



THE EFFECT OF A SKIN-TO-SKIN CONTACT EDUCATIONAL PROGRAM ON MIDWIVES' AND NURSES' KNOWLEDGE OF EARLY ESSENTIAL NEWBORN CARE

Yenita Agus

Universitas Islam Negeri Syarif Hidayatullah Jakarta, Jl. Kertamukti No.5 Pisangan, Ciputat, 15419, Jakarta, Indonesia

yenita.agus@uinjkt.ac.id

ABSTRACT

Despite a decline in infant mortality rates (IMR) over the years, it remains a critical issue. Evidence-based interventions could prevent many infant deaths, but barriers such as a lack of health specialists and poor care quality persist. This study aims to assess the impact of an educational program on skin-to-skin contact to promote Early Essential Newborn Care (EENC) among midwives and nurses. Objective to evaluate the effectiveness of an educational program on skin-to-skin contact in improving midwives' and nurses' knowledge and skills related to EENC. A quasi-experimental design without a control group was used. Participants were selected through purposive sampling based on two criteria: 1) Midwives and nurses working in delivery rooms or perinatology units, and 2) Those with over five years of experience. Recruitment involved distributing cooperation requests to midwives and nurses at government hospitals and community health centers across Indonesia. Ultimately, 32 participants were enrolled. The study employed a self-administered questionnaire, pre-test and post-test assessments on skin-to-skin knowledge and skills, and training through video and lecture. Data analysis included descriptive statistics and t-tests. The average age of participants was 41.5 years (SD = 9.57). The training significantly improved knowledge ($p = 0.003$), though two of twelve questions showed no significant change. Limited participation in EENC training was observed. While the educational program improved overall knowledge, certain areas need further attention. Regular training and continuing education are essential for enhancing midwives' and nurses' skills. Future research will focus on evaluating newborn resuscitation and care initiatives, particularly breastfeeding knowledge.

Keywords: educational programs; EENC; knowledge; midwives and nurses

How to cite (in APA style)

Agus, Y. (2025). The Effect of A Skin-to-Skin Contact Educational Program on Midwives' and Nurses' Knowledge of Early Essential Newborn Care. *Indonesian Journal of Global Health Research*, 7(2), 45-54. <https://doi.org/10.37287/ijghr.v7i2.4386>.

INTRODUCTION

Infant mortality in Indonesia is a significant public health concern, with the current infant mortality rate (IMR) standing at 15.488 deaths per 1,000 live births in 2024, representing a 2.71% decline from 2023 (Ledinger et al., 2024). The IMR has been declining over the years, but it remains a critical issue that requires attention. The primary causes include complications such as preterm birth (35%) and intrapartum events (24%), which are leading contributors to neonatal mortality (UNICEF, 2015). Additionally, infections (15%) and congenital defects (11%) also play critical roles in neonatal deaths (Tri et al., 2023). Furthermore, low birth weight infants are particularly vulnerable to neonatal mortality, often linked to poor maternal health and insufficient antenatal care. Previous studies shown that up to 70% of infant mortality could be prevented using evidence-based interventions (Mony et al., 2021). Unfortunately, there are some barriers such as lack of health specialist and poor quality of care (World Health Organization, 2016). As for Indonesia particularly, the quality of maternal care is an important issue since the expansion of pre-service training result in issues related to the quality of training. Some studied reports have identified educational needs of nurses and midwives due to the limited education and preparation that most receive

prior to assuming the midwives role ((Hennessy et al., 2006); (Organization, 2017)).

Indonesian midwives working in government hospitals have reported challenges in delivering high-quality care, primarily due to insufficient resources for ongoing professional education. This lack of training has contributed to their uncertainty regarding the quality of care they can offer (Nagamatsu et al., 2017). Implementing targeted training programs for midwives could address these issues, as numerous studies have shown that continuing education positively impacts the quality of care, as well as the self-esteem and motivation of midwives ((Bardosono et al., 2018) (Prastyoningsih et al., 2022)). Our previous research (Nagamatsu et al., 2017) identified that Indonesian midwives encountered challenges in providing care, primarily due to the absence of a structured continuing education system. This gap in ongoing education highlighted their need for opportunities to update their knowledge. Of various topics available, Indonesian midwives expressed the greatest interest in Early Essential Newborn Care (EENC) and demonstrated a strong desire to learn more about this subject. Furthermore, many midwives and nurses have not received any job training since graduating from midwifery or nursing school. This lack of ongoing education often results in a gap between theoretical knowledge and practical application, leaving them to address unfamiliar tasks and conditions. Consequently, they often question whether their care is being delivered correctly and based on current evidence.

To improve the knowledge of midwives and nurses, several strategies can be employed, as highlighted by various studies and resources such as comprehensive training programs, continuous professional development, practical experience, and integration with mobile health development initiatives. By focusing on these strategies, healthcare providers can enhance their skills and provide better care to patients ((Amsalu et al., 2020); (Enteshari et al., 2020) ; (Yosef et al., 2021)). Therefore, this study aims to re-emphasize the importance of education programs for midwives in Indonesia related to skin-to-skin contact which is one of the programs developed by WHO to reduce infant mortality. Therefore, this study focused on efforts to promote the program as part of a health communication strategy to improve midwife or nurse knowledge and skills in Indonesia through a few medium to be more accessible and widely disseminated. Then The objectives of this study were to identify the effect of educational program about skin to skin contact to promote EENC for the midwife and nurse to improve their knowledge and skill.

METHOD

This study employed a quantitative approach utilizing a quasi-experimental design without a control group. Participants were selected through purposive sampling based on specific eligibility criteria: 1) Midwives and nurses working in delivery rooms and perinatology units, and 2) Midwives and nurses with more than five years of work experience. To recruit participants, cooperation requests were distributed to midwives and nurses employed at government hospitals or community health centers with delivery rooms across Indonesia. To achieve a sufficient effect size, the study aimed for a minimum sample of 20 participants. Ultimately, 32 respondents took part in the study. Instrument used in this study consisted; 1) A self-administrated questionnaire which contains gender, age, working of experience, main duty, continuing education experience, and motivation for participation of continuing education and knowledge about skin-to-skin contact .2) Pre-test about skin-to-skin skill and knowledge. The first is about knowledge skin to skin contact, it consists ten (12) items scores a “1” for Yes and “0” for No, yielding a maximum 12 point and to a minimum to Zero. Open question about EENC consisted of 6 questions. This questionnaire which are evidence-based intervention recommended by WHO (World Health Organization, 2022).3) Training about

skin-to-skin (Practice through video and lecture), educational program using WHO based line about skin-to-skin contact consist of lecture mixed with video and practice. Data analysis used in this study as follows; (1) Descriptive statistical such as mean, median, quartiles and percentage were used in for non-parametric descriptions; and (2) T- test. SPSS ver. 21.0 was used for this data analysis.

Procedure conducting study

The researcher developed guidelines for midwives on skin-to-skin contact based on WHO procedures. The study was conducted in both private and government hospitals. The research proposal was submitted to these hospitals for approval. Upon receiving ethics committee approval, the researcher provided an overview of the study to the hospitals and sought their cooperation. Following this, data were collected from the participating hospitals, with permissions obtained as necessary. The researcher, along with trained research assistants, distributed questionnaires to midwives and nurses meeting the inclusion criteria. The intervention procedure included the following steps: 1). Pre-Test: Assessment of baseline skills and knowledge regarding skin-to-skin contact; 2). Health education: Comprehensive training on skin-to-skin contact, encompassing both practical exercises and lectures using material and videos and 3). Post-Test: Evaluation of skills and knowledge about skin-to-skin contact following the training.

RESULTS

This study utilized Google Forms and online questionnaires to collect data from nurses and midwives at Pondok Kopi Islamic Hospital and Tangerang Regional General Hospital between October and December 2021. Out of an initial 35 respondents who completed the pre-test, 32 participants provided post-test responses that met the inclusion criteria. Univariate analysis was conducted to describe the demographic and professional characteristics of the respondents, including age, educational background, workplace, work area, recent training within the past three years, and attendance at Early Essential Newborn Care training. The analysis included 32 nurses and midwives. The average age of the respondents was 41.5 years, with a minimum age of 27 years, a maximum age of 59 years, and a standard deviation of 9.57 years.

The average age of the women in the study was 41.5 years (SD = 9.57), with ages ranging from 27 to 59 years. The educational backgrounds of the respondents were predominantly Bachelor's degrees in Midwifery (13 respondents, 40.6%), followed by Nursing Academy (10 respondents, 31.3%), Midwifery Academy (8 respondents, 25%), and Bachelor's degrees in Nursing (1 respondent, 3%). In terms of workplace location, most respondents were employed in Banten (20 respondents, 62.5%), while 12 respondents (37.5%) worked in Jakarta. Regarding recent training experience, 17 respondents (53.1%) had received training within the past three years, whereas 15 respondents (46.9%) had not. The primary areas of work included neonatal rooms (14 respondents, 43.8%), delivery rooms (12 respondents, 37.5%), and postpartum rooms (6 respondents, 18.8%). Nearly 97% of respondents reported no experience with Early Essential Newborn Care (EENC) training (see Table 1).

Table 1.
Characteristics (n= 32)

Variable	Total		Standard Deviation
	f	%	
Age	Mean: 41.5 years		
	Min-Max: 27-59		9.571
Background education			
	Midwife Academy	8	25.0
	Nursing academy	10	31.3
	Bachelors of nursing	1	3.1
	Bachelors of midwife	13	40.6
Training experinced within 3 years			
	Yes	17	53.1
	No	15	46.9
Working Place			
	Jakarta	12	37.5
	Banten	20	62.5
Main job			
	Delivery Room	12	37.5
	Neonatal room	14	43.8
	Post partum room	6	18.8
Training EENC			
	Yes	1	3.1
	No	31	96.9

In the pre-test, midwives and nurses demonstrated varied levels of knowledge on Early Essential Newborn Care (EENC). Of the 12 questions, 5 questions had correct response rates exceeding 70%. Four questions had correct answers from more than 50% of respondents. Specifically, only 5 (11.4%) correctly answered the question on feeding cues indicating readiness to breastfeed soon after birth. Additionally, 8 (22.1%) answered correctly about clamping and cutting the umbilical cord after drying and stimulating the baby if the baby is crying, while 10 (28.6%) correctly responded to the question on suctioning the baby's mouth and nose if the baby is not breathing and no airway obstruction is visible. In the post-test, knowledge generally improved. Nine out of 12 questions had correct response rates exceeding 70%. However, the question on feeding cues showed only a slight increase from 5 (11.4%) to 7 (20%). The question on suctioning the baby's mouth and nose remained unchanged at 10 (28.6%). Conversely, the question on clamping and cutting the umbilical cord after drying and stimulating the baby saw a significant increase in correct responses, rising from 8 (22%) to 24 (68.5%). (See Table 2).

Tabel 2.
Midwives and nurse Knowledge about EENC

Basic knowledge of pregnancy	Correct answer		Wrong answer		Correct answer		Wrong answer		Standard Deviasi
	Pretest				Post Test				
	f	%	f	%	f	%	f	%	
Immediate newborn care consists of newborn care from birth through the postpartum period.	26	74.3	7	25.7	32	91.4	3	8.6	0.179
Deivering in the supine position during the second stage of labour is the best.	19	54.2	16	45.8	26	74.3	7	25.7	0.161
Applying fundus pressure (pressing on the top of the uterus) is an effective way to support or speed up the labor process	26	74.3	7	25.7	29	82.9	6	17.1	0.14
The duration of skin-to-skin contact is recommended to be at least 10 minutes.	19	54.3	16	45.7	23	65.7	12	34.3	0.414
After the baby is born, you should state the time of birth (accurate to the minute and second), and then dry the baby thoroughly.	27	77.1	8	32.9	30	85.7	5	14.3	0.14
After the baby is born, the immediate next step is to dry the baby thoroughly.	21	60	14	40	26	74.2	9	23.8	0.195
While drying and stimulating the baby, if the baby is crying, the next step is to clamp and cut the umbilical cord.	8	22.1	27	77.1	24	68.5	11	21.5	0.466
According to the Skin to Skin position, the baby is placed between the mother's breasts in an upright position between the two breasts of the mother.	30	85.7	5	14.3	31	88.5	4	11.5	0.33
Suction the baby's mouth and nose after drying if the baby is not breathing and no airway obstruction is visible.	10	28.6	25	71.4	10	28.6	25	71.4	0.18
The sign of a baby having feeding cues indicates that the baby is ready to breastfeed soon after birth.	5	11.4	30	88.6	7	20	28	80	0.19
The mother had bleeding of 1000ml or more and blurred vision after delivery.	30	85.7	5	14.3	33	94.2	2	5.8	0,45
Skin to Skin Contact should not be recommended at that time.									
If a baby is wheezing immediately after birth, provide skin-to-skin care with the mother.	24	68.6	11	31.4	28	80	7	20	0.492

Tabel 3.
Differences in Knowledge Pre- and Post-Health Education on EENC

Variable	Intervention	N	Mean	SD	t	df	P Value
Knowledge about EENC	Pre- test	12	20.42	8.565	-3781	11	.003
	Post- test	12	29.	8.284			

Based on Table 3, the average knowledge score of midwives and nurses before the training was $M=20$. with a standard deviation of $SD=8.57$. Following the training, the average score increased to $M=29.00$ with a standard deviation of $SD=8.28SD$. The t-test results showed a t-value of -3.781 with 11 degrees of freedom and a p-value of 0.003. Since the p-value is less than the significance level of $\alpha=0.05$ alpha = 0.05 $\alpha=0.05$, this indicates a statistically significant improvement in knowledge following the health education through modules and video screenings about EENC.

DISCUSSION

The data reveal that only one respondent had received training related to Early Essential Newborn Care (EENC), and many nurses and midwives had not participated in any training over the past three years. To address this issue, continuous education and ongoing training are highly recommended to improve the knowledge of midwives and nurses. It is essential for government policymakers to prioritize and enhance efforts aimed at increasing midwives' and nurses' knowledge. Enhancing the knowledge of midwives and nurses about Essential Emergency Care (EENC) is crucial for improving healthcare outcomes, particularly in emergency situations ((Arundell et al., 2024),(Prastyoningsih et al., 2022)).The educational program, which included both lectures and videos, are significantly enhance the knowledge of the nurses and midwives. This study in line with study conducted in Indonesia that health education enhance after health education is giving ((Bardosono et al., 2018). In addition, midwifery practice experience for midwifery students is an important component of education to enhance knowledge and skill development (Arundell et al., 2024).

More over, study in Nigeria found that the training program led to a significant improvement in both knowledge and practice regarding Essential Newborn Care (ENC) among nurses (Eze et al., 2023). The enhancement in knowledge was associated with improved ENC practices. Addressing gaps in knowledge and translating it into practice can be achieved through pre-service and in-service education, ongoing courses, and workshops. These measures will better equip nurses with current trends and practices, ultimately contributing to improved child survival rates (Huang et al., 2022).

Monitoring Essential Newborn Care (EENC) is crucial for maintaining high practice standards, and ongoing training remains essential for ensuring continued quality and effectiveness (Horiuchi et al., 2018).To enhance midwifery care, health policymakers should focus on both the quality and quantity of midwifery education and improve employment opportunities for midwives. Participants suggested several key strategies for advancing midwifery care, including: support for midwives, providing continuous encouragement and motivation and upgrading midwifery knowledge and skills (Khosravi et al., 2022). Implementing these measures is crucial for elevating midwifery practice and maintaining high standards of care.

Despite improvements in overall knowledge following the training, two specific areas showed minimal progress. First, knowledge about the signs indicating that a baby is ready to breastfeed soon after birth remained low, with only 20% of respondents answering correctly post-intervention. Midwives might not recognize the signs that indicate a baby is ready to breastfeed, leading to delayed initiation of breastfeeding. This delay can affect the baby's ability to latch properly and may result in difficulties with breastfeeding, including nipple soreness and low milk supply ((Creedy et al., 2008), (Venable et al., 2017)).

However study in australia explained that Overall, midwives generally held a positive perception of their role in assisting mothers with breastfeeding. Additionally, the practice scores indicated that most midwives routinely supported mothers with the initial breastfeeding, provided regular assistance with breastfeeding techniques, and felt confident in their ability to help women initiate breastfeeding (Cooke et al., 2009). This finding can be explained by the significant positive relationships observed between students' perceived confidence in breastfeeding management and their levels of breastfeeding knowledge, attitudes, and satisfaction with breastfeeding education. (Altwalbeh, 2021).

In addition, Midwives' lack of knowledge about newborn feeding ability and breastfeeding initiation practices can significantly impact breastfeeding success. Studies have shown that mothers' readiness to breastfeed is crucial, and midwives play a pivotal role in supporting this readiness (Fahim et al., 2023). Second, knowledge regarding the suctioning of the baby's mouth and nose if the baby is not breathing and no airway obstruction is visible did not change after the training. A lack of knowledge among healthcare providers might lead to misinterpretation of the baby's signs of distress, resulting in delayed or ineffective resuscitation efforts. This could worsen the baby's condition and potentially lead to serious health issues or even death (Purington et al., 2023).

Study in China found that EENC can reduce the incidence of hypothermia, promote breathing initiation, and improve the sleep state of newborn infants (Huang et al., 2022). Midwives and nurses in this study underscored a significant gap in knowledge regarding the appropriate use of suctioning in newborn care. Specifically, participants demonstrated uncertainty about when suctioning should be performed, particularly in the absence of airway obstruction. This indicates a critical need for ongoing training for healthcare staff to reinforce the correct indications for suctioning and to emphasize the importance of performing this procedure correctly. For improved quality of care among newborn providers in resource-limited settings, it is essential that program implementation includes both continuing education and mentorship. This comprehensive approach helps in understanding the effectiveness of the training programs (Leader et al., 2017).

Furthermore, three out of twelve questions exhibited no significant improvement in responses before and after the training. This limited effectiveness may be attributed to the extensive volume of material covered in a single session, which may have hindered understanding. Future training programs should consider more frequent and focused sessions to enhance comprehension and retention of critical information.

CONCLUSION

This study revealed that few midwives and nurses had participated in Early Essential Newborn Care (EENC) training over the past three years. Although the use of training modules and videos significantly improved their knowledge of EENC, some areas still require improvement. Regular engagement in seminars, training programs, and continuing education is crucial for enhancing both practical skills and theoretical knowledge. Future research will focus on evaluating the outcomes of newborn resuscitation and essential care initiatives, with a particular emphasis on improving breastfeeding knowledge to further advance the expertise of midwives and nurses.

REFERENCES

- Altwalbeh, D. (2021). Breastfeeding knowledge and attitudes among midwifery diploma students in Jordan: A descriptive study. *International Journal of Community Based Nursing and Midwifery*, 9(4), 325–335. <https://doi.org/10.30476/ijcbnm.2021.88755.1542>
- Amsalu, R., Morris, C. N., Hynes, M., Had, H. J., Seriki, J. A., Meehan, K., Ayella, S., Barasa, S. O., Couture, A., Myers, A., & Gebru, B. (2020). Effectiveness of clinical training on improving essential newborn care practices in Bossaso, Somalia: A pre and postintervention study. *BMC Pediatrics*, 20(1), 1–14. <https://doi.org/10.1186/s12887-020-02120-x>
- Arundell, F., Sheehan, A., & Peters, K. (2024). Strategies used by midwives to enhance

- knowledge and skill development in midwifery students : an appreciative inquiry study. 1–10.
- Bardosono, S., Hildayani, R., Chandra, D. N., Basrowi, R. W., & Wibowo, Y. (2018). The knowledge retention after continuing health education among midwives in Indonesia. 27(2), 128–133.
- Cooke, M., Cantrill, R. M., & Creedy, D. K. (2009). Midwives' reported practice supporting the first breastfeed. *Maternal and Child Nutrition*, 5(4), 334–346. <https://doi.org/10.1111/j.1740-8709.2008.00173.x>
- Creedy, D. K., Cantrill, R. M., & Cooke, M. (2008). Assessing midwives' breastfeeding knowledge : Properties of the Newborn Feeding Ability questionnaire and Breastfeeding Initiation Practices scale. 12, 1–12. <https://doi.org/10.1186/1746-4358-3-7>
- Enteshari, Z., Yamani, N., & Omid, A. (2020). Assessment of knowledge and skills midwives in health and medical centers , compared to expected duties as a part of Health System Reform Program , 2019. <https://doi.org/10.4103/jehp.jehp>
- Eze, C. N., Elusoji, C. I., Okafor, C. N., Emeh, A. N., Obi, I. A., Odira, C. C. H., Onyeabor, J. O., Nwafor, A. V., & Ohanme, E. O. (2023). Impact of essential newborn care education on knowledge and practice of new-born care among nurses in rural primary health centres in Ebonyi state of Nigeria. *International Journal Of Community Medicine And Public Health*, 10(10), 3556–3566. <https://doi.org/10.18203/2394-6040.ijcmph20233085>
- Fahim, S. H., Kazemi, F., Masoumi, S. Z., & Refaei, M. (2023). The effect of midwife - oriented breastfeeding counseling on self - efficacy and performance of adolescent mothers : a clinical trial study. *BMC Pregnancy and Childbirth*, 1–8. <https://doi.org/10.1186/s12884-023-05982-y>
- Hennessy, D., Hicks, C., Hilan, A., & Kawonal, Y. (2006). A methodology for assessing the professional development needs of nurses and midwives in Indonesia: Paper 1 of 3. *Human Resources for Health*, 4, 1–8. <https://doi.org/10.1186/1478-4491-4-8>
- Horiuchi, S., Rattana, S., Saysanasongkham, B., Kounnavongsa, O., Kubota, S., Cayrol, J., Takahashi, K., Inoue, M., Nemoto, A., & Yamaoka, K. (2018). Study protocol of a cluster randomized controlled trial to evaluate effectiveness of a system for maintaining high-quality early essential newborn care in Lao PDR. *BMC Health Services Research*, 18(1), 1–10. <https://doi.org/10.1186/s12913-018-3311-7>
- Huang, C., Hu, L., He, J., & Luo, B. (2022). Effects of early essential newborn care versus routine birth care on physiological variables and sleep state among newborn infants: a quasi-experimental design. *BMC Pediatrics*, 22(1), 1–10. <https://doi.org/10.1186/s12887-022-03194-5>
- Khosravi, S., Babaey, F., Abedi, P., Kalahroodi, Z. M., & Hajimirzaie, S. S. (2022). Strategies to improve the quality of midwifery care and developing midwife-centered care in Iran: analyzing the attitudes of midwifery experts. *BMC Pregnancy and Childbirth*, 22(1), 1–11. <https://doi.org/10.1186/s12884-022-04379-7>
- Leader, A., Cadet, C., Lazala, D., Roa, W., Arroyo, O., & Jensen, L. (2017). Collaborative implementation strategy for newborn resuscitation and essential care training in the

- Dominican Republic. *Frontiers in Public Health*, 5(MAR), 1–8. <https://doi.org/10.3389/FPUBH.2017.00061>
- Ledinger, D., Nußbaumer-Streit, B., & Gartlehner, G. (2024). WHO Recommendations for Care of the Preterm or Low-Birth-Weight Infant. In *Gesundheitswesen* (Vol. 86, Issue 4). <https://doi.org/10.1055/a-2251-5686>
- Mony, P. K., Tadele, H., Gobezaeyehu, A. G., Chan, G. J., Kumar, A., Mazumder, S., Beyene, S. A., Jayanna, K., Kassa, D. H., Mohammed, H. A., Estifanos, A. S., Kumar, P., Jadaun, A. S., Hailu Abay, T., Washington, M., W/gebriel, F., Alamineh, L., Fikre, A., Kumar, A., ... Medhanyie, A. A. (2021). Scaling up Kangaroo Mother Care in Ethiopia and India: A multi-site implementation research study. In *BMJ Global Health* (Vol. 6, Issue 9). <https://doi.org/10.1136/bmjgh-2021-005905>
- Nagamatsu, Y., Tanaka, R., Oka, M., Maruyama, N., Agus, Y., & Horiuchi, S. (2017). Identifying clinical and educational difficulties of midwives in an Indonesian government hospital maternity ward: Towards improving childbirth care. *Journal of Nursing Education and Practice*, 7(11), 7. <https://doi.org/10.5430/jnep.v7n11p7>
- Organization, world health. (2017). STATE OF HEALTH INEQUALITY Indonesia. <http://apps.who.int/iris/handle/10665/259685>
- Prastyoningsih, A., Rohmah, A. N., Prastika, D. A., Kanita, M. W., Pratiwi, A. M., Umarianti, T., & Andikatyas, Y. R. (2022). Continuing Midwifery Education: Midwifery Encouragements of Continuing Professional Education in Profession Stage in Indonesia: A Qualitative Study. *Open Access Macedonian Journal of Medical Sciences*, 10(G), 311–317. <https://doi.org/10.3889/oamjms.2022.8655>
- Purington, C., Eilevstjønn, J., Dalen, I., Yeconia, A., Blacy, L., Mduma, E., Haug, I., Holte, K., Chang, C., Perlman, J., & Ersdal, H. (2023). Use of Suctioning during Newborn Resuscitation and Its Effects on Heart Rate in a Low-Resource Setting , Tanzania.
- Tri, M., Sampurna, A., Dharma, K., Tri, M., Angelika, D., Etika, R., Harianto, A., Pradhika, M., Pradhiki, M., & Efendi, F. (2023). Heliyon Determinants of neonatal deaths in Indonesia : A national survey data analysis of 10 , 838 newborns. *Heliyon*, 9(1), e12980. <https://doi.org/10.1016/j.heliyon.2023.e12980>
- UNICEF. (2015). Maternal and newborn health: Indonesia. UNICEF for Every Child, 000, 142–143. [file:///C:/Users/USER/Downloads/country profile_IDN.pdf](file:///C:/Users/USER/Downloads/country%20profile_IDN.pdf)
- Venable, E., Discepolo, D., Powell, E., & Liang, S. Y. (2017). 乳鼠心肌提取 HHS Public Access. *Journal of Veterinary Behavior: Clinical Applications and Research*, 21(1), 53–58. <https://doi.org/10.1016/j.jpeds.2017.08.069>.Delayed
- World Health Organization. (2016). WORLD HEALTH STATISTICS - MONITORING HEALTH FOR THE SDGs. World Health Organization, 1.121. <https://doi.org/10.1017/CBO9781107415324.004>
- World Health Organization. (2022). Early essential newborn care Clinical practice pocket guide Early essential newborn care Clinical practice pocket guide. World Health Organization Western Pacific Region, 1(1), 138. <file:///C:/Users/CHARUSAT/Downloads/9789290619659-eng.pdf>

Yosef, T., Getachew, D., & Weldekidan, F. (2021). Health professionals' knowledge and practice of essential newborn care at public health facilities in Bench-Sheko Zone, southwest Ethiopia. *Heliyon*, 7(11), e08369. <https://doi.org/10.1016/j.heliyon.2021.e08369>.