fits by other criteria; in particular, GFI= 0.880 and RMSEA= 0.097.

Structural equation model 2: Satisfaction of care

SEM analyses showed a strong significant association between preference for caregivers and actual care (0.96) and then followed by significant a association between preference for givers and WCC (0.55). WCC had a direct and positive correlation with satisfaction of care (0.46). In addition, preference for caregivers

also had a significantly higher correlation with satisfaction of care (0.110). In this SEM model, the components of WCC are strongly associated with preference for caregivers and then followed by satisfaction of care. Model fit indicated for the modified model were GFI: 0.911; CFI=0.817 and RMSEA= 0.092(**Figure 3**).

Structural equation model 3: Maternal and birth outcomes

The model 3 showed that of the five hypothesized pathways, three were positive association to the outcomes criteria. In this SEM model, preference for the midwife had a strongly significant indirect path to the variable of birth outcomes (0.92). The association of preference for TBA and births outcomes was weaker than the preference for the midwife (0.12). There was a negative association between the traditional beliefs and preference for the midwife (-.45). However, there was a positive association between traditional beliefs and preference for TBA (0.56). In this SEM model, the components of preference for the midwife are strongly correlated with maternal health outcomes. The modified model also fits and there was a good model fit with a GFI=0.897 and RMSEA=0.064(**Figure 4**).

Structural equation model 4: The relationship between traditional beliefs, preference toward care satisfaction and maternal health outcomes.

Figure 5 shows the model which indicates the relationship among the variables. SEM analyses showed a strong association between traditional beliefs and preference for TBA (0.91) and then followed by significant association between preference for midwife and WCC-pregnancy (0.62). WCC had direct positive effect to care satisfaction (0.53). In addition women preference for midwife had a significantly higher correlation with maternal health outcomes (0.31) compared to preference for TBA (0.08). However, traditional beliefs had a negative correlation with preference for the midwife (-0.50). The modified model also fits and there was a range acceptable fit model by other criteria; in particular, GFI: 0.861 and RMSEA=0.097.

Discussion

Difference between women's characteristics and caregiver's choice

Women were divided into two groups based on their choice of health care giver: midwife group and TBA group. In this study the majority of women delivered with the midwife rather than the TBA. This was in contrast to the WHO data reporting that 77% of women go to skilled birth attendants (WHO, 2012). However for these study women choosing midwives was 55.8%, which was lower than the whole of Indonesians data. Then as would be expected women choosing TBA in this study was 44.2%, which was much higher than the 23% (WHO, 2012) for Indonesia in general and **34.9 0%** (IDHS, 2007). Promoting use of midwives is necessary to this area.

Our study documented that women's characteristics that were associated to their choice of caregivers were: education, parity, usual care of payment. In addition, family encouragement (husband, mother-in-law and mother encouraged) was also significantly correlated with the choice of caregiver.

As might be expected, women who finished only their basic education were more likely going to the TBA for delivery and women completing secondary education were more likely to go to the midwife. This finding was consistent with the study from Ghana (Doku, 2012) where women with the higher education had a higher probability of receiving services from a trained delivery assistant. In this case, low education of women remains an important constraint to the improvement of maternal health care seeking.

The results revealed that primiparous women were more likely to go to the midwife for their delivery. This is consistent with the Tanzanian study (Rockers, et al, 2009) findings that women having less than two children were more likely to have had a facility delivery. In Ghana women having more than one baby decreased use of the trained delivery assistant (Doku, 2012). In other words, the more children the mother had the less likely she was to use a trained delivery

assistant. Therefore, health care providers should encouraged women to check their pregnancy with a trained delivery assistant to prevent complications and to be aware that complications will be easier to detect earlier when the women seek care from a trained health provider.

The results showed that a large majority of the women who chose the TBA for delivery were using self-pay as the 'usual source of care payment'. This points to the need to increase insurance coverage especially for impoverished families. If we examine the Indonesian health assurance policy for poor families since 2005 we see that Indonesia instituted a new health card system for the poor as part of the Social Safety program. However, there were problemsadequately implementing this program such as: reaching all the poor, targeting accuracy and socialization problems (ILO, 2006).

We have also shown that encouragement by husbands, mother-in-laws and mothers were important independent factors influencing the choice of caregivers. Similar results were documented in a Tanzania study (Urassa et. al, 1997) indicating that the decision place for delivery was made by their mother and husband if the women developed complications These result suggested thathealth care providers should be a health educator for the family members in order to give a adequate support for the women during pregnancy and childbirth.

Intensive interaction leads to the WCC

Women who were going to the midwife group for delivery received fouror more visits to ANC for checkups. This wasstatistically significant compared to women who chose the TBA for delivery. In addition women choosing midwiveshad30 minutes or more talk-time, which was statistically significant compared to those women who chose the TBA for delivery.

This study confirms that women who received four or more visits of ANC were more likely to use the midwife for delivery. This is consistent from the Ghanaian study (Doku, 2012) where the major proportion of women not assisted by trained personnel during delivery also did not attend antenatal care at all or attended late.

Similarly, women had four or more ANC visits were more likely to be assisted during delivery by a skilled attendant (Mpembeni, 2007). In addition, women who had more ANC visits were more likely to give birth in a facility (Rockers, et.al, 2009).

This evidence is explaining that ANC is as an important entry point for the women for choosing the caregivers. Furthermore, intensive interaction with the caregiver during pregnancy may have increased women's confidence and provided more familiarity with the health system. Similarly, Iida, Horiuchi and Porter (2011) found that the level communication between women and caregivers greater in the birth center settings; in addition, the perception of WCC is influenced by the communication pattern. The results indicated that women had an opportunity to talk more with the caregiver and that would enhance their relationship and encourage women to continue to seek the trained health care provider during pregnancy and childbirth.

Matching to the caregiver choice of the midwife and the TBA

What was it about the choice of caregivers that affected women who had complications during the last pregnancy? In this study I found that if women had a high-risk pregnancy such as caesarian section, infant death or low birth weight infant they decided to seek the midwife for delivery. The midwife services were perceived to be desirable for the women who have had risk complications during pregnancy. This means that there is a need to ensure that the women have a high level of awareness to choose trained caregivers when they have complication. Similar results were documented in a study in rural Cambodia, where a complication such prolonged labor was one of the strongest determinants of birth attendant change to a more trained caregiver (Yanagisawa et. al, 2006).

However, our results showed that women who had experienced hypertension still chose the TBA for delivery. In this study we found that many of the women misunderstood the falsely worded item that "severe headache is a normal sign". This was consistent with a previous study many women responded that "headache is normal sign during pregnancy (Agus&Horiuchi, 2012). In addition the findings

indicated that less than 80 % of the women answer correctly for the item, “headache is a one sign of high blood pressure”. Clearly, many women misunderstood severe headache as a normal sign. The mother's ignorance about the dangers of hypertension during pregnancy is one factor that led to the high rate of maternal mortality in Indonesia; in fact it is the second leading cause of maternal death in Indonesia after hemorrhage (MoH, 2003). The health provider is needed to improve the women awareness how to choice the caregiver especially when the complication happens. Providing the brochure about the risk pregnancy and how to detect such as danger sign is appropriate method for increasing the women knowledge.

Factors correlating with preferences for midwives or TBA: Traditional beliefs, WCC, and satisfaction

Women who perceived the most WCC had also chosen midwives for delivery and they had highly rated their interactions with midwives. Conversely, women who gave birth with TBAs scored lower on perceived receiving WCC. A possible explanation for this finding was that they thought that the services only if they went to the health services. It is also possible that some women sought out health services and then received individualized care by a midwife, maybe they liked and maybe they did not. This result also contrary with our expected and Koblinsky study (2012) and Titaley, 2012 which is women preference for TBA because of tradition, met emotional, spiritual and cultural needs. The reason for this situation that the WCC pregnancy questionnaire is not included the Indonesian culture.

This study confirmed that WCC correlated with women's preferences for caregiver and satisfaction of care during preceding pregnancy. This is similar with Iida's (2011) study that WCC was correlated to women's satisfaction of care during delivery. In this finding the WCC's subscale “feeling encouragement” had a strong correlation with the preference for the midwives ($r= 0.729$). It is important to note that women perceiving WCC develops when midwives pay attention to the women's needs.

These results also found that traditional beliefs are correlated with the women preference for the caregivers. This result is also similar with the previous studies finding that traditional beliefs were influential in women choice of caregivers (Agus&Horiuchi, 2012). The health provider is need to pay attention to the nature of women's beliefs and to continuously be an advocate to influence the women's motivation to maintain their pregnancy and to support them to go to the health professional at the first signs of a complication.

Women choosing midwives were overall statistically more satisfied with their care than those choosing TBA. In addition, this study explored the relationships among specific aspects of satisfaction and women's choice of caregivers. The only question showing positive significance was the choice for midwives: "would you recommend for the other women?". These results are in line with other studies conducted in Japan that documented women who gave birth at births centre showed the higher score of satisfaction (Horiuchi et al., 1997; Iida et al., 2011). In addition, women expressed greater satisfaction with the team midwives services than traditional care (Tinkler et al., 1998; Hicks et al., 2003;)

Limitation

The study had several others limitations. First, generalizability of the study is limited to one of 33 provinces in Indonesia and because the area was chosen based on the highest number of women seek the TBA during pregnancy and delivery there is a selection bias. Second, the highest number of women went to the TBA to check their pregnancy is contradictive with the Indonesian data where only 2.2% women went to the TBA to check their pregnancy. One possible explanation for this situation where here is not clearly explanation and definition about what is antenatal care, and bias could not avoidable. Third, the WCC questionnaire was developed in Japan that is culturally different from the Indonesia culture. Revising of the WCC questionnaire and noticing the Indonesia culture is needed in order to reducing the study bias.

Future plan

Despite the limitations, the determinants we founds have useful implications for both caregivers and decisions makers in health programs. The government effort to increase the women education with continuing education is should be followed with easy access for reaching the schools especially for poor families. Increasing women's knowledge will give opportunity to women to make decisions about how to increase their awareness for a healthy life-style and pregnancy. Educating women about danger signs during pregnancy especially how to make the women aware that headaches can be associated with hypertension and that both area danger during pregnancy. In addition, education should include young men as well because they influence their wives. If they also learn the danger signals they will support their wives decision better.

Family encouragement for supporting women to received health care services during the childbirth also one of the important things to pay attention to, in order to increase women seeking health care professionals. In addition, it is also necessary to improve partnerships between midwives and TBAs. Providing the opportunity to benchmark the practice's quality of care should be maintained. Government policy towards improvement of unskilled attendants should continue to be developed. In the end the complications during pregnancy will be detected earlier and health professionals will manage women's health. Community health center as a front line in providing health services during pregnancy and childbirth need to improve the health service based on the mother's need. Promoting mother's to used the health services should be done in order to improve healthy mothers and healthy baby. Future studies should explore how to improve women's awareness use a skilled attendant (midwife, nurse or doctor) for pregnancy care and childbirth. In addition assessing of the quality of services by way of WCC is also necessary in order to increase women seeking professional health care services during pregnancy and childbirth.

Conclusion

Of the total 371 women participating in this study⁵⁵, 8% of women chose a midwife and 44,2% chose of TBA. This study identified that women's education, parity, usual care of payment, antenatal checkups, time for interaction, family encouragement (husband, mother-in-law and mothers) were determinants for choice of caregivers.

Midwife group had greater interaction times and received more visits ANC ($p < .001$), which led to higher WCC and satisfaction scores. The factors related to caregiver's preference were traditional beliefs ($M = 28.99$, $M = 23.54$, respectively, $t = -9.57$, $p < .001$), WCC ($M = 87.76$; $M = 79.98$, respectively, $t = 7.54$, $p < .001$), and satisfaction ($M = 20.27$, $M = 18.95$, $t = 3.316$, $p < .001$). Improving access to professional or trained reproductive services is essential. Urgent effort is particularly needed to ensure that women have access to ANC as well as supervised deliveries by health professionals. Maintaining the maternal health services in order to improve WCC, women receiving WCC and feeling satisfied with maternal health services is crucially important.