

#### How to Cite

Dwijayanti, N., Mufdlilah, M., & Suryaningsih, E. K. (2022). The role of midwives in the application of classroom services for pregnant women during the COVID-19 pandemic period. *International Journal of Health & Medical Sciences*, 5(3), 228-239. <https://doi.org/10.21744/ijhms.v5n3.1918>

# The Role of Midwives in the Application of Classroom Services for Pregnant Women During the COVID-19 Pandemic Period

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**Abstract**--Based on 2021 World Health Organization (WHO) data, as many as 250,715,502 positive COVID-19 confirmed cases, the death rate of COVID-19 sufferers is 5,062,106 (COVID-19 Handling Acceleration Task Force, 2020). The increase in the number of people suffering from COVID-19 proves that COVID-19 spreads easily and quickly (World Health Organization, 2021). The COVID-19 virus attacks all ages, including vulnerable groups, one of which is pregnant women. During the COVID-19 pandemic, health services must continue to run optimally and be safe for patients and midwives with various adjustments based on COVID-19 handling guidelines or health protocols. Implementing antenatal classes during pregnancy and the role of the midwife or health worker is essential in identifying pregnant women class participants who will attend antenatal classes during pregnancy, including in the preparation phase. The objective is to systematically map research conducted in this field and identify the role of midwives in implementing class services for pregnant women during the pandemic. The method used is Prisma Flowchart (Preferred Reporting Items for Systematic review and Meta-Analyses) to describe the literature search flow. The article search uses four databases (Google Scholar, Pubmed, Wiley, and Science Direct). The inclusion criteria of the article, namely the article published in 2011-2020, is English and discusses the role of midwives in implementing class services for pregnant women during the pandemic. The article search flow was described using the PRISM Flowchart, and the article quality assessment was done with Hawker and Casp. Furthermore, data preparation and reporting of results are carried out. This research provides benefits for health workers to improve the quality of Antenatal Care (ANC) and evaluate obstetric services, especially services for pregnant women during the pandemic period in pregnancy.

**Keywords:** midwives, pandemic, prenatal class.

#### Introduction

Based on 2021 World Health Organization (WHO) data, there are 250,715,502 positive COVID-19 confirmed cases, and the death rate of COVID-19 sufferers is 5,062,106 (COVID-19 Handling Acceleration Task Force, 2020). The increase in the number of people suffering from COVID-19 proves that COVID-19 spreads easily and quickly (World Health Organization, 2021). The COVID-19 virus attacks all ages, including vulnerable groups, one of which is pregnant women (Goyal et al., 2020).

Data on the prevalence of COVID-19 in pregnant women in the United States in 2021 amounted to 84.629 cases with 95 total deaths (Sargeant, 2012). Cases of COVID-19-positive pregnant women in Indonesia in 2020 were 9.7%

of the 3,833 available data, 0.2% of mothers were treated and isolated independently, 9.3% of mothers were declared cured, and 0.2% were declared dead. The COVID-19 virus is spreading and experiencing an increase in the number of deaths in pregnant women affected by COVID-19 positive (Goyal et al., 2020). Based on data from the DIY health office, 1,498 pregnant women experienced positive COVID-19, and 67 of them died (DIY Health Department, 2021). The target of pregnant women at Manrijeron Health Center is around 336 pregnant women. The number of pregnant women who attended pregnancy classes before the pandemic in 2019 was 140.

Meanwhile, in 2020, the Public health center did not carry out class services for pregnant women due to the pandemic. In 2021, 100 mothers attended pregnancy classes, and in 2022, 75 mothers attended pregnancy classes. Efforts are made to reduce the risk of maternal death by improving the quality of services for pregnant women through integrated ANC, holding pregnancy classes, and optimizing the role of the community (Ariyanti & Jalilah, 2021; Arrish et al., 2016). Pregnancy classes are a means for group learning for pregnant women that aims to improve maternal knowledge and skills regarding pregnancy, prenatal care, childbirth, postpartum care, including delivery, and newborn care using the KIA (Maternal and Child Health) Book (Yuliani et al., 2021). During the COVID-19 pandemic, health services must continue to run optimally and safely for patients and midwives with various adjustments based on COVID-19 handling guidelines or health protocols. Various adjustments relevant to the prevention of COVID-19 are made to keep services running and safe for patients and midwives. Information technology-based health services are applied as innovative telemedicine solutions, online consultations, and KIE (Information, Education & Communication) application media (IBI, 2021). Implementing antenatal classes during pregnancy and the role of the midwife or health worker plays an essential part in identifying pregnant women class participants who will attend antenatal classes during pregnancy, including in the preparation phase (Rahman et al., 2018).

The role of midwives in implementing classes for pregnant women is to provide materials about pregnancy, childbirth, postpartum, and newborn care class activities for pregnant women (Arrish et al., 2014; Jones et al., 2012). The midwife also acts as a motivator to motivate pregnant women and their husbands to attend the class of the pregnant woman's husband at least one meeting during the pregnancy (Arrish et al., 2017; Bäckström et al., 2020). The role of the motivator is to raise awareness and encourage expectant women to recognize problems or sicknesses that occur during pregnancy. The next role of midwives is to advocate for support from community leaders and local governments in implementing antenatal classes during pregnancy (Rahman et al., 2018). The implementation strategy of pregnancy classes so far also shows difficulties in matching the time with the pregnant women, which results in the problem of attending classes held on the working day of health center services (Sriatmi et al., 2020a). During the COVID-19 pandemic, the inhibiting factor was the reason for the reluctance and absence in the class of pregnant women which was the fear of COVID-19 virus exposure. Implementing a virtual model in the pregnancy class is a necessity since the internet has become an essential need in the last decade (Garrard, 2020; Heriyanto, 2018). Advances in communication and information technology can be harnessed for better results, including in the health area. Training with virtual classes has proven effective in improving maternal and child health management knowledge and skills (Sriatmi et al., 2020a). The internal factors weaknesses found are the incompatible technical instructions issued, which include the facilitator who is not competent, consistency in implementation, methods of delivering material, incomplete aid, or problems of pregnant women who do not come during the execution of pregnancy classes (Fuada & Setyawati, 2015).

## Method

The scoping reviews include steps that researchers do as follows: focus on the reviews, create a PEOS (Population, Exposure, Outcome, and Study design) framework, identify relevant studies, describe the process, identify literature using PRISM flowchart, data extraction, and mapping/scoping (Arksey & O'Malley, 2005 in Pham et al., 2014).

### *Search Strategy*

The PEOS (*Population, Exposure, Outcome, and Study design*) framework is used to help identify key concepts in the review focus and develop appropriate terms to describe the problem. The PEOS used are as follows:

Table 1  
Framework research question

| Population  | Exposure    | Outcomes        | Research Study |
|-------------|-------------|-----------------|----------------|
| 1. Women    | Pregnant    | The Role of the | Qualitative    |
| 2. Midwives | woman class | midwife         | study          |

The article search procedure uses journals published between 2011 and 2021. The articles obtained were taken from the electronic databases *Wiley Online Library*, *PubMed*, *ScienceDirect*, and *Google Scholar*. The search for articles was conducted using the Google Scholar database (Pubmed, Willey, Science Direct) and several keywords ((("women") OR ("Midwives") OR ("Female")) OR (PrenatalClass)) AND (Pandemic).

#### Inclusion Criteria

Original articles, accredited international journals (PubMed, Science Direct, Google Scholar, ProQuest, Scopus, Wiley Online Library), Articles published between 2011-2021, Articles that discuss the role of midwives in implementing class services for pregnant women during the pandemic, There are no specific country criteria.

#### Exclusion Criteria

Articles in the form of opinions, review articles, letters, and book reviews.

#### Search Results

PRISMA results showed that there were 177 articles obtained from three databases. Article selection was carried out based on predetermined criteria for inclusion and exclusion. The research yielded seven related articles. The seven articles obtained were analyzed for their *critical appraisal* using the *Joanna Briggs Institute (JBI)*. The research journal selection stage is depicted in the PRISM diagram shown in Figure 1.

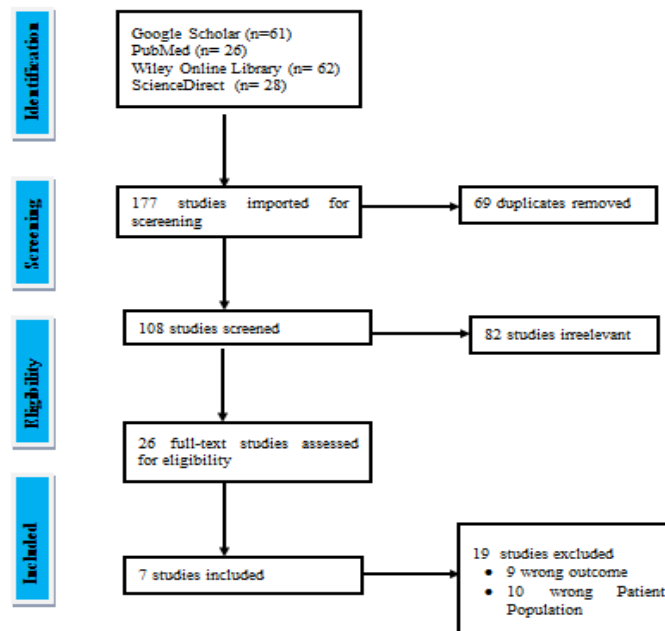


Figure 1: PRISMA *Flow Diagram*

*Extraction Data*

The articles that have been obtained are then extracted. The articles are extracted based on the article's author, the year of publication, the country, the number of samples used, the study's findings, and the journal quality.

Table 2  
Extraction Data

| No | Author/ Year/Title  | Country   | Research Design         | Participants/ Sample Size   | Result   |
|----|---|-----------|-------------------------|---|--|
| A1 | (Arrish, Yeatman and Williamson, 2016)<br>Australian midwives and Provision of Nutrition education during pregnancy: A cross sectional survey of nutrition knowledge, attitudes, and confidence | Australia | Quantitative            | Midwife and Pregnancy   | The completion rate was 6.9% (329 out of 4770). The majority (86.6% and 75.7%, respectively) rated high importance of nutrition during pregnancy and the importance of their role in nutrition education. The midwife's nutritional knowledge was inadequate in several areas such as weight gain, serving of dairy products and iodine requirements (73.3%, 73.2% and 79.9% incorrect responses, respectively). Confidence levels in discussing general and specific nutritional issues mostly ranged from moderate to low. Most of the midwives (93%) provided nutrition counseling to pregnant women. This advice is mostly described as 'general' and focuses on general nutrition topics. Only half of the midwives reported receiving nutrition education during midwifery education (51.1%) or after enrollment (54.1%) |
| A2 | (Arrish, Yeatman and Williamson, 2017)<br>Midwives' Role in Providing Nutrition Advice during Pregnancy: Meeting the Challenges? A Qualitative Study  | Australia | Qualitative descriptive | member of Australian College of Midwives (ACM) who took an online survey on the knowledge, attitudes, and confidence of midwives in providing nutrition advice during pregnancy | This qualitative study explores Australian midwives' perceptions of their role in providing nutrition advice, the effect their model of care has on this role, and what facilitates or hinders it. Midwives believe that they have an important role in providing nutritional advice to pregnant women in general in the context of health promotion; however, this is not reflected in the advice many of them give. That advice seems on many accounts to be passive and more medically geared. Despite the confidence of midwives in their role in this area, the extent and efficacy of this role appears to be challenged by many barriers. The midwife suggests several facilitators who can help overcome this challenge  |
| A3 | (Nankumbi, Ngabirano and Nalwadda, 2018)  | Uganda    | Qualitative narrative   | Widwife   | Maternal nutrition education provided to pregnant women during prenatal care is inadequate in scope and depth.   |

|    |   |           |              |                      |   |
|----|---|-----------|--------------|----------------------|---|
|    | Maternal Nutrition Education Provided by Midwives: A Qualitative Study in an Antenatal Clinic, Uganda   |           |              |                      | Education is characterized by minimal time, inadequate space, interrupted teaching, and a lack of documentation. In addition, nutrition counseling is only given once to pregnant women during the first visit to ANC. The results of this study highlight gaps in maternal nutrition education in hospital clinic settings even with well-designed national nutrition guidelines. It is important that not only are guidelines formulated, but that they are shared with practitioners, in-service education is provided, and additional assistance is provided in their specific implementation including adequate educational resources.   |
| A4 | (Silva-Jose, Sánchez-Polán, <i>et al.</i> , 2021) Influence of a Virtual Exercise Program throughout Pregnancy during the COVID-19 Pandemic on Perineal Tears and Episiotomy Rates: A Randomized Clinical Trial | Spain     | Quantitative | Midwife              | Women were randomly assigned to the intervention (IG, n = 48) or control group (CG, n = 50). A virtual and supervised exercise program is carried out from 8-10 to 38-39 weeks of gestation. Significant differences were found between study groups in the percentage of episiotomy, indicating a lower episiotomy rate in IG (n = 9/12%) compared to CG (n = 18/38%) (2 (3) = 4.665; P = 0.031) and tears (IG, n = 25/52% vs. CG, n = 36/73%) ( $\chi^2(3) = 4.559$ ; P = 0.033). Virtual programs of supervised exercise during pregnancy during the current COVID-19 pandemic can help reduce the rate of episiotomy and perineal tears during labor in healthy pregnant women. |
| A5 | (Setyani and Sumardiyono, 2021) Implementation of e-SEKOCI (The Online Class of Sekolah Komplementer Cinta Ibu) in counselling midwives and pregnant women during COVID-19 pandemic                             | Indonesia | Quantitative | Midwife and Pregnant | Based on the results of a survey of pregnant women who are participants in e-SEKOCI, this program can be an alternative in monitoring pregnancy despite physical distance. However, not all health services can be done online, such as: physical examination. In addition, not all pregnant women have social media and only a few can take advantage of it  |
| A6 | (Wahyuni <i>et al.</i> , no date b) Development Of Antenatal Care And Prenatal Yoga Classes For Pregnant Women In Midwife Clinics During The COVID-19 Pandemic  | Indonesia | Quantitative | Midwife and Pregnant | The technical implementation is offline face to face and continued online via WhatsApps. The success of PKM activities can be seen from the enthusiasm of pregnant women in asking about the problem of Yoga needs during pregnancy and the response of pregnant women in re-   |

|    |   |                 |              |                    |  |
|----|---|-----------------|--------------|--------------------|--|
| A7 | (School of Kinesiology, Recreation & Sport, Western Kentucky University, Bowling Green, KY, United States, Alabama College of Osteopathic Medicine, Dothan, AL, United States. <i>et al.</i> , 2021) Prenatal Yoga and Mental Health During the COVID-19 Pandemic: A Randomized-Control Trial | Amerika Serikat | Quantitative | 24 women midwifery | doing Prenatal Yoga exercises at their homes, pregnant women are interested and aware of the importance of ANC and Prenatal Yoga class activities in answering their problems and needs. while pregnant during this pandemic<br>There were no differences in demographic factors or depression/anxiety scores between the groups at baseline. Baseline levels of anxiety and depression were high, with a mean depression score of $8.10 \pm 4.85$ (score > 8 indicating possible depression) and a mean anxiety score of $39.26 \pm 12.99$ (score > 39 representing significant anxiety). clinically). After just one yoga session, women reported feeling less |
|----|---|-----------------|--------------|--------------------|--|

### Critical appraisal

All articles that have been selected are then entered into a table for inclusion of key criteria. such as title/name of researcher, purpose and type of research, data collection, sample size, and research results. A total of 7 articles will be a critical appraisal by the author. The author assesses the quality of articles based on grades A, B, and C. To distinguish the category of good articles (grade A), quite a good category (grade B), and bad category (grade C). Later, each scoring point will be represented by a number 0-3 with qualifications:

- 0: Very Poor,
- 1: Poor,
- 2: Fair,
- 3: Good

Table 3  
Assessment Range of JBI Critical Appraisal for Qualitative Study

| Range Study | Grade | Category    |
|-------------|-------|-------------|
| 21-30       | A     | Good        |
| 11-20       | B     | Good Enough |
| <10         | C     | Bad         |

Table 4  
Assessment Range of critical appraisal MMAT

| Range Study | Grade | Category    |
|-------------|-------|-------------|
| 10 – 14     | A     | Good        |
| 5 – 9       | B     | Good Enough |
| 0 – 4       | C     | Bad         |

Table 5  
Assessment Range of JBI *Critical Appraisal for Cross-Sectional Study*

| Range Study | Grade | Category    |
|-------------|-------|-------------|
| 17-24       | A     | Good        |
| 9-16        | B     | Good Enough |
| <8          | C     | Bad         |

Table 6  
JBI Critical Appraisal Checklist for Cross-Sectional Studies

| No | Element Research  | A1   | A5   |
|----|---|------|------|
| 1. | Are the criteria for inclusion in the sample clearly defined? | 2    | 2    |
| 2. | Are the research subjects and settings described in detail?   | 3    | 3    |
| 3. | Is exposure measured validly and reliably?                    | 3    | 3    |
| 4. | Are objective standard criteria used to measure conditions?   | 2    | 2    |
| 5. | Were confounding factors identified?                          | 2    | 2    |
| 6. | Are strategies for dealing with confounding factors stated?   | 2    | 2    |
| 7. | Are results measured validly and reliably?                    | 3    | 3    |
| 8. | Was appropriate statistical analysis used?                    | 3    | 3    |
|    | Score/Grade   | 21/A | 21/A |

Table 7  
JBI critical appraisal checklist for qualitative research

| No  | Methodology Quality Criteria  | A2   | A3   | A6  |
|-----|---|------|------|-----|
| 1.  | Is there a match between the stated philosophical perspective and the research methodology?                                     | 3    | 3    | 3   |
| 2.  | Is there a match between the research methodology and the research question or objective?                                       | 3    | 3    | 3   |
| 3.  | Is there a match between the research methodology and the methods used to collect data?   | 3    | 3    | 3   |
| 4.  | Is there a match between research methodology and data representation and analysis?   | 3    | 3    | 3   |
| 5.  | Is there a match between the research methodology and the interpretation of the results?  | 0    | 0    | 3   |
| 6.  | Are there statements that place the researcher culturally or theoretically?   | 3    | 3    | 3   |
| 7.  | Is the influence of researchers on research and vice versa, addressed?  | 3    | 3    | 2   |
| 8.  | Are the participants, and their voices sufficiently represented?  | 3    | 3    | 3   |
| 9.  | Did the ethical research match current or recent criteria, and is there evidence of ethical approval by an appropriate midwife? | 3    | 2    | 2   |
| 10. | Do the conclusions drawn in the research report flow from the analysis or interpretation of the data?                           | 3    | 3    | 3   |
|     | Score/ Grade  | 27/A | 26/A | 27A |

Table 8  
MMAT quantitative randomized controlled trials

| No | Methodology Quality Criteria   | A4 | A7 |
|----|--|----|----|
| 1. | Are there clear research questions?                                  | 3  | 3  |
| 2. | Does the data collected allow for addressing the research questions? | 3  | 3  |
| 3. | Was randomization performed properly?                                | 3  | 3  |
| 4. | Was any randomization performed appropriately?                       | 3  | 3  |
| 5. | Are there complete results data?                                     | 3  | 3  |

|    |  |      |      |
|----|--|------|------|
| 6. | Was the outcome assessor not aware of the intervention being administered? | 3    | 3    |
| 7. | Did participants comply with the given intervention?                       | 3    | 3    |
|    | Score/ Grade   | 21/A | 21/A |

## Results

### *Characteristics of sources of evidence*

Based on the results of the critical appraisal of 7 articles that have been selected cross-sectional 2 articles (A1, A5), Qualitative Research 3 articles (A2, A3, A6), Quantitative Randomized Controlled Trials (A4, A7).

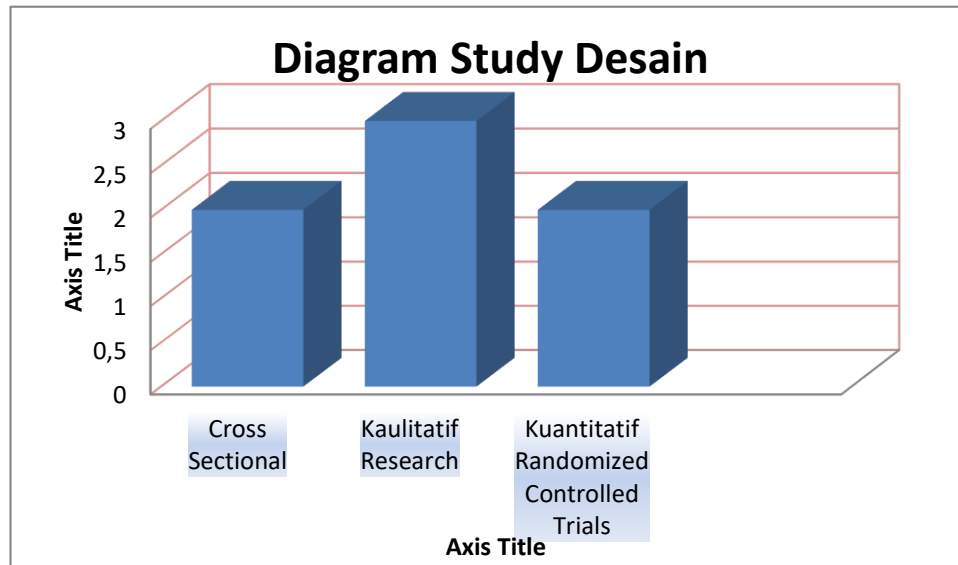


Figure 2. Diagram based on study design

Based on the results of a critical appraisal of 7 articles that have been developed and developing countries. Articles from developed countries include Australia, the United States, Spain, and Uganda. Articles from developing countries, namely Indonesia.

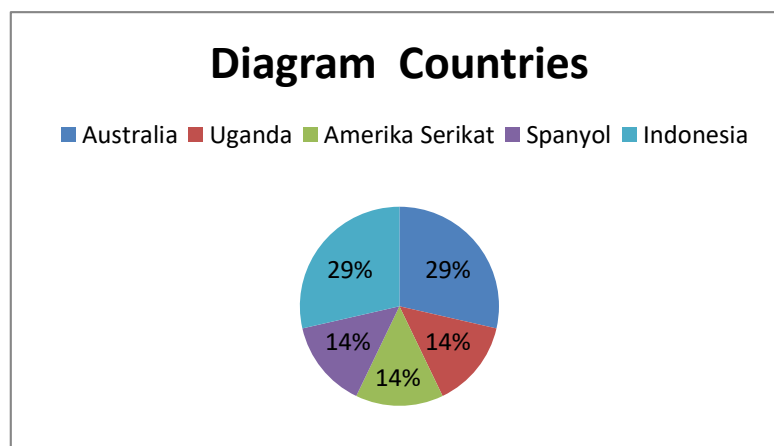


Figure 3. Articles based on country



*Thematic*

Based on the results of the critical appraisal of 7 selected articles, a theme mapping was obtained based on the following characteristics:

Table 9  
Mapping themes based on characteristics

| Themes         | Sub-themes   |
|----------------|--|
| Midwife's Role | - Education on nutrition: A1, A2, A3<br>- Online maternity class: A4, A5, A6, A7 |

**Discussion**

The role of midwives in the application of pregnancy classes during the pandemic.

*The role of midwives in providing nutrition education*

A midwife is one of the primary health workers as the spearhead of health development to accelerate the decline of AKI (Indonesia's Death Rate) and AKB (Infant Mortality Rate). Midwives have clinical skills and analytical, critical, and appropriate skills in the management of upbringing in women (Nankumbiet al., 2018; Rominov et al., 2017). The involvement of midwives in normal and physiological upbringing is decisive for rescuing the mother and baby's life because their professional authority and responsibilities are very different from those of other health workers. Midwifery care for a woman during the phase (pregnant, childbirth, and postnatal) greatly determines the quality of women's health (Hui et al., 2021).

Distance prenatal education program is helpful for prenatal programs during the COVID-19 pandemic. The education provided is in the form of a WhatsApp group for media consultation. Prenatal classes conducted remotely based on technology can increase maternal knowledge and prevent the spread of the COVID-19 virus (Sharma et al., 2020; Silva-Jose et al., 2022). The use of applications for this consultation media is constrained in societies that do not yet have internet and cell phones. Data transfer speed is less optimal, affecting the effectiveness of social media-assisted prenatal chat groups and web-based self-education (Fenwick et al., 2007; Natan et al., 2016). Implementing distance preterm education in communities living in remote villages requires considerable investment in internet networks or other mobile facilities (Hidayani & Mariadi, 2019). The influence of the role of midwives on the behaviour of utilization of the pregnancy class is following the theory, which states that in the implementation of activities, cooperation is needed to achieve the objectives (Kartini & Novyani, 2017b).

*Online pregnancy classes*

In this era of information and communication, the media cannot be replaced in conveying important information to the public in general and pregnant women in particular. The media are very effective in conveying information, especially promoting specific things (Silva-Jose et al., 2021; Uzza et al., 2021). Information technology is a facility and infrastructure (hardware, software, user) system and methods to obtain, transmit, process, interpret, store, organize, and use data meaningfully. Information technology is the result of human engineering in delivering information from sender to recipient so that the transmission of information will be faster and longer (Hui et al., 2021).

According to researchers Hui et al. (2021), nowadays, information technology is the easiest to get information quickly. Pregnant women can access information more accessible to find out how pregnant women should do during their pregnancy examination. The use of technology helps communicate using gadgets or cell phones to call health workers to get information related to ANC visit schedules. The use of technology can also be accessed through the internet to find out about the health of pregnancy (Hui et al., 2021).

Implementing a virtual model in the pregnancy class is a necessity since the internet has become an essential need in the last decade. Advances in communication and information technology can be harnessed for better results, including in the health area. Training models with virtual classes have proven effective in improving maternal and child health management knowledge and skills in India while increasing satisfaction (Soriano-Vidal et al., 2018; Ateah, 2013). Using internet technology in social networks effectively increases knowledge, attitudes, perceptions,

awareness, and compliance with health. These interactions improve self-confidence and self-concept in behaviours that ultimately influence attitudes, including healthcare attitudes and behaviours (Sriatmi et al., 2020b).

Communication and cooperation practices prove that virtual intervention in delivering counselling materials based on communication networks in the group (WhatsApp and Line) improves communication and interaction with health workers and other pregnant women (Wahyuni et al., 2021; Widiasih et al., 2020). The positive impact of good communication and cooperation can also be seen in efforts to monitor each other and remind each other, including in the preparations leading up to childbirth. The practice of online communication through WhatsApp group chats takes place more intensely because of its convenience (Dwijayanti et al., 2022). There is a tendency that the function of reminder to be needed by pregnant women in the practice of high-risk prevention since it also becomes a support factor (Sriatmi et al., 2020b).

Pregnancy classes are postponed or implemented online. Providing health services for mothers and newborns by implementing health protocols according to guidelines for pregnant women, delivery, postpartum, and newborns in the COVID-19 pandemic era, online pregnant women classes, advocating delivery in health service facilities according to indications (Simbolon et al., 2021).

Efforts to prevent the spread of COVID-19 are to increase the dissemination of information and education on preventing the transmission of COVID-19 through electronic media and the role of public figures, encouraging maternal and newborn health services following the principles of COVID-19 prevention and the use of Telemedicine for KIA services. The implementation of Posyandu is only intended in low-risk areas and without the COVID-19 case by remaining following established rules and intended only for immunization services and toddlers with nutritional problems.

Pregnancy examination or antenatal care (ANC), including meeting the nutritional needs of pregnant women, immunization services, and other maternal health services during the pandemic, still need to be carried out by implementing health protocols. The provision of e-KIE (electronic communication, information, and education) or online health education is the primary choice during the COVID-19 pandemic or the new normal (Rusmini & Hastuti, 2021).

## Conclusions and Suggestions

The results of the study entitled "The Role of Midwives in the Application of Classroom Services for Pregnant Women During the COVID-19 Pandemic" can be concluded that the effect of the role of midwives on the behaviour of utilization of this pregnancy class is following the Standard Operating Procedure (SOP), which states that in the implementation of activities, cooperation is needed to achieve the objectives. Communications Practice online communication through WhatsApp group chats takes place more intensely because of its convenience. There is a tendency that the function of reminder to be needed by pregnant women in the practice of high-risk prevention since it also becomes one of the support factors.

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