ORIGINAL RESEARCH

Pretesting of Infographic as a Communication Tool on Pregnant Women During Covid-19 Period

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Purpose: This study was to analyze the responses of informants about Instagram infographics on Covid-19 prevention for pregnant women.

Methods: This was a qualitative study that used Rapid Assessment Procedure (RAP) and used pretesting communication theory. The informant selection technique was purposive sampling that consist of three pregnant women as main informants, a midwifery lecturer and a visual graphic designer as key informants. One-to-one pretesting communication procedure was selected because the research was conducted at the beginning of the Covid-19 pandemic, so it had a difficulty in recruiting informants. The interview guideline was conducted by the research team and was examined in a field trial. Data collection was by semi-structured interview using voice call WhatsApp application. Data were analysed using thematic analysis.

Results: In attraction aspect, this was considered quite interesting by the informants. In comprehension aspect, the messages were easily understood because of using brief, concise, and simple sentences. Furthermore, the messages were supported by images and comprehensive. In acceptance aspect, all the informants' opinions were identified that the messages of this infographic did not have a conflict with the existing norms. In self-involvement aspect, this infographic was in accordance with the current condition of the informants. In persuasion aspect, it had a good persuasive value as the informants were willing to share the infographic with others.

Conclusion: The infographic still needed improvements from the attraction aspect such as consider using contrasting colour between the background and text, equalize the font size and change icons to become related to the text. As from the comprehension aspect consider using terms that are more popular in the community. There were no need improvements from acceptance, self-involvement, and persuasion aspects. However, evidence-based research is still needed on how this infographic is developed and implemented to optimize transfer of knowledge.

Keywords: disease emergence, health education, social media, pregnancy care

Introduction

The novel corona virus, SARS-CoV-2 which was first reported in December 2019 in Wuhan, China, has caused a worldwide pandemic.[1] The disease spread to several countries within a matter of weeks; therefore, WHO declared it as a Public Health Emergency of International Concern on January 30, 2020. The worldometers.info/coronavirus site reported that on June 15, 2020 (at 13:57 Indonesia Western Time). more than 200 countries were infected with a total of 7,998,006 confirmed cases of Covid-19 where 435,697 of them died and 4,129,371 recovered. Almost all active cases (98%) were in mild condition and 2% were serious or critical.[2]

Several studies reported that SARS-CoV-2 infection occurred during the first 28 days of newborns. However, there was no evidence that the cause of the infection was from a pregnant woman to the fetus.[3,4] The virological examination results of amniotic fluid, umbilical cord blood and breast milk mothers were discovered to be negative from mothers who were Covid-19 positive.[3] However, a study explained that pregnant women become one of susceptible populations because of their immunity during pregnancy and they are potential to get cytokine-storm.[5] Hence, the efforts on

preventing Covid-19 infection still need to be provided to pregnant women. Further intensive education needs to be obtained by pregnant women, even assisting them to always practice a hygiene and healthy life. It was caused by Covid-19 which is a new disease that all population have to know about the right information of Covid-19, so they can do the health protocols well.[6–8]

During this pandemic, educational methods are carried out online to avoid contact and crowds. One of online media that could be a health information channel is social media.[9,10] Based on a study on the influence of social media as a strategy to increase awareness in the efforts of Covid-19 prevention, it was discovered that the social media culture in Indonesia can act as a teacher to educate the community and stimulate the latest research on Covid-19. In addition, results showed that social media can also be a channel for sharing reviews and testimonies of recovered patients as motivation, early efforts on prevention and providing support among the people facing the Covid-19 pandemic.[11–13]

Based on the Joint External Evaluation (JEE) Risk Communication score, Indonesia has demonstrated the capacity of public communication and community engagement.[14] One of the organizations that is active to share about Covid-19 materials is World Health Organization (WHO) Indonesia. WHO Indonesia issued an infographic educational media in its feed. One of the feed is used Indonesian language consisting of five images that are explained about Covid-19 prevention among pregnant women. A pre-test can be carried out to discover whether this infographic is suitable for the target audience. Based on the "Experimental pretesting of public health campaigns: a case study", the results showed that the pretesting procedure can estimate the effectiveness of large-scale multimedia campaign materials, reduce counterproductive and implement public health campaign.[15]

The research team considered that this infographic field trial was necessary since the WHO infographic pre-test has not been carried out yet. Therefore, the objective of this study was to analyze the responses of informants about Instagram infographics on Covid-19 prevention for pregnant women that was published by WHO Indonesia through elements of design and message. The purpose of this study was trying to find whether it is interesting and clear understood. It used pretesting communication theory which contains attraction, comprehension, acceptance, self-involvement, and persuasion. The infographics are shown in Figures 1–5.

Figure 1 Pregnant women's self-protection against Covid-19. I am pregnant. How can I protect myself against Covid-19? 1) Wash your hands frequently. 2) Put space between yourself and others. 3) Avoid touching your eyes, nose, and mouth. 4) Cough or sneeze into your bent elbow or a tissue. If you have fever, cough or difficulty breathing, seek care early. Call beforehand and follow medical advice.

Figure 2 The right to a safe and positive childbirth experience. All women have the right to a safe and positive childbirth experience, whether or not they have a confirmed Covid-19 protection. 1) Respect and dignity. 2) Clear communication by maternity staff. 3) Mobility in labour where possible and birth position of choice. 4) Pain relief strategies. 5) A companion of choice.

Figure 3 The high-quality care of women. Before, during, and after childbirth, all women have the right to high-quality care. This includes 1) Antenatal and intrapartum, 2) Newborn, 3) Postnatal, and 4) Mental health.

Materials and Methods

Design

This study used a qualitative approach. Rapid Assessment Procedure (RAP) was used as the design, which is a data collection method to obtain in-depth information on the background of public health behaviour in a relatively short
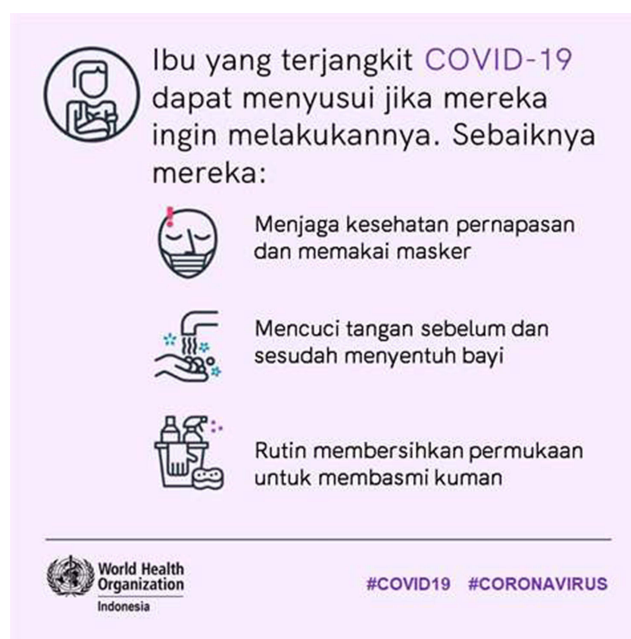
Figure 4 The ways to breastfeed among women with Covid-19. Women with Covid-9 can breastfeed if they wish to do so. They should 1) Practice respiratory hygiene and wear a mask. 2) Wash hands before and after touching the baby, and 3) Routinely clean and disinfect surfaces.
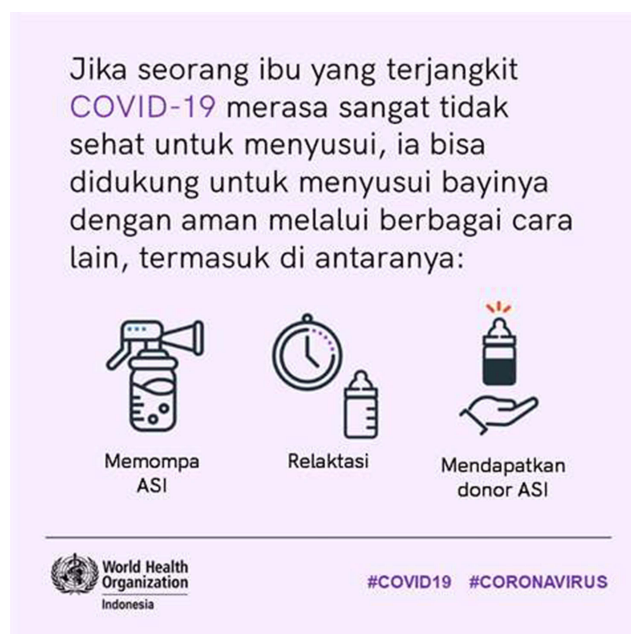

Figure 5 The ways to breastfeed if woman with Covid-19 is too unwell. If a woman with Covid-19 is too unwell to breastfeed, she can be supported to safely provide her baby with breast milk in other ways, including by 1) Expressing milk. 2) Relactation, and 3) Donor human milk.

period.[16] RAP was used for program development studies, basic data collection, monitoring and evaluation and also for Information, Education and Communication (IEC) materials.[17]

Informants and Research Location

Informants in this study were recruited by purposive sampling method based on inclusion criteria. Informants were coded as A, B, C, D, E, etc. with the following criteria: 1) Status first pregnancy/primigravida; 2) Age 18–35 years; 3) Joined the

Prenatal education class at the clinic. Three informants meeting these criteria were recruited from Elmozza Maternity Clinic, Depok, with the consideration that it is located in the COVID-19 yellow zone. In addition, it has the qualification services of the *Bidan Delima* (Excellent private practice midwife). Two other key informants consisting of a visual graphic designer and a midwifery lecturer were recruited as sources of triangulation. Small sample size and convenient sampling was used because this was one-to-one pretesting communication procedure.[18] This procedure was selected because the research was conducted at the beginning of the Covid-19 pandemic so it had a difficulty in recruiting informants.

Instrument

Semi-structured interview guidelines were used as an instrument developed by the research team with the framework of a pre-test component, covering aspects of attractiveness, comprehension, acceptance, self-involvement and persuasion. The instrument was field tested to two people who had similar characteristics to the informants.

Data Collection

Data collection was conducted on May 14 until June 21, 2020. There were two cellular phones used as devices to contact informants through the voice call feature on the WhatsApp application and to record the voice through the voice recorder application. Prior to data collection, an informed consent was made for each informant. It has to fulfill the ethics research stipulated in the World Medical Association, the Helsinki Declaration.[19] This study had informed to the informants through the inform consent about the aims, methods, sources of funding, any possible conflicts of interest, and institutional affiliations of the researcher. It also stated that the researcher was responsible for the protection of privacy, and confidentiality of personal information of research subjects. Therefore, all the informant's name in this study are anonymous. This study had a letter of confirmation from Faculty of Public Health, Universitas Indonesia Number S-3932/UN2.F10.D1/PDP.00.04.02/2021 that mentioned about the ethics.

Data Analysis

This study used a thematic analysis approach to identify patterns and find themes from the obtained data. It was done because to understand the interview as a complete perspective before dividing it into small parts.[20] Afterwards, parts that have the same meaning are separated and then marked and arranged into statements according to themes and sub-themes.[21]

Results

Informants Characteristic

Informants of this study consisted of three pregnant women (A, B, C) with the average of pregnancy in first trimester. Informants of source triangulation were from a visual graphic designer (D) and a midwifery lecturer (E). All of them were active social media users, such as Facebook and Instagram. The information about characteristic of informants is shown in Table 1.

    The result of pretesting communication was identified as five aspects: attraction, comprehension, acceptance, self-involvement, and persuasion. Statements of informants that were classified as theme and sub-theme are shown in Table 2.

Attraction

Informants A, B, and C claimed that overall, the infographic design was not too attractive. Informant D mentioned that people opinion towards a design is very influenced by media exposure received so far. Informant A and C considered the font size of this infographic was appropriate, while B thinks that the font size in the title section was too small. Meanwhile, D mentioned that the typeface used was in accordance with the purpose of the poster and the font size was also appropriate. However, the font size for images number one to five needed to be improved and should be similar to the title or content.

    All informants considered that the colors used was less striking and C emphasized that the colors were monotonous. According to the experience of D, she suggested that the color composition should use a maximum combination of three

Table 1 Characteristics of Informants of Pretesting Communication of Instagram Infographics on Covid-19 Prevention for Pregnant Women

No.	Informant	Age	Sex	Education	Occupation	Gestational Age (Weeks)	Internet Access (Hour/Day)	Social Media Used	Source of Health Info
1	A	34	F	Bachelor	Teacher	16	5	Facebook, Instagram, WhatsApp	Google
2	B	25	F	Bachelor	Employee	15	12	Instagram, Twitter, WhatsApp	Pregnancy+
3	C	21	F	Senior high school	Housewife	13	5	Facebook, Instagram, WhatsApp, Line	Google, The Asia Parents
4	D	25	F	Bachelor	Visual graphic designer	–	8	Instagram, WhatsApp, Telegram	Instagram
5	E	29	F	Postgraduate	Lecturer	–	10	Instagram, WhatsApp, YouTube	Journals, books, other references

Table 2 Theme, Sub-Theme, and Supporting Sentences from Informants of Pretesting Communication of Instagram Infographics on Covid-19 Prevention for Pregnant Women

Theme	Sub-Theme	Supporting Sentences
Attraction	**Infographic Design**	"Oh, yes the design is really cool" But for women … who don't know anything, lack education about things like this, they usually would say…what is this? According to me that some groups may consider it as kindergarten drawings" (D)
	Letter Display	"…I think it's clear enough not too big and not too small…" (A)
	Color Display	"… But purple is suitable when matched with colors with the similar origin such as blue and magenta" (D)
	Layout	"In my opinion, the section on Mobility during Delivery is better if the words are left-aligned, parallel to Distinct Communication with the Midwifery Staff. Then for the words #covid19 and Corona Virus in my opinion. it should be placed slightly higher parallel with the WHO logo" (D)
	Combination of Images and Words	"(If possible, mobility during delivery) and (Preferred delivery position) should be described with an image, according to my opinion it should be represented with an image" (D)
	Suggestions	"Change it into more striking colors. Maybe reverse it, … make the background dark purple and the writing into white, something like that" (D)
Comprehension	**Language**	"… Hmm there was a language that I couldn't understand, only point number 2 was difficult for me to understand" (A)
	Suggestions	"…there is something that I noticed here … antenatal care if I may suggest antenatal should be changed…maybe into pregnancy examination. I'm also afraid that common people would not understand the word relactation …it means restarting breastfeeding (E)
	Message	"Yes, I have, it's easy to understand. Maybe point no.2 needs to be changed a little so it can be easier to understand" (Inf A)
	Suggestions	"regarding the content…if I may suggest, wash hands regularly and properly …" (E)

(Continued)

Table 2 (Continued).

Theme	Sub-Theme	Supporting Sentences
Acceptance	**Disagreed Messages**	"From these 5 images…there is nothing offending or contradictive …" (A)
	Released by an Institution	"WHO: World Health Organization." (B)
	Trust Towards the Institution	"This institution can be trusted." (B)
	Suggestions	"I think the second image, Distinct communication with the midwifery staff. Maybe it should be changed to Health Services. So, it's not specifically only midwifery" (B)
Self-involvement	**Target Group**	"This is not only for me it can be read by everyone and they can also inform others…anyway washing hands, maintain a distance is for everyone, right…" (C)
	Suggestions	No suggestions
Persuasion	**Preventive Actions**	"Regularly wash your hands, always wear a mask, never leave the house if it's not urgent, don't receive guests at home, always clean your house everyday" (B)
	Preventive Actions that Will be Taken	"Well, after reading this we certainly must be more careful, because the possibility of pregnant women being infected by COVID" (A)
	Willingly to Disseminate	"Yes, I am willingly to do so" (C)
	Suggestions	"I think it's appropriate…only no.2…" (A)

colors, bright and similar tone. The layout of the text and images according to A was appropriate but B and C were unlike. D stated that the location of the sentence "Mobility…" (Figure 2) should be placed parallel to the sentence above it (right/left aligned). In addition, D suggested that #covid19 should be placed parallel to the top border of the WHO logo. B and D also suggested the icon image in Figure 2 should be changed.

Comprehension
According to B, C and E, they were able to understand the language used of the infographics. Meanwhile, A still did not understand the language used in Figure 2. E suggested that the word antenatal (Figure 3) should be changed to pregnancy examination and the word re-lactation (Figure 5) should be replaced with restarting breastfeeding. All informants considered that messages conveyed through this infographics could be easily understood by whoever reads it because it included images and the sentences are short, concise, and clear. However, E suggested that Figure 1 where the sentence "wash hands routinely" needs to be changed to "wash hands regularly and correctly".

Acceptance
Informants A, B and C agreed that messages in the infographics did not offend their social values, culture and beliefs. However, B suggested that the word "midwifery staff" (Figure 2) should be changed to "health services". All informants were able to identify that the infographics were released by WHO and they knew that WHO is a global health organization. All informants stated that they believed in the contents of the infographics.

Self-Involvement
According to A and B, the messages were intended for pregnant women. Meanwhile, C believed that the messages were not only intended for pregnant women but for everyone because the information tend to be in general.

Persuasion

Informants A, B, C have taken preventive measures for COVID-19 in accordance with infographics message (Figure 1). After reading the infographics, A, B and C will carry out all the messages and are willing to disseminate it.

Discussion

Attraction

Selecting a design has a strong impact toward responses of the target audience because design is a unity of words, images and graphics that are interconnected for conveying messages that are easily understood by an audience.[22] Overall, the infographics used an interesting design since it follows the development of infographic models in Indonesia. In order to fulfil three important aspects of infographics, color plays an important role for the attractiveness, comprehension and retention.[11,23] In previous studies, it was mentioned that contrast colors used for the background and words played a major role on making it easier to read messages and vice versa.[24,25]

The infographics of this study were too soft or not too striking, so it needs to improve the feasibility of the infographic by changing the colors that were used. The use of images became a special attraction, especially if the images used are in accordance with the conveyed messages. Based on the results of this study, the combination of images and words used was quite good and appropriate. Furthermore, the images used in this infographic could help to comprehend the message content.

Comprehension

The language used should be simple with short and clear sentences. In addition, a media should use daily language to make it easier for readers to understand.[24,26] The language used in this infographic was considered satisfying because it used brief, concise, simple sentences in accordance with the Indonesian Improved Spelling (*Ejaan Yang Disempurnakan/* EYD). To comprehend messages in a media is closely related to the way the message is conveyed, whether the message is complete or not, also the usage of images in the media.[24,25] The message in this infographic study was prepared with images to make it easier for informants to understand the conveyed information specifically, in terms of new information regarding Covid-19 prevention for pregnant women and what to do if pregnant women are infected.

However, there is suggestion from the informant to this infographic, it is better to add message content regarding "nutritious food intake" for prevention and to complement the words "wash hands regularly" which should be "wash hands regularly and correctly". This is intended for pregnant women to not only increase the quantity of washing their hands but also to wash their hands properly in order for preventing COVID-19 infection. After reading the infographic, informants also stated they were willing to apply it in their daily life. This is in accordance with what was stated in a previous study where comprehension of a media will be recognized, if the reader understands the benefit and intention of the conveyed message content and has efforts to apply the message content.

Acceptance

The most important part of acceptance is the credibility and trust that can be found in the message. The credibility owned by communicators in conveying messages is able to increase health literacy.[27] A previous study stated that when the level of trust in a source is low, someone will tend to ignore the arguments in the message.[28] In this study, informants believed with the messages because they understood that infographics are published by WHO Indonesia as an institution and trusted agency because of the credibility of the institution itself.

Self-Involvement

Self-involvement or target appropriateness can be seen from the responses of an individual whether they feel that the messages are in accordance with their present condition or not. With the emergence of this response, it is hoped that it can encourage individuals to take health action or disease prevention from messages written in the health media to improve their health status.[29] In this study, it was concluded that the informants considered the messages were intended

specifically for them and the informants also felt that the messages helped them to increase health awareness during the COVID-19 pandemic.

Persuasion

Health communication in various forms is able to shape attitude and change individual behaviour by increasing awareness and knowledge on health issues and health solutions with the aim of increasing and maintaining health status.[30] Posters are one of the health promotion media that can be disseminated online. Posters are still an effective medium for disseminating messages in the current digital era, especially in adult groups.[29] However, evidence-based research is still needed on how posters are developed and implemented to optimize transfer of knowledge.[31] The call to action can also be seen from the desire to persuade others by disseminating information considered important to informants through the social media Instagram. Song et al discovered that sharing information or experiences on social media allows others to find and follow what someone has done.[32]

Conclusion

The information included in the infographic on Covid-19 prevention for pregnant women issued by WHO Indonesia was quite interesting. Furthermore, the messages were easily understood. The messages did not conflict with the norms adopted and were in accordance with the condition of the informants. This infographic also had a persuasive value, due to the informants were willing to disseminate the information to others. Several suggestions for improvement were contrasting color between the background and content should be considered, equalize the font size from all images, change icons that are not yet suitable and use terms that are more popular for the community. However, evidence-based research is still needed on how this infographic is developed and implemented to optimize transfer of knowledge.

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Disclosure

The authors declare no conflicts of interest in this work.

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