

# Midwifery–Led Implementation in Labor Service

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**Abstract—** One of the aspects which has an effect in reducing mortality is the allocation of good quality services. The quality care for pregnant women and newborns in public health services requires practitioners who are competent and motivated with a good human resource too. The quality of midwifery care is a priority to reduce and avoid maternal and child mortality. It is also set as the theme for the International Midwife Day 2018, “Midwives leading the way with quality care”. The presence of a skilled midwife during delivery process is considered as the most critical intervention to ensure maternal safety. The purpose of this Systematic Literature Review is to identify the implementation of midwifery-led care services to handle labor in normal and low risk pregnant women. **Method:** There are 8 steps to make a scoping review. Relevant articles were searched from 2 databases (Pubmed and ScinceDirect). The articles were chosen using quantitative methods. **Results:** There were 16 articles which meet the criteria. The authors then divided them into sub-sections to facilitate the focus of discussion, namely the implementation of interventions for labor, maternal outcomes, labor, and maternal acceptance of midwifery-led care and obstetric-led care services. **Conclusion:** Midwifery-led service can minimize the risk of intervention during labor and increase normal labor and maternal satisfaction. Midwifery-led consists of continuity of woman support, continuity of care, and home-like services for women with low risk during pregnancy and childbirth. Labor services by midwifery-led care cost less than labor services by obstetric led care. In addition, midwifery led care also made mothers feel more comfortable and better prepared for childbirth because midwives prepared mothers with good health education starting from their pregnancy.

**Keywords:** *midwifery-led, obstetrician-led, labor*

## I. INTRODUCTION

Maternal mortality rates have dropped 37 percent since 2000. However, in 2015, 303,000 women died because of complications during pregnancy or childbirth (SDG 3.8). In addition to quality care that is safe, effective, timely, efficient and fair, health services also need to be human-centered [1].

The SDG Indonesia reported on the third objective found that around 89 percent of births were assisted by trained health workers in 2015. The ratio of Indonesian maternal mortality was 305 deaths per 100,000 live births according to the 2015 Intercensal Population Survey (SUPAS).

The Midwifery-Led model is a treatment model in which a midwife is known and trusted by a mother, or a small group of midwives (team midwives) who support a woman during the antenatal, intrapartum and postnatal period to facilitate

healthy pregnancy, healthy childbirth, and healthy parenting practices. Midwifery-led can only be implemented with a sufficient number of midwives accompanied by their good quality [2].

Providing good quality services with the midwifery-led concept in Indonesia is still not optimal. One of the causes of less maximum implementation of midwifery-led service was because it seemed that the quality of services provided by midwives was still low due to the low competence of midwives and the lack of midwives' understanding towards women's needs.

A profession that becomes the most subject of policy is midwife. Specialist doctors and general practitioners have less role than a midwife. Specialist leadership in reducing mortality has not been emphasized. Meanwhile the role of general practitioners seems to be ruled out. Cross-sector promotion and prevention actors have also not contributed much [3].

One of the main pillars of the healthy program of Indonesia as outlined in the 2015-2019 Renstra (Strategic Plan of the Indonesian Ministry of Health) is the strengthening of health services carried out by strategies to improve the access to health services, to optimize referral systems and to improve the quality of health services by using a continuum of care and intervention approaches based on the health risk. The policy directive from the Ministry of Health refers to three important things, one of which is the application of the Continuum of Care approach. This approach is carried out through increasing coverage, quality, and sustainability of disease prevention efforts and maternal, infant, toddler, adolescent, working age and old age health services [3]. In this case the midwife is at the forefront, because the implementation of the continuum of care must be done by midwifery-led.

## II. METHOD

The author screened 564 articles from 2 databases, Pubmed and ScinceDirect. All selected articles used quantitative research methods in which all articles were indexed Scopus Q1 and Q2. The article taken is an article with a population of normal and low-risk pregnant women with midwifery-lead intervention. The articles found consist of 5 articles using a retrospective cohort design, 6 articles using a cohort, randomized control trial (RCT) of 3 articles, and there are as many as 2 cross sectional articles. In the articles obtained there was 1 article from developing countries namely from Lithuania, and 15 other articles were from developed countries namely 5 articles from the Netherlands, 2 articles

from the UK, 1 article from Norway, 1 article from Singapore, 2 articles from Japan, 2 articles from Ireland, 1 article from Italy and 1 article from New Zealand.

Preparation in Scoping this review is done by these steps: 1) identifying the problems, 2) prioritizing problems and questions, 3) creating frameworks, 4) literature searching, 5) selecting articles, 6) critical appraisal, 7) extracting data, 8) collecting data and making mapping to answer questions.

Identifying the problems: The application of midwifery-led in Indonesia is still not optimal because there are more restrictions on the authority of midwives and the lack of competency development in midwives[4].

Based on Indonesia's Health Profile in 2017 [5], the number of midwives who provide midwifery services is included in the sufficient category but for the Nusa Tenggara, Maluku and Papua regions are still in the less category. Based on WHO, the needs of midwives in an area is 1 midwife: 1000 residents. The total population of Indonesia is approximately 257 million and it is estimated to require a minimum of 257 thousand midwives who are spread evenly. However, the distribution of midwives is still not evenly distributed throughout Indonesia where distribution disparities even occur in cities, villages and peripherals (border and remote). This uneven distribution of midwives is also one of the factors which cause the lack of maximum midwifery-led implementation in midwifery services.

The selection of health personnel who will help mother's birth is influenced by several factors including knowledge, attitudes, social culture, access to health services, family support, as well as the quality of services provided.

Prioritizing problems and questions: Priority issues from this systematic literature review are: 1) Midwifery-led implementation in delivery services, 2) Midwifery-led implementation that can be adopted in Indonesia.

The question of this Systematic literature research is "What is the result of implementing midwifery-led service delivery in the management of labor in normal and low risk pregnant women?"

Creating a framework: The framework used is PICOC (Population, Intervention, Comparison, Outcome, and Context).

TABLE I. PICOC Table

Element	Inclusion	Exclusion
Population	Normal pregnant women, pregnant women with low risk	High risk pregnant women
Intervention	Midwifery-led service implementation	
Comparison	Obstetric-led services	The implementation of other led medical
Outcomes	for childbirth assistance	
Context	all countries	

Literature searching: Literatures used in this study are obtained through a comprehensive literature searching. The searching was carried out using the following steps: 1) Making a framework to determine inclusion and exclusion criteria. 2) determining keywords that are in accordance

with the specified framework. 3) searching by using keywords in the Pubmed and ScienceDirect databases. 4) keyword search is carried out by using filters / filters to get results that are more focused in accordance with the specified framework. 5) recording the findings, and save them in the Mendeley bibliography storage engine. 6) data that has been stored is then filtered according to the framework. An inappropriate article is issued. 7) recording the findings of the number of articles and compile a prism of flow diagrams.

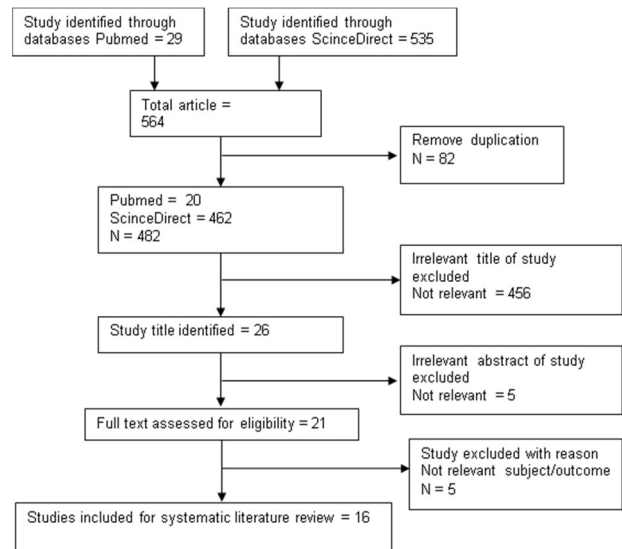


Fig 1 Prism of Flow Diagram.

Selecting articles: Searching articles done using Pubmed and ScienceDirect databases with reference lists resulted 564 articles in total. Of the 564 articles then duplicate article filtering was carried out, in which the same article would be discarded. The 82 articles were the same so there were 482 articles remained. Then there were 26 of the 482 articles passed the screening based on the title related to midwifery-led. Then all of the articles were filtered back based on abstracts and found 21 articles. After that from a complete reading of the article 16 articles were obtained in accordance with the subject and outcome that have been determined.

Critical appraisal: Critical appraisal was used to assess the quality of articles to be used. The tool chosen to assess the quality of articles was the Joana Briggs checklist of the Joana Briggs Institute. In this critical appraisal stage there were 16 articles that correspond to the research question. These selected articles used quantitative research methods with various types of study designs such as cohort, RCT (Randomized Control Trial), and cross sectional. The design of the retrospective cohort design was 5 articles, 6 cohort studies, 3 randomized control trials (RCTs), 2 articles cross sectional. All selected articles have their own critical appraisal assessment sheets where the results are all good.

Extracting data: After obtaining articles that were in accordance with the topic, then the data extraction was carried out. Of the 16 articles obtained, they were extracted by taking into account the key criteria, such as research location, research population, research objectives, methodology, and findings or recommendations.

Mapping: Based on the 16 articles that have been selected and in accordance with good quality criteria, data extraction is then carried out to classify some points or sections of articles such as research objectives, research design, number of samples, and results or findings of the study.

TABLE II. Article Group Table

<i>Element</i>	<i>Amount</i>
Cohort Study	2 design study
Retrospective cohort design	4
RCT	1
Case control	1
Cross sectional	2
Developing Countries	1 (Lithuania)
Developed Countries	15 (Netherlands, United Kingdom, Norway, Singapore, Japan, Ireland, Italy and New Zealand)

In this mapping step the authors classified the things observed from each study, namely: implementation of interventions for labor, maternal outcomes, labor, and maternal acceptance of midwifery-led services.

III. RESULTS

This review consisted of articles published in 2011-2018. A total of 16 articles were selected using quantitative research methods with retrospective cohort design of 5 articles, 6 cohort studies, 3 randomized control trials (RCTs), cross sectional 2 articles. In the article obtained, there were 1 article from developing countries namely from Lithuania, and 15 other articles from developed countries namely 5 articles from the Netherlands, 2 articles from the UK, 1 article from Norway, 1 article from Singapore, 2 articles from Japan, 2 articles from Ireland, 1 article from Italy and 1 article from New Zealand. A total of 14 articles is indexed by Scopus Q1 and 2 articles indexed by Scopus Q2.

The sub-chapters that author wants to discuss in this literature review includes: the implementation of interventions for labor, maternal outcomes, labor, and maternal acceptance of midwifery-led services.

*A. Midwife-led implementation in the implementation of labor interventions*

1. **Episiotomy:** The results were significantly higher than those who received midwife primary care. In primiparous women compared to woman who received obstetric shared care services [6]. It was found that the implementation of an episiotomy was more often done at midwife-led than in obstetric-led. Women in the midwife-led group received more episiotomy, labor augmentation, and epidurals for management of intrapartum pain but this result did not differ significantly between the two groups. Women in the midwife-led group were also twice as likely to have an intact perineum as women in the obstetric-led [7].

2. **Implementation of labor induction or labor augmentation:** Women in the midwife-led group experienced less labor induction compared to the obstetrician-led group, but the results were not statistically significant [7]. Pregnant women who received midwife-led unit services received lower labor augmentation measures than those who received obstetric-led unit services (436 [39.6%] vs 314 [56.9%]; RR0.50 [0.40 to 0, 61]) [8].

Women in the midwife-led had less labor augmentation compared with obstetric-led (27.3% versus 33.1%; p = 0,029) [9].

3. **Implementation of manual placenta:** Women in the midwife-led group experienced fewer manual placenta than women in the obstetric-led group. The result among nulliparous women was that the implementation of manual placenta was less in the midwife-led care than obstetric-led care [10]. And the results in multiparous women for services led by midwives in the implementation of manual placenta were less than obstetricians [10].

4. **Amniotomy:** Women who received midwife-led had less amniotomy compared to obstetricians-led [9].

*B. Midwife-led implementation in the maternal outcome*

1. **Postpartum hemorrhage:** It was found in the article that women who received midwife-led services had fewer postpartum hemorrhages than women who received obstetric-led services [10]. The result of nulliparous women who received care led by midwives versus obstetricians, find that occurrence of: primary obstetric bleeding, 0.57 (0.45-0.73), postpartum hemorrhage, 0.70 (0, 66 to 0.75). Results in multiparous women for services led by midwives versus obstetricians were: primary obstetric bleeding, 0.48 (0.36 to 0.64), postpartum hemorrhage, 0.48 (0.45 to 0.52) [10]. Nullipara and multiparous women have PPH more than 1000 ml less frequently in the midwife-led care [11].

2. **The incidence of maternal mortality:** The results showed that the mortality rate was lower in midwife-led compared with the obstetricians-led [12]. However it was found that maternal mortality rates at midwife-led were not significant compared to obstetricians-led.) [13].

*C. Midwife-led implementation in labor*

1. **Duration of delivery:** According to the results found in the articles, women who received midwife-led treatment experienced shorter labor times than the obstetric-led that is respectively 8.3 hours and 9.5 hours. The results were significant [7].

2. **Cectio-seccarea births:** According to the results found in the articles, women who received midwife-led had fewer cessarea sections compared with obstetricians-led [9]. Younger mothers' age ( $\leq 34$  years) and midwife-led care are associated with a significantly reduced CS number for nullipara woman [9]. Vaginal birth were more rarely performed in the midwife-led group than cectio seccarea [11]. Of the 407 patients in the hospital planned for cectio seccarea there were 37 patients who requested cectio seccarea without medical indication. From the results of the total calculation, the comparison between the implementation of cectio-seccarea and vaginal delivery in hospitals was 21.6 and 8.3% [14].

3. **Vaginal delivery:** More groups who received midwife-led had labor with the help of forceps or vacuum and emergency cectio seccarea compared with obstetric-led. Women who received midwife-led care that gave birth spontaneously were less than women in the obstetric-led group, and this was not statistically significant [7]. More women in the midwife-led group have instrumental births through forceps or vacuum and emergency cectio-seccarea.

Women in the midwife-led group also received more episiotomy, labor augmentation, and epidurals for the management of intrapartum pain but this did not statistically significant [7]. More nulliparous women who performed spontaneous births were midwifery-led compared to the obstetric-led group [11].

4. Cost of labor: The total expenditure during labor for every mother and baby who delivers in midwife-led of 1296.23 pounds is cheaper 850 pounds per patient compared to obstetrical-led, which is at 2200.70 per mother and baby [17].

*D. Mother's acceptance of midwifery-led services.*

The response of the mother and partner is generally positive, especially the mother. They assessed the birth environment and obstetric care higher than their partners; this finding is significant. Log linear analysis found that mothers preferred midwife-led units because midwife-led units are 'homely', 'calming', and 'clean'. Obstetric-led units were more likely to be considered stuffy. Partners (husbands) were more likely to agree because there was a lack of privacy, and that there was a lack of facilities for them, especially in the obstetric unit [18].

Women in the midwifery-led care had more than 30 minutes for their antenatal care and they had the opportunity to speak with the same amount as health workers than those in the obstetric-led care. Women in the midwifery-led service assessed their satisfaction towards the care significantly higher ( $p < 0.001$ ) than the obstetric-led group [15].

Midwife-led delivery services in Japan are done using 'tatami' placed on the floor so that the mother feels comfortable as if she is lying at home, this makes mothers prefer midwife-led services [6].

#### IV. DISCUSSION

According to the International Confederation of Midwives, the International Federation of Gynecology and Obstetrics, and the World Health Organization, "the midwife is recognized as a responsible and accountable professional who work in partnership with women to give the necessary support, care and advice during pregnancy, labor, and the post-partum period, to conduct births on the midwife's own responsibility and to provide care for the newborn and the infant" [19].

In many parts of the world, midwives are the first service providers for giving birth. Midwifery led care emphasizes on normal delivery and ongoing service delivery. Based on the results of several international studies, it was found that midwifery led care services can reduce the risk of labor. In Netherlands, midwifery led services are given to primary health services which consist of a midwife team in small offices who practice outside the hospital and closer to the home of pregnant women [20].

In Netherland and New Zealand, midwifery-led continuity of care is the typical model and has been defined as one in which "the midwife is the lead professional in the planning, organization and delivery of care given to a woman from initial booking to the postnatal period" [21]. The principal caregivers for women with low-risk pregnancies in the Netherland are self-employed primary care midwives with

private practices, that is called as midwifery led care. Woman in primary care at onset of labor can choose to give birth either at home or in the hospital under the supervision of their primary care midwife. If a midwife identifies a risk factor during pregnancy or labor, she will refer a woman to an obstetrician, that is called as obstetrician lead care [22].

Midwifery led care is designed for women who want minimal interventions. It is done to minimize the risk of intervention during labor and to increase normal labor and increase maternal satisfaction. Midwifery led care consists of ongoing support, ongoing care, and service as at home for women at low risk during pregnancy and childbirth that many evidences suggesting that sustained support offers a favorable labor and has no adverse effects [23]. Based on the research it was found that minimizing the intervention in midwifery led care in normal maternal mothers with a history of incomplete antenatal care was far more beneficial than the intervention in obstetric lead care [9].

The key goal of midwifery led care is to provide women choices on the antenatal models of care that are available for them. The midwifery led care have been promoted to offer women a high quality, women centered service and a cost effective models of care [24]. Midwives usually pay attention to the natural process of labor and try to minimize medical intervention [6]. Midwifery led birth settings have been associated with a lower rate of severe adverse maternal morbidity [18].

Epidural analgesics, and less oxytocin induction are used in midwifery led care. In Indonesia the implementation of induction or augmentation by midwives without the supervision of a doctor obstetric and gynecology is not permitted [25].

Multigravida mothers and primiparous mothers who start labor in midwifery led care have lower possibility of maternal and child mortality, lower postpartum hemorrhage and lower manual placenta delivery than mothers who start labor in obstetric lead care. A good recording system can be used as a basis in helping mother in determining whether to choose midwifery led care or obstetrician led care, but this also does not rule out the possibility for mothers who are at risk of being unsafe to choose midwifery lead care because the selected risk management and referral systems can be used to overcome such case [10].

The midwife will only do an episiotomy in conditions that require to be done so to minimize trauma to the mother. Similarly amniotomy is carried out only if there are indications such as the baby's head which is visible and amniotic skin intact. Therefore those should not be done without clear indications. Midwives should give minimum interventions during labor so that mothers will continue to feel comfortable and safe in facing labor and to reduce their trauma and morbidity as well [20].

In midwifery-led, the administration of interventions is done to a minimum according to the needs and the condition of the mother so that the incidence of postpartum hemorrhage can be minimized. Recording the condition of the mothers' pregnancy is carried out in complete detail so that it can be very helpful in the provision of interventions that are not needed [10].

Some people argue that the maternal mortality rate is higher due to midwifery led services but in this study it proved to be insignificant [13]. This is almost the same as what happened in Indonesia, where the burden of the high maternal mortality rate is still only borne by midwives, the minimum involvement of other health workers in this case needs to get more attention.

In a study conducted at first level health services compared to second health services for pregnant women in the Netherlands, it was found that women who started labor in first-level health services had the same risk in terms of intrapartum mortality and infant mortality compared to women who started labor at second health services, with minimal interventions [12]. The results of labor with midwifery led care are as safe and effective as obstetric leads with optimal service delivery [7].

In midwife-led the midwife actually prepares the mother to face labor since the mother is still in pregnancy, by giving the mother an education and preparing the mother to face labor so that the mother already has a picture of the labor process [7]. This can minimize the length of labor. In addition, the formation of mutual trust, safety and comfort between the mother and the midwife makes the mother more ready to face labor so that the labor does not take a long time. Mothers usually feel uncomfortable in carrying out deliveries due to obstetrics lack of closeness with existing doctors so that mothers feel insecure and afraid that can lead to more labor.

One intervention that distinguishes between midwifery-led and obstetric-led is the implementation of caesarean section. Surgical births in developed countries have increased in the last decade. This is a challenge in the health and economic perspective. In Norway, the average incidence of caesarean section has increased from 12.7% in 1990 to 17% in 2009 [16]. WHO establishes indicators of caesarean section delivery 5-15% for each country, if it does not match the indication of caesarean surgery, it can increase the risk of morbidity and mortality in mothers and infants, which means that the caesarean section delivery procedure must be minimized and completely adapted to the conditions and the needs of the mother.

Many of the factors underlying the implementation of the cesarean section are congestion in obstetrics leads which will suggest a cesarean section but in midwifery leads, they are closer to the mother to find out the mother's wishes and maternal constraints so she can make choices based on the information obtained [7].

women who planned to deliver at home with midwifery-led, prefer vaginal delivery than women who planned to deliver at the hospital, since they had fewer episiotomies, and other interventions [26]. In addition, midwives are also the main pioneers in implementing vaginal delivery with minimal interventions for normal pregnant women and those with low risks. The difference between the implementation of midwifery-led services and obstetric-led can also be seen in terms of the costs required. The implementation of labor with surgery is more common in obstetricians leads which without a doubt that labor with surgery, especially caesarean section is much more expensive than vaginal delivery.

The administration of epidural analgesia, the implementation of vaginal delivery with the help of a tool, and the administration of induction with oxytocin are more often performed in obstetric, and payment of the implementation of these procedures is calculated into the payment of labor [16]. Provision of delivery services in midwife-led unit is cheaper than the consultant-led unit. Based on the research it was found that the service in midwife-led was as safe as the consultant-led unit with fewer interventions [27].

The fundamental difference from conducting midwifery with obstetric is that midwives spend a lot of time providing health education and preparing mothers to face childbirth. By providing adequate health education to pregnant women, mothers will feel more comfortable in facing their labor without having to involve a specialist. By providing health education can also keep mothers away from the risks and prevent complications during labor, so that optimal results can be achieved [7]. Because midwifery focus on women, it is natural for women to be more interested in giving birth by midwifery [18].

Based on a study it was found that women were more satisfied when getting midwifery led services with midwifery service standards, ranging from antenatal, intrapartum, and postnatal [28]. A research shows that more mothers choose to give birth in midwives independent practices because it is considered as a safe place for women who want to plan their births, with maternity in a mother's midwife to have a higher vaginal birth rate, lower intervention rates, and morbidity rates lower than those planning a hospital birth [29]. Midwifery led care produced significant positive effects on physiological outcomes for women [30].

#### V. CONCLUSION

Midwifery leads are services that minimize the risk of intervention during labor and increase normal labor and maternal satisfaction. Midwifery leads consist of ongoing support, ongoing services, and home-like services to low risk pregnant women and childbirth.

Labor done with midwifery led care requires less cost than labor done with obstetric led care. In addition, midwifery led care also makes mothers feel more comfortable and better prepared for childbirth because midwives prepare mothers with good health education starting from during pregnancy.

Maternal and neonatal mortality rates, postpartum hemorrhage and manual placenta implementation are fewer in midwifery led care compared to obstetric led care because midwives place more emphasis on the benefits and effects that will occur from an intervention.

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