



## LEARNING TO PREVENT AND BREAK THE CHAIN OF TRANSMISSION OF COVID-19 BY VACCINATE WOMEN, PREGNANT AND BREASTFEEDING MOTHERS THROUGH THE WEBINAR

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### ABSTRACT

**Background:** The incidence of Covid-19 in women, pregnant, and breastfeeding mothers is still high. Currently, the government is trying to prevent and break the chain of Covid-19 transmission by vaccination. However, knowledge about Covid-19 vaccination is still limited. Therefore, Indonesian Obstetrics and Gynecology Association/Perkumpulan Obstetri dan Ginekologi Indonesia (POGI) members, as the spearhead of women's health, play an essential role in breaking the chain of transmission by providing knowledge about Covid-19 vaccination.

**Methods:** All member of POGI and Youth POGI in Surakarta was educated by online method via the webinar zoom application. The level of knowledge was evaluated pre and post-webinar by using a questionnaire to see the significance.

**Result:** Analysis of 110 participants with paired t-test obtained an average pretest value of 44.82 while the average post-test value was 57.45, with a significance value of  $p=0.001$  ( $p<0.05$ ). The results of the analysis with the Chi-square test obtained  $p = 0.002$  ( $p < 0.05$ ) and OR = 23.40.

**Conclusion:** There is an increased understanding of preventing and breaking the chain of transmission of Covid-19 in women, pregnant, and breastfeeding mothers by vaccinating youth POGI and POGI members after webinar and discussion, with a significance value of  $p=0.001$  ( $p<0.05$ ). Webinars and discussions on preventing and breaking the chain of transmission of Covid-19 to women, pregnant, and breastfeeding mothers with vaccination by researchers provided 23.40 times better understanding than before the webinar and discussions were given.

**Keywords:** Covid-19, vaccination, pregnancy, breastfeeding

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## INTRODUCTION

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Coronavirus is a new type of human virus found in Wuhan, China, in December 2019. The country with a population of the fourth biggest globally, Indonesia, has a significant risk of spreading the virus.<sup>(1,2)</sup> The incidence of Covid-19 in pregnant and breastfeeding mothers in Indonesia is relatively high. During pregnancy, there is a change in immunological patterns to protect the development of the fetus and placenta.<sup>(3,4,5)</sup> Data on the effect of the immunogenicity in pregnant and breastfeeding mothers on the Covid-19 vaccine are still limited. Theoretically, pregnancy does not change the efficacy of a vaccine. Although this needs further research, the transfer of IgG from the mother after vaccination to the fetus becomes an opportunity for passive immunity in neonates. Education and learning about the Covid-19 vaccine are needed to prevent a rapid increase in the transmission rate.<sup>(5)</sup>

The World Health Organization (WHO) reported that until December 2020, this disease had spread to around 313 countries, infected 2,475,723 people, and had caused 169,151 deaths globally. In Indonesia, there are 1,012,365 confirmed cases with 28,468 deaths.<sup>(6)</sup> This type of virus is estimated to spread from humans infected with Covid-19 to about three new humans.<sup>(7)</sup>

Symptoms of Covid-19 vary widely. Some patients are asymptomatic, while others are almost symptomatic similar to influenza or a typical cold such as fever, cough, fatigue, and shortness of breath. The transmission mode is direct contact and spreads through droplets when sneezing and coughing.<sup>(8,9)</sup>

Currently, vaccination and early diagnosis have an essential role in preventing and breaking the chain of Covid-19 transmission. Implementation of measures through case identification, self-isolation, and contact tracing by identifying people who may have been in contact with infected patients is essential.<sup>(8)</sup>

Further research still needs to be done to evaluate the safety and immunogenicity of pregnant women. However, WHO still recommends the use of vaccines for pregnant and breastfeeding mothers because the positive side of vaccination is higher than the risk,<sup>(5,6)</sup> even according to the current consensus and the publication by the Centers for Disease Control and Prevention (CDC) and American College of Obstetricians and Gynecologists (ACOG), pregnant women are included as a priority group for the administration of the Covid-19 vaccine.<sup>(5,10)</sup>

Although the overall hazards are minor, pregnant, and breastfeeding, mothers are more likely than non-pregnant women to become extremely ill with Covid-19. People who become incredibly ill due to Covid-19 may require hospitalization, admission to an intensive care unit (ICU), or a ventilator or other breathing aids. A severe Covid-19 infection might also result in death. Pregnancy causes changes in the body that could make it easier to get very sick from respiratory viruses like the one that causes COVID-19. These changes in the body can continue after pregnancy. Furthermore, if Covid-19 is infected while pregnant, it becomes a higher risk of issues that could harm the pregnancy and the fetus. Having Covid-19 during pregnancy raises the risk of having a preterm or stillborn baby.<sup>(11)</sup>

Covid-19 vaccination before and during pregnancy is safe and effective, according to growing evidence. It implies that the advantages of getting a Covid-19 vaccine outweigh any known or possible dangers of vaccination during pregnancy. Pregnant women who get an mRNA Covid-19 vaccine throughout their pregnancy have a lower risk of infection and severe sickness. People who were pregnant and received an mRNA Covid-19 immunization were compared to those who did not. Covid-19 immunization was found to reduce the chance of infection from the virus that caused Covid-19. According to scientists, it was even more successful at reducing the risk of becoming severely unwell from Covid-19. Therefore, increasing knowledge about Covid-19 vaccination for women, pregnant, and

breastfeeding mothers are necessary to receive in-depth attention.<sup>(11)</sup>

More than 300 million, people worldwide have been affected by the pandemic. All educators are struggling to continue learning despite the turmoil of the matter. The rapid and sustained spread of the virus worldwide has led most medical and research institutions to introduce and adopt alternative practices, education, and training for people. Due to the lack of face-to-face teaching ability and the limitation of academic meetings, e-learning in remote workspaces has been adopted.<sup>(12)</sup>

Many healthcare professionals struggle to adapt to new methods but still prepare for a long-term educational "social distance." In today's education system, people in the Twenty-First century have unlimited access to information.<sup>(13)</sup> They use digital technology daily and do not want to hear passively or remember the information provided. They expect to leave in the education system the knowledge and skills that may need to be used in the labor market to have lifelong learning skills.<sup>(14)</sup>

As the way we provide information about COVID changes overnight, everyone needs to adapt to new situations and learn new technologies, time management, communication, and refinement. The challenges of medical education caused by pandemics have made alternative teaching and learning methods such as online courses and webinars more and more popular.<sup>(15)</sup>

Healthcare professionals need to assess the usefulness of these webinars in a pandemic to update ongoing methods actively. Therefore, this study aimed to evaluate the knowledge among young POGI and POGI members and the usefulness of COVID19-related webinars by conducting a questionnaire-based survey. This is the first study to assess the effectiveness of webinars run during the COVID 19 pandemic.

## METHODS

Samples were all youth POGI and POGI members in Surakarta who were given online webinars and discussions through the

zoom® application. Promotion and discussion materials regarding the Prevention and Break The Chain of Covid-19 Transmission with vaccination in Women, Pregnant and Breastfeeding mothers were created and designed by a team of Obstetrics and Gynecology sub-specialists in Maternal-Fetal Medicine to avoid information bias. In addition, knowledge level evaluation was carried out through pre and post-webinar using an integrated questionnaire via Google Form®, which was shared online. The questionnaire has been tested for validity and reliability to show the extent of the measuring instrument used in this study. This research was conducted from April 2021 to March 2022.

## RESULT

For analysis, survey data from 110 respondents of youth POGI and POGI members were imported into SPSS from Google Sheets. The normality of the Data was analyzed using the Shapiro Wilk test and the Kolmogorov-Smirnov test. Each of the fourteen questions, rated on a 3-point Likert scale, was tuned to give us an idea of whether webinar-style information distribution would be helpful to end-users. The overall utility score was derived from the average of these values, and a generalized standard analytic was performed with this parameter as the dependent variable.

**Table 1. Characteristics of Subject**

Variable	N	%
<b>Members</b>		
- Youth POGI	65	59
- POGI	45	41
<b>Gender</b>		
- Male	56	51
- Female	54	49
<b>Total</b>	110	100

Based on the characteristics of the research subjects (Table 1), 65 subjects belonged to Youth POGI, while the remaining 41% were POGI members. The majority of research subjects, about 51%, were male, while the remaining 54 subjects were female. All research

subjects were assessed as having the same educational background based on the youth POGI and POGI membership requirements. Therefore, the variables of the subjects were considered to have the same value, and there was no need for segregation regarding educational background

**1. Results of Analysis Improvement Knowledge**

The research data was taken from the pretest and post-test results during webinars and discussions about Covid-19 to youth POGI and POGI members, with a total of 110 participants. In addition, 14 material questions regarding vaccination for pregnant and breastfeeding mothers as a method of preventing transmission of Covid-19 were analyzed using a paired t-test thoroughly described in Table 2.

**Table 2. Results of Analysis Improvement Knowledge**

Variable	N	mean	SD	P
Pretest	14	44.82	25.96	0.001
Post-test	14	57.45	28.10	

Based on Table 2, the average pretest score was 44.82, while the average post-test score was 57.45, with a significance value of  $p=0.001$  ( $p<0.05$ ). This shows a significant difference between the scores before and after the webinar and discussion of materials regarding the complete Covid-19 vaccination for women, pregnant, and breastfeeding mothers.

**2. Results of Analysis with Chi-Square Test**

The pretest and post-test value data were re-analyzed using the Chi-square test to find the odds ratio (OR). The pretest and post-test scores were converted into a dichotomous categorical scale (value <50 means not understand, value 50 means understand). This cut-off is based on the average results of the pretest and post-test. The analysis results using the Chi-square test are presented in Table 3.

**Table 3. Analysis Results with Chi-Square. Test**

Variable	Understand	Not understand	OR	p
Pretest	40(17.9%)	70(32.1%)	23.40	0.02
Post-test	100 (46.4%)	110(3.6%)		

Table 3. Shows the significance value of  $p = 0.02$  ( $p<0.05$ ), which explains that webinar and discussion material on Covid-19 can increase the understanding of POGI and youth POGI members 23.40 times better than before webinar and discussion of the material.

**DISCUSSION**

Vaccination, especially for pregnant and breastfeeding mothers, is still being researched. Experts now believe that vaccinated pregnant and breastfeeding mothers can transfer the immune complexes formed to the fetus and infant, either by

transplacental transfer or by excretion of breast milk. Therefore, it is necessary to understand that the benefits of vaccination must be widely and in-depth informed to the public so that the purpose of the vaccine as a form of prevention and break the chain of Covid-19 transmission can be achieved.<sup>(6)</sup>

Health promotion and counseling methods for the community have developed rapidly following the times and technology. The simplest way is to use print media such as posters, billboards, banners, flyers for promotions in columns, or rubrics for magazines and newspapers. Still, such methods have low educational value because the information is only given in one direction

without discussion. Information delivery that involves two-way communication between the information giver and the recipient has better educational value.<sup>(13)</sup>

Seminars are commonly used for promotional and counseling information. This is because the information provider can evaluate the knowledge of the participants' understanding so that the information received is considered in line with expectations. However, the conventional seminar method in the current pandemic era is deemed unsuitable because it must gather participants in a specific room. It can increase the chance of transmission of Covid-19. Therefore, a similar method needs to have the effectiveness and advantages of conventional seminars.<sup>(13)</sup>

Counseling in the form of webinars in the era of the Covid-19 pandemic has become a new method for sharing information. The structure of the interactive procedure given during the webinar makes the data received to be more reliable and actual to provide an overview of the results representing the population. Based on the results of this study, there is an increase in understanding before and after the webinar, in line with research by Gupta et al. (2021), who stated that the teaching method through webinars gave a positive perception of the material, besides that the results presented showed a better impression compared to conventional seminars.<sup>(14)</sup>

Counseling through webinars can be a promising alternative compared to conventional methods. Locations and interactive support tools such as mobile phones or laptops adapt to webinar participants become advantageous. Figueroa et al. (2020) stated that there is a tendency for webinars to have more interactive value compared to conventional methods through the various features provided by the webinar platform. However, a poor cognition of technology and internet network connectivity is an obstacle to the effectiveness of the webinar.<sup>(16)</sup>

Adding Q & A sessions to the webinar and strategically placing them throughout the webinar, not just at the end of the

webinar, is a surefire way to enhance the audience's interaction with the presenter. Live conversations or chats with presenters can further improve the attendees' experience. A health worker can use several other social media platforms, such as Twitter, Facebook, or others media platforms, to extend their interaction beyond the webinar and post the main highlights of the webinar. A final vote to evaluate the webinar and confirm the knowledge gained by the participants, their interests, suggestions, and challenges will help the organizers improve the webinar in the future.<sup>(14)</sup>

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## CONCLUSION

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In this study, the limited duration of the webinar, participants who did not attend from the beginning of the session, and recall bias were weaknesses of the study that needed attention. However, there was still an increase in the understanding of youth POGI and POGI members regarding Covid-19 vaccination for pregnant and breastfeeding mothers after the webinar and discussion, with a significance value of  $p=0.001$  ( $p<0.05$ ). Furthermore, the webinar and discussions about Covid-19 vaccination for pregnant and breastfeeding mothers provided a 23.40 times better understanding than before the webinar and discussions were given.

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## ACKNOWLEDGEMENT

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The authors would like to thank the Chairperson of POGI Surakarta, the Provost, Head of the Institute for Research and Community Service, and the Dean of the Faculty of Medicine, Sebelas Maret University Surakarta.

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**REFERENCES**


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1. ZA S, Putra DI, Sofyan S, Bimo. Pedoman Umum Menghadapi Pandemi COVID-19. 2019. 1–65 p.
2. Yuliana. Corona virus diseases(Covid - 19); Sebuah tinjauan literatur. *Wellness Heal Mag*[Internet]. 2020;2(1):187–92. Available from: <https://wellness.journalpress.id/wellness/article/view/v1i218wh>
3. Hamid ARAH. Social responsibility of medical journal: a concern for COVID-19 pandemic. *Med J Indones* [Internet]. 2020;29(1):1–3. Available from: <http://dx.doi.org/10.13181/mji.ed.204629>
4. PDPI. Pnemonia Covid-19. Diagnosis & Penatalaksanaan di Indonesia. 2020. i–58.
5. Stafford, I.A., Parchem, J.G. and Sibai, B.M., 2021. The coronavirus disease 2019 vaccine in pregnancy: risks, benefits, and recommendations. *American Journal of Obstetrics and Gynecology*, 224(5), pp.484-495.
6. WHO. Coronavirus disease (COVID-19) Pandemic Last update: 10 September 2020, 07:00 GMT+7. World Heal Organ [Internet]. 2020; Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
7. Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID- 19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. *Eurosurveillance*. 2020;25(10):1–5.
8. Udugama B, Kadhiresan P, Kozlowski HN, Malekjahani A, Osborne M, Li VYC, et al. Diagnosing COVID-19: The Disease and Tools for Detection. *ACS Nano*.2020;
9. Li X, Zai J, Wang X, Li Y. Potential of large "first generation" human-to-human transmission of 2019-nCoV. *J Med Virol*. 2020;92(4):448–54
10. Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *J Travel Med*. 2020;27(2):1–6.
11. CDC. Pregnant and Recently Pregnant People At Increased Risk for Severe Illness from COVID-19. 2022. Available from : <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnant-people.html>
12. Sleiwah A, Mughal M, Hachach-Haram N, Roblin P. COVID-19 lockdown learning: The uprising of virtual teaching. *J Plast Reconstr Aesthet Surg*.2020;73(8):1575–1592
13. Liao, CH, and Bercea S. Success factors of health promotion: Evaluation by DEMATEL and M-DEMATEL methods — A case study in a non-profit organization. *J PlosOne*. 2021;16(12):1-19 <https://doi.org/10.1371/journal.pone.0260801>
14. Gupta R, Naik B N, Ganesh V, Soni S L, Puri GD. Evaluation of Utility and Usefulness of Webinars on COVID-19 management: an a-questionnaire-based survey. *Ain-Shams Journal of Anesthesiology*.2021;13(67):1-7
15. Nahai F, and Kenkel JM. Accelerating education during covid-19 through virtual learning. *Aesthet Surg J*; 2020;40(9):1040–1041
16. Figueroa F, Figueroa D, Calvo-Mena R, Narvaez F, Medina N, Prieto J. Orthopedic Surgery Resident's Perception of Online Education in Their Programs

During the COVID-19 pandemic: Should  
it be maintained after the crisis? *Acta  
Orthop.* 2020;91(5): 543-54

