



READINESS OF HALOBID USER ON ANTENATAL COUNSELING AMONG MIDWIVES IN INDONESIA

Santi Sofiyanti^{1}, Yulia Ulfah²*

^{1,2}Poltekkes Kemenkes Bandung, Midwifery Departement

*Email: santisofiyanti@staff.poltekkesbandung.ac.id

Abstract Background: Health technology transformed rapidly during the pandemic and telehealth has become urgent. Application of telehealth in midwifery practice that has been developed and used as counseling (Tele-counseling) media in Indonesia is HaloBid.

Objectives: This study aimed to measure the midwives readiness to use Halobid using the technology readiness index (TRI).

Method: This cross-sectional study included midwives who were recorded as members of the West Java Midwives Association. The four dimensions of readiness, the optimism, innovativeness, discomfort, and insecurity, were measures using the TRI. The instruments used were adopted from the Parasuraman study.

Results: 32 midwives which followed halobid socialization were included with purposive technique. The results showed that the midwives readiness of using the Halobid was considered low with a TRI score of 2.51. The lowest score was insecurity and the highest score was optimism, with the average 2.71.

Conclusion: In this study the dimensions of innovativeness and discomfort became the main concern and should interfere. The midwifery association should provide guidance for monitoring and evaluating the readiness of their members to use Halobid as the telecounseling media.

Keywords: Halobid, telehealth, TRI, maternal and child health.

BACKGROUND

The technology application needs readiness of its users. Effective implementation of telehealth services, such as Halobid, requires a thorough understanding of the Technology Readiness Index (TRI) and its role in promoting maternal and child health. To ensure the success of telehealth initiatives, healthcare providers must also take into account the digital divide and accessibility issues that may impact certain populations' ability to access and utilize these services.

During the pandemic, the remote healthcare technology became urgent, especially for the vulnerable group such as pregnant woman, babies and childrens. A study regarding the health access during pandemic showed drastic reduction of hospital institutional deliveries (45%) the most concerned that one-third of pregnant women experienced inadequate ANC(Goyal et al., 2021). A cross-sectional study in Pasuruan Regency, Indonesia on the second wave Covid 19 outbreak showed that 39.5% pregnant women did not use ANC services(Ariani, 2022). Direct interaction limitation resulted to increase the use of distant monitoring technology. Those technology especially needed by the vulnerable group such as pregnant woman and babies to access the care and health monitoring(RCOG, 2020; UNFPA, 2020). The UNFPA has recommend to provide online antenatal care during pandemic to reduce the possibility for the pregnant women being infected by covid-19(Wu et al., 2020).

The application of the health care technology needs readiness mainly the user but also the provider this include the organization (Marwaha, Landman, Brat, Dunn, & Gordon, 2022). Abigael and Ernawaty (2020) emphasize the need of healthcare worker preparation in both developed and developing nations, citing shared hurdles such as inadequate technical infrastructure, insufficient training, and a lack of capacity building (Abigael & Ernawaty, 2020). Previous studies showed that a lack of readiness can lead to the failure of telehealth implementation.(Abdulrahim, 2019; Dowling, 2015) Technology readiness develops from 2 related perspectives, the first objective measure which is the readiness or methods of the tool, and the second, subjective readiness measure which is the users or related person or any parties in the use of technology or methods. (Boyle, Candice A, Doordan, Hafey, & Rymer, 2018; Khoja et al., 2007; Muigg, Kastner, Duftschmid, Modre-Osprian, & Haluza, 2019; Taufik, 2005). Addressing these readiness issues is crucial for the long-term success of telehealth initiatives.

The application in telehealth that has been developed and used for counseling (telecounseling) in Indonesia, mainly in West Java is HalloBid. This application was designed by the midwifery association or Ikatan Bidan Indonesia (IBI) West Java province and referred to as a medium for consultation during a pandemic. Since the use of telehealth technology in midwifery is rare and new, the readiness of midwives to use Halobid as counseling media is unknown. (Direktorat Kesga Dirjen Kesehatan Masyarakat Kemenkes RI, 2020)

A study conducted by Parasuraman revealed that the level of readiness of a person to adopt new technology can be determined through four dimension, namely optimism, which defined as the level of trust that the technology has positive benefits, the second is innovativeness which define as the tendency or an urge to experience, learn and talk about using the latest technology and being able to use the latest technology. The third is discomfort, define as feelings of lack of control over technology and the last is insecurity, define as the belief that technology can have an adverse impact on users and society such as a sense of insecurity due to privacy (Blut & Wang, 2020; Nita Dewi Cahyani & Ardwi Pradnyana, I Made Sugihartini, 2020; A Parasuraman & Colby, 2014; Ananthanarayanan Parasuraman, 2000; Sani, Nawangtyas, Budiyantera, & Wiliani, 2020)

This study aimed to measure the readiness of midwives to use Halobid by using the TRI (technology readiness index) on fourth dimension of readiness based on Parasuraman study in 2000.

METHODS

Study setting and design

This research was a cross-sectional study to measure the readiness midwives as the Halobid users using TRI on four dimension of readiness which are optimism, innovativeness, discomfort and insecurity.

Study population and sampling procedure

The population in this study were the midwives that has been registered as the member of midwifery association or Ikatan Bidan Indonesia (IBI) West Java Province. The sample is 32 midwives who had been exposed to or participated in Halobid socialization.

Data Collection and Variable measurement

Data conducted using an online questionnaire via zohoform as a research tools. The instrument were adopted from Parasuraman instruments which includes the four dimension of technology readiness namely optimism, innovativeness, discomfort and insecurity. The questionnaire uses a four-point likert scale and from "strongly disagree" for one point to "strongly agree" for 5 point.(Blut & Wang, 2020; Improvement), 2020; Ananthanarayanan Parasuraman, 2000).

The TRI devide it into 3 cathegories, the first is low readiness if the TRI score equal to below 2.89 ($TRI \leq 2.89$), medium readiness, if the TRI equal to medium if the TRI between 2.90 to 3.51 ($2.90 \leq TRI \leq 3.51$) and high readiness if the TRI above 3.51 ($TRI > 3.51$). (Nita Dewi Cahyani & Ardwi Pradnyana, I Made Sugihartini, 2020; Ananthanarayanan Parasuraman, 2000; Sani et al., 2020)

The instrument validity was tested using the Pearson correlation coefficient processed using SPSS 25v, and the reliability test was carried out with Cronbach alpha which was declared reliable if the Cronbach alpha value was > 0.6 .

The table below are the results of the recapitulation of instrument reliability test calculations in this study:

Tabel 1 Reliability Test Results

Variable	Alpha Cronbach	Results
Optimism	0.894	Reliable
Innovativeness	0.787	Reliable
Discomfort	0.867	Reliable
Insecurity	0.869	Reliable

The TRI score was obtained using the formula as follow(Harianja, Safitri, & Manurung, 2023)

1st Formula :

$$\text{Variables of TRI scoring (exp.Optimisme)} = \frac{\Sigma op1 + op2 + op3 \dots etc}{\Sigma \text{variables statement}}$$

2nd Formula :

$$TRI = \frac{\Sigma(\text{sum of statement})}{\text{sum of statement}}$$

3rd Formula :

$$TRI \text{ score} = \Sigma TRI \text{ variables score}$$

Ethic Consideration

The ethical clearance was certified by the ethics committee of Poltekkes Kemenkes Bandung with the certificate number: 49/KEPK/EC/XI/2021.

RESULT AND DISCUSSION

Samples Characteristics

Table 1 Samples Characteristic

Characteristic	Average (years)	SD
Age	33.6	5.2
Duration of practice	7.7	4.3
Education	N	%
Diploma III	27	84,4
S1/D4	5	15,6
Sum	32	100,0

First table showed the characteristic respondents which was midwives registered as member of west Java Midwives Association and followed the socialization of Halobid.

Tabel 2 Score of the TRI Dimension

Dimension	Score
Optimisme	0.72
Innovativeness	0.57
Discomfort	0.59
Insecurity	0.63
TRI total	2.51

Tabel 2 showed the TRI score of each dimension (using the formula above) and the total score of the TRI. Based on the results of the TRI scoring, the midwife's TRI score for the use of Halobid as a telehealth is 2.51. According to the categories prepared by Parasuraman, the readiness level of the midwives is in the low category (<2.89).

The results also showed the innovativeness and insecurities scores contributed the most to the total TRI score. Using the range of 2,40 – 3,51, the optimism variable of 0,72 is considered medium, while the innovativeness should be positive and considered low. Out of the four aspects of readiness, the TRI score of insecurity is the lowest and the most concerned.

In this study, optimism dimension score considered medium. Optimism reflects the degree to which a person has favorable general expectations for their future. There is evidence showing the correlation between optimism and health tendency. Optimism is believed associated with proactive decision-making to protect someone's health, whereas pessimism is associated with health-damaging behaviors. An optimistic view of technology belief that technology offers everyone in life increased control, flexibility, and efficiency. (Carver, Scheier, & Segerstrom, 2010; Ananthanarayanan Parasuraman, 2000) This shows that midwives in West Java Province have a medium

positive view to use the Halobid, where technology adoption has to have a positive view of benefits for their work. However, other positive drive to technology adoption which is innovativeness was low. Based on research conducted by Godoe and Johansen, the variables of optimism and innovation are the only personality dimensions that significantly affect the domain in the Technology Acceptance Model (TAM), namely perceived usefulness and perceived ease of use of technology. (Godoe & Johanesen, 2012; Ha & Park, 2020) A high score on the optimism and innovativeness dimension will improve overall technology readiness. Optimism, inventiveness, and other aspects of technology adoption are positively correlated, according to several research. For instance, Othman and Abdullah (2024) point out that, when it comes to airport self-service technology, "innovativeness and optimism are positively associated with customer satisfaction" Likewise, Ali and colleagues (2020) show that "optimism and innovativeness positively affect adoption intentions" for online meal delivery services. While "optimism influences the perceived utility and simplicity of use," "innovativeness... affects the perceived simplicity of use" in the adoption of e-KTP technology, according to Kartikasari et al. (2017). Research by Godoe and Johansen (2012), shows a positive relationship between innovation and perceived ease of use. This finding shows even though midwives believed the benefits of Halobid in providing midwifery services to clients, they didn't comfortable to use it. this could be happened because they didn't have much knowledge about the technology, this finding persistent with the low score on the discomfort dimension.

Walchuzh's research shows that innovative people are more critical of technology because they are aware of the latest developments and possibilities, and expect all technologies to meet the highest demands. So that the innovation variable in technology absorption can be a driver or obstacle in technology absorption, especially if the technology is deemed not to be able to show and feel the convenience and benefits of innovative people. (Walczuch, Lemmink, & Streukens, 2007). Unfortunately, we didn't find this relation in this research since we didn't measure the midwives perception about Halobid.

On the other hand, the discomfort dimension in this study was low. Discomfort is the perception of a lack of control over technology and the feeling of being burdened by it. This dimension generally measures the fear and anxiety experienced when confronted with technology. Discomfort and insecurity variables are inhibiting variables in technology absorption. (Ananthanarayanan Parasuraman, 2000) Somehow the low score of discomfort was actually related to the low score of innovativeness. Someone who didn't understand technology would feel uncomfortable using it.

The insecurity score was slightly higher than discomfort, this shows that some respondents felt insecure when using Halobid. Insecurity is distrust and skepticism about their ability to work properly. This dimension focuses on the concerns that people may have in dealing with technology-based transactions. (A Parasuraman & Colby, 2014; Ananthanarayanan Parasuraman, 2000) Based on the research results, the inhibiting variables have scores that are not much different and considered low (0.59). The most concern is the score of innovativeness and discomfort was not much different and low. This finding was actually understandable, that a person with low innovativeness would feel discomfort to use and adopt new technology. Therefore, the midwife's readiness to use Halobid should be increased by intense guidance from the midwife association.

However, the TRI concept to measure technology readiness is not significantly related to the technology used. A meta-analysis study by Blunt in 2016 showed several factors influenced the usage of technology one of those was the ease of use and usefulness, as a consequence there is a need to assess whether the TRI is related to Halobid usage as telecounseling media.(Blut & Wang, 2020; Blut, Wang, & Schoefer, 2016)

CONCLUSION

Based on the TRI test that has been carried out, the results showed that the readiness level of midwives to use Halobid as telecounseling media is classified as low or Low Technology Readiness. Thus, we suggest to the midwifery association as the developer of Halobid to evaluate and provide a consultant to prepare the midwives in using Halobid.

In the future research, we suggest to assess whether the TRI is related to Halobid usage as telecounseling media. Other measure methods also suggested to measure the technology readiness.

COMPETING INTERESTS

All authors had none to declare

AUTHOR'S CONTRIBUTION

Santi Sofiyanti conceived of the presented idea, data analysis, and writing manuscript; Yulia Ulfah was in charge of data collection. All authors contributed to the final manuscript.

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