

## Research article

# Utilization of Communication Technology in Midwifery Services During the COVID-19 Pandemic

Siti Nur Endah Hendayani\*, and Tri Setiowati

University Of Jenderal Achmad Yani Cimahi

**Abstract.**

The COVID-19 pandemic, the industrial revolution 4.0 and society 5.0 are phenomena of revolutionary, fast, fundamental social change, which are associated with global challenges. One of the aspects affected by these social changes is midwifery services. Solutions to deal with these challenges include innovating and integrating communication technology into midwifery services. This study aimed to determine how communication technology has been used in midwifery services during the COVID-19 pandemic. This was a descriptive study. 35 midwives, recruited through purposive sampling, participated. Data were collected using a closed-ended online questionnaire, through the Google forms platform. The results showed that 51.4% of respondents had used communication technology in antenatal care services, 62.8% had used communication technology in postnatal care services, and 60.0% needed application-based communication technology. We can conclude that most respondents had used technology and needed application-based communication technology which could be applied in midwifery services effectively, efficiently and at low cost. These findings are expected to be used as a reference in the development of integrated midwifery services.

**Keywords:** COVID-19 pandemic, midwifery services, communication technology

Corresponding Author: Siti Nur Endah Hendayani; email: sitin-urendahhendayani@gmail.com

**Published:** 3 June 2022

**Publishing services provided by Knowledge E**

© Siti Nur Endah Hendayani, and Tri Setiowati. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ISGH4 Conference Committee.

## 1. Introduction

Covid-19 pandemic, industrial revolution 4.0 and society 5.0 are phenomena of revolutionary, fast, fundamental social change and become a global challenge. One of the aspects affected by social changes is midwifery services. Solutions to deal with these challenges include innovating and integrating communication technology in midwifery services. This study aim to determine the utilization of communication technology in the midwifery services during Covid 19 pandemic

The COVID-19 pandemic situation based on data from the Gugus Tugas Percepatan Penanganan COVID-19 (Task Force for the Acceleration of Handling COVID-19) as of September 14, 2020, the number of confirmed COVID-19 patients was 221,523 people, 158,405 recovered patients (71.5% of confirmed patients), and 221,523 patients died. 8,841 people (3.9% of confirmed patients). Of the total patients who were positive for

**OPEN ACCESS**

COVID-19, 5,316 people (2.4%) were children aged 0-5 years and 1.3% of them died. For the group of pregnant women, there were 4.9% of pregnant women who were confirmed positive for COVID-19 from 1,483 confirmed cases that had accompanying condition data. These data indicate that pregnant women, childbirth, postpartum and newborns are also vulnerable targets for COVID-19 infection and this condition is feared to increase maternal and newborn morbidity and mortality. In this COVID-19 pandemic situation, there are many restrictions on almost all routine services including maternal and newborn health services. For example, pregnant women are reluctant to go to the puskesmas or other health service facilities for fear of being infected, there are recommendations for postponing pregnancy check-ups and classes for pregnant women, as well as the unpreparedness of services in terms of personnel and infrastructure including Personal Protective Equipment. This causes maternal and newborn health services to be one of the services affected, both in terms of access and quality [1].

Currently, world has entered a new era of industrial revolution 4.0 where it is marked by the unification of several technologies so that we see a new area consisting of three independent fields of science: physics, digital and biology. The Industrial Revolution 4.0 is the Digital Revolution, which is marked by the proliferation of computers and the automation of records in all fields. One of the unique and special signs of the industrial revolution 4.0 is the application of artificial intelligence (AI). One of the areas most affected by the fourth industrial revolution is the health sector [2]. The health sector is the sector most likely to benefit from the Industrial Revolution 4.0 due to the merging of physical, digital and biological systems, although this sector may also be the least prepared to accept. A study conducted by The Economist Intelligence Unit said that some doctors believe that smartphone technology plays a very important role in empowering patients to manage their health proactively [3].

Information technology-based health services are getting a lot of world attention. Mainly due to the promise and opportunities that technology can improve the quality of human life. In the health sector, advances in Information Technology have greatly supported services, health worker will quickly be left behind if they do not use various tools to update the latest developments, not only that information technology also has the ability to filter data and process it into information [4]. The era of the Covid-19 pandemic and the era of the industrial revolution 4.0 encouraged the government to formulate policies and innovate in various fields, including the health sector. The policy formulations made by Indonesia government include making priority targets for digitizing the health sector until 2024 in three ways, namely 1) expanding telemedicine services, 2). medical record application, 3). create a regulatory sandbox [5]. Maternal and

neonatal health service policies is to integrate the use of communication technology in every service, including the use of tele-registration and the use of video conferencing and educational activities.

Facing the challenges of the Covid-19 pandemic and the industrial revolution 4.0, health workers must have certain skills. Such as the ability to think critically, communication skills, collaboration, problem solving, the ability to adapt to technology and so on. Improving the quality of human resources through the development and utilization of technology will also assist the performance of public services in an integrated manner so that effective and efficient, transparent and accountable management will be realized. That means, the use of digital technology in health services will contribute to the effectiveness of health services [4].

Midwives are the frontliner in midwifery services. Services provided by midwives include maternal health services, child health services, women's reproductive health services and family planning. Midwives as a profession that continues to grow, always maintain their professionalism by following the development of science and technology. Professionalism is closely related to the competencies that must be possessed by a professional (professional competence). Professional midwives in question must have clinical competence (midwifery skills), socio-cultural skills to analyze, advocate and empower in finding solutions and innovations to improve the welfare of women, families and communities [6]. Based on the above, the purpose of this study is to see how the use of technology by midwives in carrying out midwifery services.

## 2. Methods

This study design is a survey method with a cross-sectional approach. This study held in Cimahi On October 2021. Population of this study are registered midwives. Inclusion criteria is midwife who has a license of midwifery private practice and has bachelor education degree qualification. We exclude midwife who has diploma education degree qualification. Total sample of this research is 35 midwives and were taken by purposive sampling method. The instrument to collect data use close ended questionnaire and for measurement use Guttman Scale. Data collection techniques through online survey technique using the google form platform. Data analyzing by univariate analysis and processed by simple tabulation with Microsoft Excel and presented by one way table. The question components include the use of communication technology in pregnant

women’s services, communication technology services for postpartum and breastfeeding mothers, the need for health technology, interests and plans for developing communication technology, the type of technology needed

### 3. Results

The results of primary data obtained from the survey are presented in the table below. Question components include the use of communication technology in pregnant women’s (antenatal care) services, communication technology services for postpartum and breastfeeding mothers, health technology needs, interests and plans for developing communication technology and the type of technology needed.

#### 3.1. Utilization of Communication Technology in Maternity Services

TABLE 1: Utilization of Communication Technology in Maternity Services.

Variable	Utilization		Total
	Yes	No	
Communication Technology in Antepartum services	18 (51,4%)	17 (48,6%)	35 (100%)
Communication Technology in Postpartum and Breastfeeding Mother Services	22 (62,8%)	13 (37,2%)	35 (100%)

Based on the table above. shows that 51.4% of respondents have used communication technology in the service of pregnant women. Utilization of communication technology in services to pregnant women is counseling services via whats App platform, zoom meeting, telegram. Result shows that 62.8% of respondents have used communication technology in the service of postpartum and breastfeeding mothers. The use of communication technology in services to postpartum and breastfeeding mothers is an educational service about postpartum and breastfeeding care, which is carried out through the Whats App platform and zoom meeting.

#### 3.2. Technology Needs in the Midwifery Service Area

Based on the table above. shows that 82.9% of respondents need technology for registration services, 82.9% of respondents need technology for client data collection

TABLE 2: Technology Needs in the Midwifery Service Area

Variable	Needs		Total
	Yes	No	
Registration	29 (82,9%)	6 (17,1%)	35 (100%)
Client Data Collection	29 (82,9)	6 (17,1)	35 (100%)
Health Education	35 (100%)	0 (0%)	35 (100%)
Recording And Reports	34 (97,1)	1 (2,9)	35 (100%)

services, 100% of respondents need technology for providing health education and 97.1% need technology to recording and reporting.

### 3.3. Type of Technology Required

TABLE 3: Types of Technology Needs.

Types of Technology	n	%
Web -based communication technology	14	40 %
application-based communication technology	21	60%
Total	35	100%

Based on the table above shows that 60 % of respondents need application-based communication technology

## 4. Discussion

Based on tables 1 shows that 51.4% have used communication technology in pregnancy services and 62.8% of respondents have used communication technology in postpartum and breastfeeding mother services. The use of communication technology in services for pregnant, postpartum and breastfeeding women is an educational and counseling service that is carried out through the Whats App platform and zoom meetings. Midwife competencies are the basis for providing comprehensive, effective, efficient and safe evidence-based midwifery services to clients, in the form of promotive, preventive, curative and rehabilitative efforts that are carried out independently, collaboratively and by referrals. One component of the competence of midwives in self-development and professionalism of midwives is to use and develop science, technology, and art that support midwifery practice in order to achieve quality health for women, families, and communities [6].

Based on tables 2, it shows that 82, 9% of respondents need technology for registration services, 82,9% of respondents need technology for client data collection services, 100% of respondents need technology for providing education and 97,1% of respondents need technology for recording reporting. Several studies related to technological developments show that digital technology is very effective in serving the community, Moller, Arlen C., et al. (2017) in his article explains that the application of digital technology-based health interventions is considered very beneficial. First, it can facilitate access to services, facilitate the reach of services to the community. Second, it can move health interventions to digital platforms and present research with new opportunities to advance the theory and concept of health services. The use and utilization of this technology is one of the right solutions for solving public service problems [4].

Based on table 3 above, it shows that 60 % of respondents need application-based communication technology. Along with rapid advances in supporting technology, in recent years, there has been a very rapid development in telemedicine and e-health. The very rapid development of wireless mobile telecommunication systems and satellite telecommunications systems, as well as the availability of infrastructure provided by various telecommunications network operators, has enabled the development of various types of mobile telemedicine systems and m-health systems. Advances in supporting technology, including computer hardware and software, have prompted the development of various telemedicine and e-health systems for various types of applications [7].

According to Satyamurthy (2007), the benefits of telemedicine include increasing access to patients, reducing patient costs, reducing isolation from the need for doctors, and improving the quality of health services. As in general, the development of ICT for health in developing countries, there are still many obstacles that are faced in the development and application of ICT-based systems, both technical and non-technical, especially at the implementation stage. In the development of telemedicine, it is necessary to pay attention to issues that must be considered, among others: 1) Real effectiveness of the system (System design based on the real needs of potential users, Compliance with related health procedures and existing regulations, added value that the system can provide both qualitatively the level of health services and economically against the previous procedures for each party, the use of technology that has high reliability and is in accordance with field conditions), 2) System Acceptability (Full support from related health organizations/decision makers, including the inclusion of telemedicine programs in official operating procedures, full support from system

implementers (operators) and health service recipients (community), system implementation must be supported by capacity building HR according to system application requirements), 3) System sustainability (long-term system acceptability, the ability of users to operate the system both technically and non-technically, especially in the economic field), 4) Further development, expansion of geographic application areas, expansion of scope of application to other levels of health services, the need for expansion of types of health services that apply telemedicine [8]. Limitation of this study is that survey conducted by online system and self administered, it may yield significantly different results when compared to face-to-face surveys.

## 5. Conclusions

Of the 35 respondents, most of midwives have used communication technology in the services of pregnant women and in the services for postpartum and breastfeeding mothers. The technology used includes whats app platform, zoom meeting, telegram. In addition most of midwives need technology for registration services, client data collection services, providing health education and need technology for recording and reporting. Most of midwives need application-based communication technology. The results of this study are expected to be used as a reference in the development of integrated midwifery services, as material for advocating to the government to develop an integrated service system. The results of this study are expected to be used as a reference by future researchers in exploring more about the technology needed by the community.

## References

- [1] Ministry of Health. Guideline of antenatal, delivery, postpartum, and newborn service in New Normal. Kenya Covid19 Guidelines. Kenya. 2020.
- [2] Tjandrawinata RR. Industry 4.0: Industrial revolution and its influence on biotechnology field. *Journal Medicinus*. 2016;29(1):31–9.
- [3] Park H-A. Are we ready for the fourth industrial revolution? *Yearb Medical Information*. 2016;25(1):1–3.
- [4] Yani A. Utilization of technology in the health of community health. *Promotif Jurnal Kesehatan Masyarakat*. 2018;8(1):97–103.
- [5] Ministry of Health. Long term strategy of COVID-19 pandemi. Kemenkes; 2021 September. Available from:

[https://www.kemkes.go.id/Article/View/21100700002/Transformasi-Digital- Bidang-Kesehatan-Strategi-Jangka-Panjang-Atasi-Pandemi-Covid-19](https://www.kemkes.go.id/Article/View/21100700002/Transformasi-Digital-Bidang-Kesehatan-Strategi-Jangka-Panjang-Atasi-Pandemi-Covid-19)

- [6] Ministry of Health. Indonesia ministerial decree no hk.01.07/menkes/320/2020 in regards of midwifery standard. 2020.
- [7] Honni H. Development of application model of health service administration in public health center using cloud computing based on open source. *ComTech Computer Mathematic and Engineering Application*. 2013;4(2):1026–35.
- [8] Indartono K. ICT-based telemedica in management of ICU facilities. *Jurnal teknologi elektro*. 2013;5(1).