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RESEARCH

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The Effectiveness of Web-Based Education Women Health (E-WoHealth) on The Level of Skills of Pregnant Women About Breast Care

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Abstract

The report from the Bone Bolango District Health Office shows that the prevalence of exclusive breastfeeding for the last 3 years has decreased, namely in 2019 by 28.3%, in 2020 by 16%, and in 2021 it has decreased by 12.7%. Many factors cause the low rate of exclusive breastfeeding in children, one of which is caused by poor knowledge about breastfeeding. Based on these problems, media is needed to increase the skills of pregnant women regarding breast care. This research aims to create a web platform called E-WoHealth which can improve pregnant women's skills regarding breast care. This research used Research and Development (R&D) methods. Then to see the difference before and after the use of Web-based E-WoHealth on the skill level of pregnant women in performing breast care using the Pre-Experimental Design (One group pretest-posttest design). This study was carried out in the working area of the Kabila Health Center, Oluhuta, Kec. Kabila, Bone Bolango Regency, Gorontalo. Population in research tian namely third-trimester pregnant women in the working area of the Kabila Health Center, Bone Bolango Regency, as many as 60. Data collection techniques, documentation, questionnaires, tests, and observations. The results showed that the results of the web-based E-WoHealth feasibility test were in the very feasible category, and the statistical test results showed that the web-based E-WoHealth was effective in increasing pregnant women's skill regarding breast care with a p-value of 0.000 ($p < 0.05$). Thus, education on breast care using web-based E-WoHealth is feasible and effective in increasing the skills of pregnant women before and after the intervention. It is hoped that the health office can socialize this platform with pregnant women to raise awareness about breast care.

Keywords: E-WoHealth, Skills Mother Pregnancy, Breast Care.

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1. INTRODUCTION

Exclusive breastfeeding can reduce the mortality rate of children under the age of five by up to 13-15%, especially in environments with middle and low incomes (Hossain et al., 2018). Children who are not exclusively breastfed are at risk of getting sick more easily, experiencing nutritional response disorders, having difficulty eating, and being vulnerable to malnutrition, which can hinder development and growth (Latifah et al., 2020). If nutritional problems are not handled properly, they can cause stunting (Raiten & Bremer, 2020). Therefore, breast care is very important for the success of exclusive breastfeeding, and must be done early (Dewi et al., 2021). Breasts need to be prepared since pregnancy so that pregnant women can provide and provide the milk their babies need (Hayati et al., 2020). Actions in caring for the breast are better carried out during pregnancy, namely the gestational age entering the third trimester and not after giving birth (Maharani et al., 2018).

In 2020, the prevalence of exclusive breastfeeding in Gorontalo will reach 25% and increase to 27% in 2021. This figure clearly shows that it is still far from the national target. The highest rate of exclusive breastfeeding in 2021 is in the city of Gorontalo at 43.6% and the lowest is in the area of Bone Bolango Regency, namely at 12.7% (Dinas Kesehatan Provinsi Gorontalo, 2021). Researchers conducted a preliminary study at the Kabila Health Center, Bone Bolango Regency in September 2022 and found that 10 pregnant women checked their pregnancies regularly, 2 pregnant women had inverted nipples, 5 pregnant women had unclean conditions on their breasts and 3 pregnant women at the level of the third trimester where colostrum is still inside. So, it can be concluded that pregnant women in the area around the Kabila Health Center cannot perform breast care properly (Dinas Kesehatan Bone Bolango, 2022).

Many factors cause the low rate of exclusive breastfeeding in children, one of which is caused by poor knowledge about breastfeeding (WHO, 2014). Lack of awareness of the importance of breastfeeding, and the benefits of breastfeeding for children and themselves (Fartaeni et al., 2018). Factor nipples that do not protrude or the wrong position in breastfeeding. Apart from these technical factors, breastfeeding is of course also influenced by food intake and the psychological state of the mother (Triana, 2017).

Expertise or the ability to do a job properly is called a skill (Wadu, Ladamay, & Dadi, 2018). Lack of skills is the reason women who are pregnant are reluctant to care for their breasts (Septikasari, 2018). According to research Utama, Arifin, and Yuliana, (2020) lack of skills includes low understanding, lack of explanation and direction, and inactivity in health briefing and guidance activities related to breast care (Sulistiyowati et al., 2017). The forms of counseling that have been carried out so far related to breast care are using leaflets, breast phantom media, booklets, and lectures (Elis et al., 2021), (Gustirini, 2021).

The E-Module used in this study is defined as a web-based E-Module. This type of E-Module is said to be a module that is designed, implemented, and used by utilizing web media, which provides various information for pregnant women about breast care and is called E-WoHealth. E-WoHealth stands for Education Women Health which is a resource or study guide in electronic form on a website that contains animated videos and material about breast care in pregnant women. According to the studies conducted (Daeng et al., 2017) discussed how successful cell phones are in supporting activities and tracking changes in information that is already available. Using a computer or smartphone to display text, photos, graphics, music, animation, and video, e-module media is used as a learning tool in breast care health education (Pasili, Widyastutik & Rohmatika, 2019). Compared to printed modules, E-Modules facilitate navigation, allowing researchers to load or display materials, images, audio, and animated videos about breast care and are equipped with tests or quizzes so that pregnant women can understand, know and be able to perform breast care techniques (Pasili, Widyastutik & Rohmatika, 2019).

Based on the characteristics and advantages of the media, a medium that is quite effective for increasing knowledge is the use of health e-modules (Rofi'ah & Widatiningsih, 2021). E-Modules are learning media packaged in digital or electronic formats (Purwaningsih et al., 2022). The E-Module is equipped with instructions that can be filled with various materials and animated videos (Sidiq et al., 2021) The use of E-Modules as a media for counseling can stimulate one's thoughts, attention, and willingness to improve skills (Jaenudin et al., 2017). The e-module used in this study is a web-based module called E-WoHealth. E-WoHealth stands for "Education Women Health" and is an electronic learning resource in the form of a website that contains animated videos and material about breast care in pregnant women This platform includes many standard learning platforms used in the medical world because it is based on Chamilo. In addition, this platform is also responsive because it can be opened from any gadget. Pregnant women will be given account access to be able to study videos and materials as well as test their ability of pregnant women before and after online learning. This study aims to design and produce a web-based E-WoHealth in order to improve the skills of pregnant women regarding breast care.

2. RESEARCH METHOD

This study uses the Quantitative Research and Development (R&D) method, which is a research method that is still in the process of being developed, then to see the difference before and after use. After that, using the Experimental Design research design (one group pretest-posttest design) to evaluate the level of skills of pregnant women before or after using Web-based E-Modules for breast care. The following is the step-by-step process that Borg and Gall went through in terms of strengthening or perfecting their research method, such: 1). Analysis of educational media needs related to breast care, 2). Educational media development design, 3). Educational media development, 4). Expert validation, 5). One-way test one, 6). Small group test, 7). Large group test, 8). The final product of educational media (Baso, 2018).

The Pre-experimental Design method uses the type of design used by One Group Pretest-Posttest Design, namely conducting a pretest to determine the initial status of the subject before treatment so that researchers can determine the status of the subject before or after treatment, compare results or see changes (Sugiyono, 2020). This study was conducted in the working area of the Kabila Health Center, Oluhuta, Kec. Kabila, Bone Bolango Regency, Gorontalo.

The time when study was carried out for 2 (two) months was in December 2022 and ended in February 2023. Based on statistical data, the population in this study consisted of 60 pregnant women in their third trimester and lived in the area served. by the Kabila Health Center, Bone Bolango Regency, which was obtained by the author when carrying out pre-research, namely the month of October 2022, the number of which was estimated from the register of pregnant women.

1. Research Sample Researchers will select a small portion of the total number of people and then group them based on certain criteria. This research sample can be described as 1. Sample needs analysis In development research activities, needs analysis is first carried out. In this activity, the researcher interviewed 10 pregnant women to obtain information about the research to be carried out so that the research problem in this case could be clarified.
2. Samples for web-based E-WoHealth media design validation a) IT expert The purpose of this study is to increase the knowledge or ability of pregnant women regarding breast care by utilizing two people who are specialists in the field of information technology. Those who are said to be "IT experts" are lecturers whose authority is recognized in their respective fields of information technology. The assessment focuses on the adequacy of the quality of

web-based media for use in third-trimester pregnant women. In addition, the IT expert's assessment also focuses on media packaging materials that meet the eligibility criteria and provides suggestions for improvements regarding the product. b) Material Expert To validate the contents of this product material, the researcher has two material experts. Material experts defined in this study are experts in related materials. Material experts will assess the material arranged in the media. Evaluation does not only refer to the components of the material, but assesses the systematics and organization in presenting the material. In addition to evaluation, material experts also provide information in the form of suggestions for improving the presentation of the material.

3. Samples for web-based E-WoHealth media design trials, namely:

- 1) One-on-one Trial Samples A one-on-one trial was conducted on two graduate midwifery students at Hasanuddin University
- 2) Sample Small Group Trial In a small group experiment conducted on 10 pregnant women at the Tapa Bone Bolango Health Center;
- 3) Large Group Trial Sample In a large group experiment conducted on 30 pregnant women at the Suwawa Bone Bolango Health Center

4. Sampling Techniques. The sampling method used in this study is said to be complete sampling, this is because the number of samples obtained is similar to the number of the population studied (Arikunto, 2014).

During this study, a total of 60 people acted as participants, the sample was taken because it was in accordance with predetermined criteria in the study. And, in this study, we used ethical approval.

3. RESULTS AND DISCUSSION

The following shows the results of the development of web-based women's health education (e-wohealth) on the skill level of pregnant women regarding breast care at the Kabila Bone Bolango Health Center.

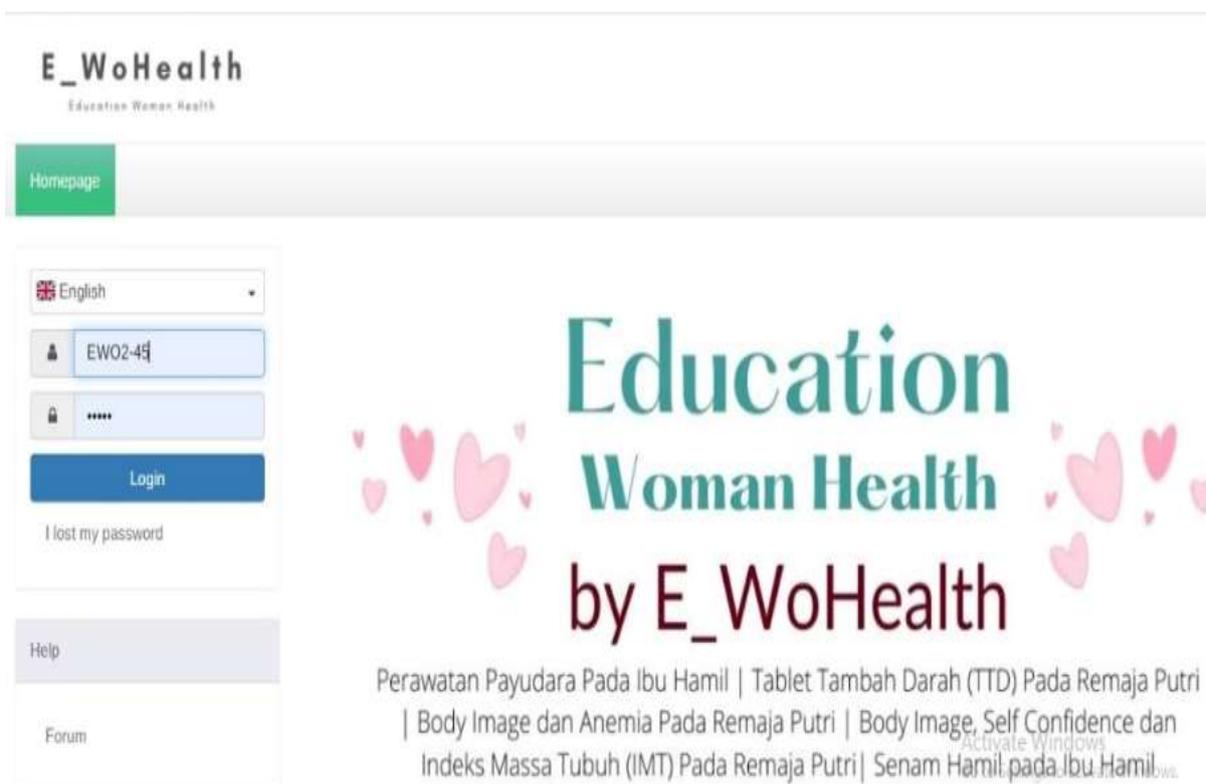


Figure 1. Initial Web Display

Information:

- Home Page* is the first page that appears when we access a website. Serves as a gateway for visitors to access the content available on the website.
- User name* is the name or identity used by the user to be able to access *E-WoHealth*, the *user* used by the respondent is the email of each respondent.
- Password* is the password used to access *E-WoHealth* after entering the *user name*.

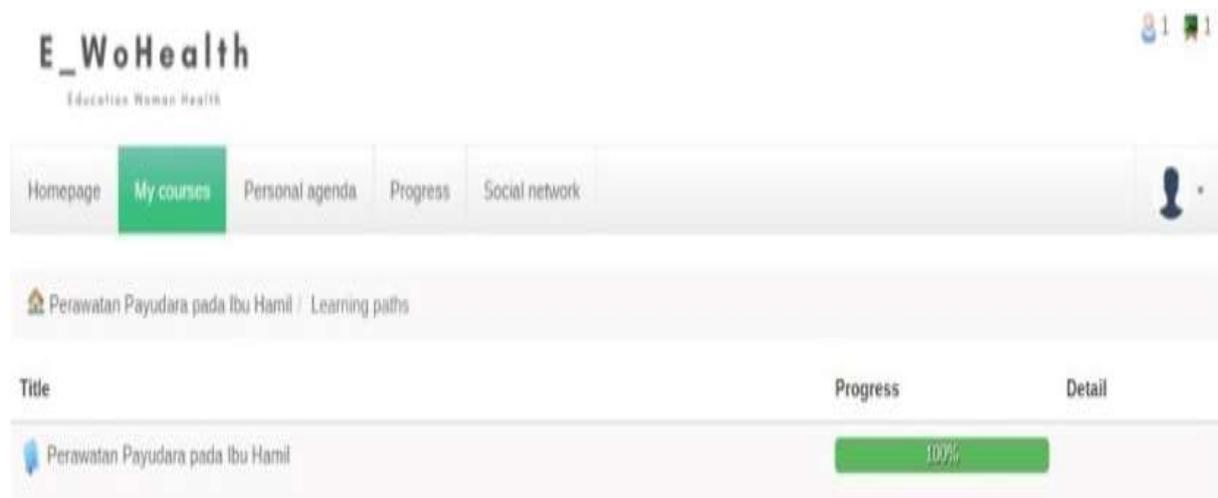


Figure 2. Content on the Web.

Information:

- List of *My courses* is a page that contains *learning path*.
- Learning Path* is an *icon* that contains about breast care in pregnant women.

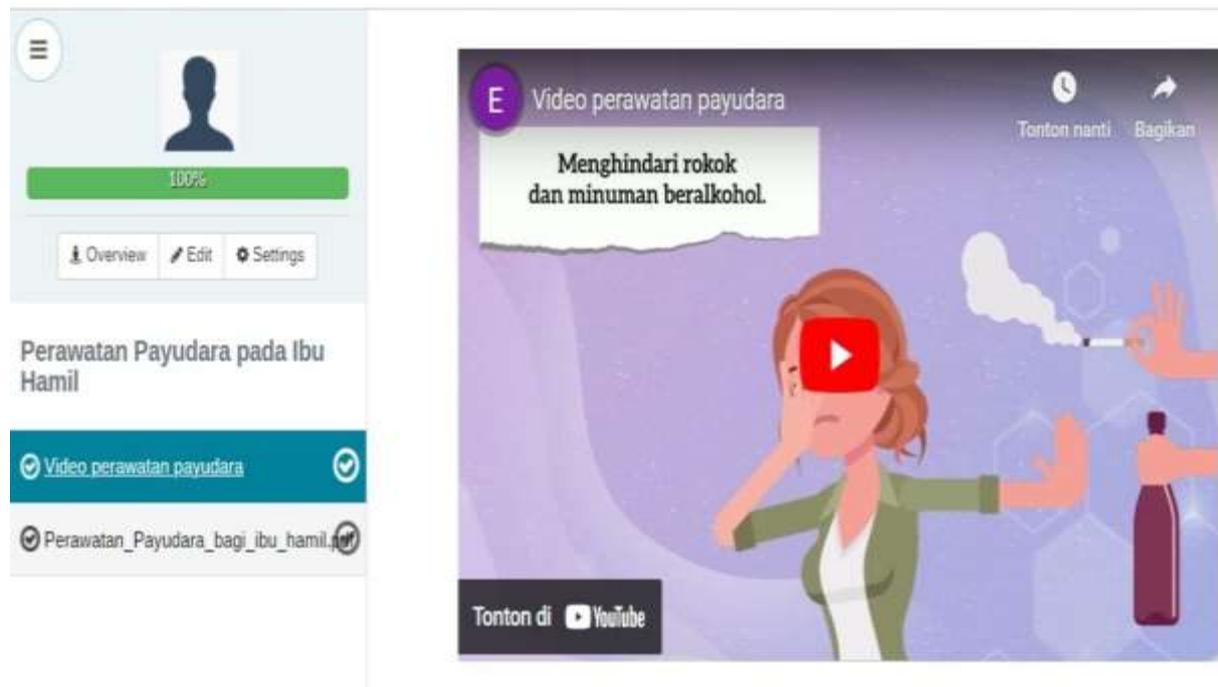


Figure 3. Display of Video Content and Educational Materials.

Information

- If the video and educational material have been watched and read, the display of the video and educational material will be checked.
- If videos and educational materials are not read and not watched until they are finished, the display of videos and educational materials will not be checked.

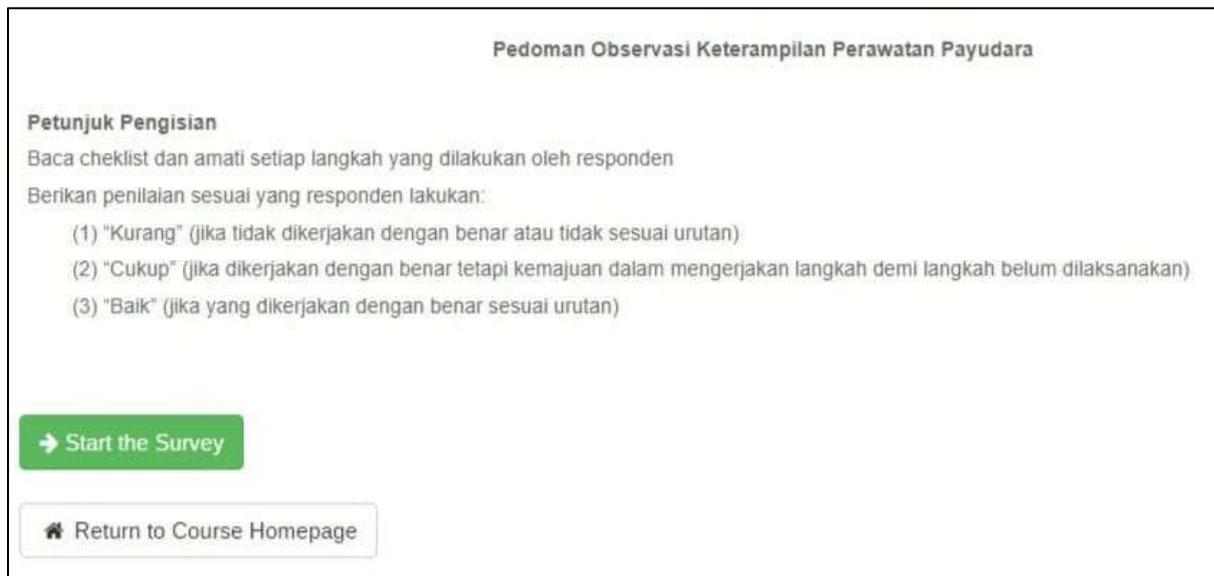


Figure 4. Display Skills.

Information

- a. After the respondent watched the video and read the educational video material, it was carried out evaluation assessed skills by researcher .
- b. The researcher clicked *start the survey* then will appear *checklist* evaluation breast care skills which contains 10 skills about maintenance breast of mother pregnant .
- c. After all the steps are done (*pre test* skills , watching videos , reading educational and assessment materials *post-test* skills) you will see a 100% progress display , but if one of the stages is skipped, the progress does not reach 100%.

a) Product Validation by Experts

The web-based learning model for pregnant women's breast care has gone through a validation test conducted by experts to determine whether it is appropriate or not. The expert exam is carried out by submitting initial drafts in the form of educational modules or films as well as web-based E-WoHealth which are then evaluated by each expert based on validation instruments provided by the BSNP (National Education Standards Agency). Both quantitative and qualitative data forms were included in the research conducted to build a web-based breast care teaching model for pregnant women. In the online model, quantitative data is provided in the form of validation questionnaire findings filled out by material experts or media experts. The criteria for evaluating and making decisions about the web model are as follows:

1. Value 80.00% -100% : Very Worthy
2. Mark 70.00%-79.99% : Decent
3. Value 60.00% -69.99% : Enough Worthy
4. Value 50.00% -59.99% : Insufficient Worthy
5. Value 0% -49, 99 % : Very No Worthy

The criteria for feasible and very feasible indicate that web-based *E-WoHealth* is feasible to use with or without revision, while the criteria for sufficient and insufficient indicate that web-based E-WoHealth is not feasible and must be revised. The qualitative data, it consists of input or suggestions provided by material experts and media experts on the web model being developed. The data will be presented in the form of an implementation of the validation results of the material expert and media expert tests on web-based E-WoHealth:

a) Material Expert

A validation test was conducted to determine the feasibility of breast care education using the developed Web-based E-WoHealth.

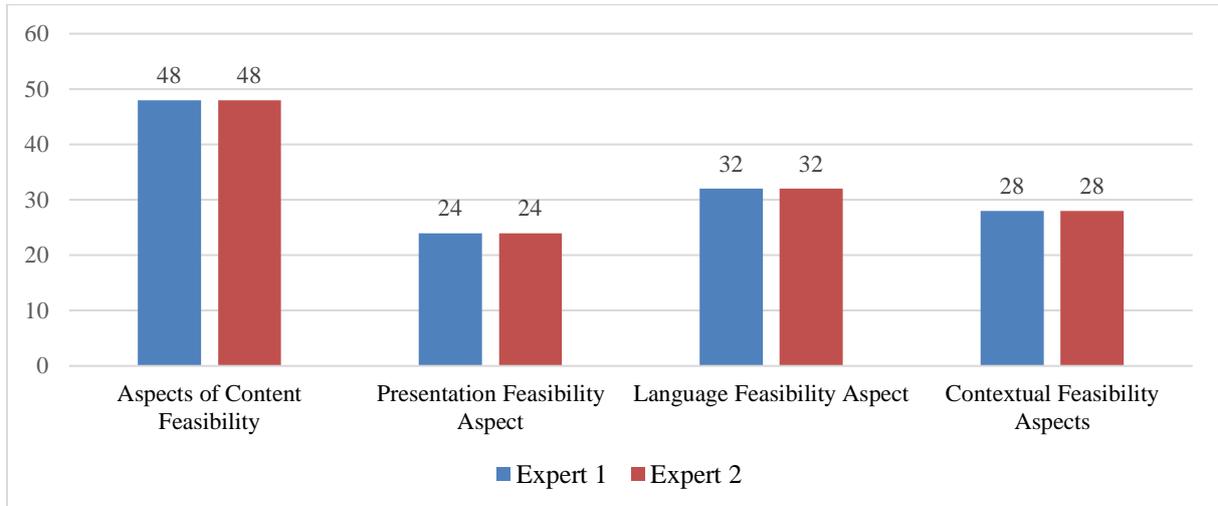


Figure 5. Graph of material expert test results on breast care education using web-based E-WoHealth for pregnant women

The results of the validation of material experts on breast care education using web-based E-WoHealth for pregnant women show that of the 2 experts involved, a total of 132 (100%) aspects of the appropriateness of the content, presentation, language, and context of E-WoHealth are categorized as very feasible. Therefore, no revision is needed and the E-WoHealth web can be used properly.

b) Media Expert

Two experts conducted a validation test on breast care education using the developed web-based E-WoHealth. Validation is carried out to evaluate the appropriateness of the content, presentation, language, and context of the material. After being tested, the validation results show that E-WoHealth is feasible to use without revision because it meets the set criteria.

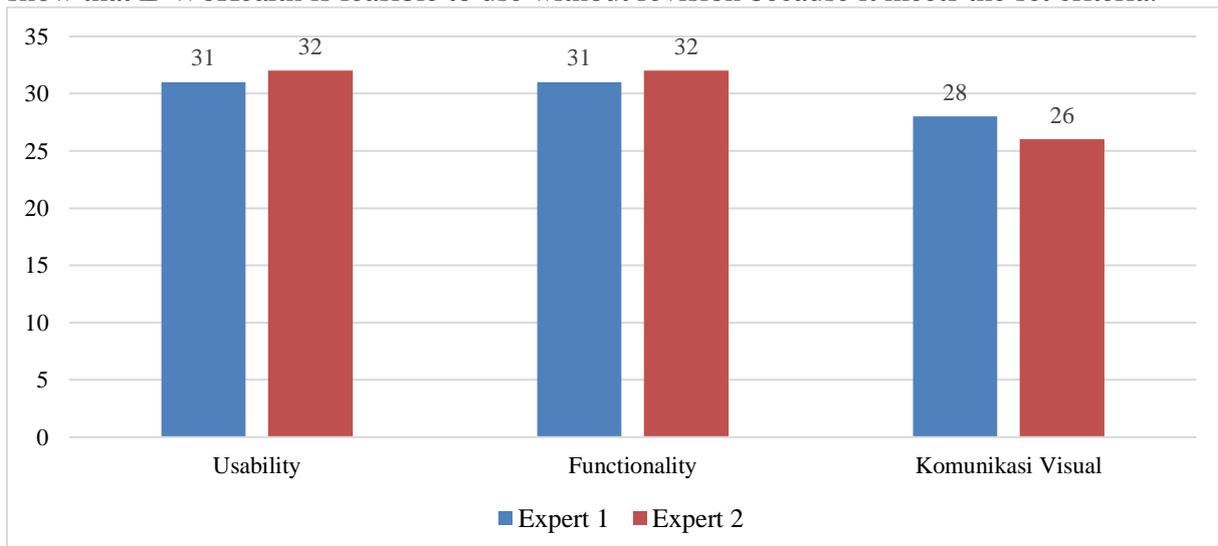


Figure 6. Graph of media expert test results on breast care education using web-based E-WoHealth for pregnant women.

Expert validation data shows that breast Care education using *Web-* based *E-WoHealth* for pregnant women is very feasible, with a total of 90 (98%) from 2 media *experts* involved in the study. The content, presentation, language & contextual feasibility of *the E-WoHealth web* has been assessed as very appropriate, so it does not require revision.

1) E-WoHealth Trial

This study obtained the results that web-based breast care education for pregnant women is feasible to use and has the potential to be developed in improving the skills of pregnant women. The trial results are described as follows:

a) Small Group

Prior to its widespread use, a small group trial was conducted using the Technology Acceptance Model (TAM) instrument to understand the general description of the web. A small group trial was conducted on 10 pregnant women with the same characteristics Here is an overview of the website.

Table 1 . Small Group Web Trial Results (n= 10)

Aspect	Min	Max	Means	SD
convenience Use	4.00	5.00	4.55	0.31
Benefit Application	3.33	5.00	4.50	0.55
Attitude	4.00	5.00	4.20	0.31
Desire	3.00	5.00	4.20	0.59
Awareness User	4.00	5.00	4.25	0.35

Table 1 shows the ease of use, the average respondent's answer: 4.55, indicates agreement that using the web is easy. Meanwhile, in the aspect of application benefits, the average respondent's answer: 4.50, respondents agree that the web has benefits. In the attitude aspect, the average respondent's answer: 4.20, indicates agreement on the use of the web . In the desire aspect, the average respondent: 4.20, indicates the respondent's desire to use the web . In the aspect of user awareness, the average respondent's answer: 4.25, means that the respondent is aware of using the web.

b) Big Group

Before using the web, a large group trial was conducted using the *TAM* instrument to provide an overview of the web . The trial was conducted on 30 pregnant women with almost the same characteristics as the study sample. The characteristics is good to web overview is as follows:

Table 2. Small Group Web Trial Results (n = 30)

Aspect	Min	Max	Means	SD
convenience Use	3.75	5.00	4.4 2	0.46
Benefit Application	3.67	5.00	4.4 7	0.52
Attitude	4.00	5.00	4.43	0.47
Desire	4.00	5.00	4.28	0.45
Awareness User	4.00	5.00	4.4 2	0.46

Table 2 shows ease of use, respondents gave an average of 4.42, that the web is easy to use. While the aspects of the benefits of the application get an average 4.47, that the web is useful. In the attitude aspect, the average respondent is 4.43, respondents agree with the existence of the web . In the aspect of desire, the average respondent's answer is 4.2 8 ,

respondents who want to agree to use the web . In the aspect of user awareness, the average respondent's answer is 4. 42, respondents consciously agree with the existence of the web .

Table 3. Distribution of Respondents by Age

Age	f	%
< 17 years	1	2%
17 - 25 Years	21	35%
26 - 35 Years	33	55%
36 - 45 Years	5	8%
46 - 55 Years	0	0%
> 55 Years	0	0%
Amount	60	100%

Table 3 shows that the majority of the 60 respondents are aged 26-35 years, namely 33 respondents (55%). Respondents 17-25 years, 21 respondents (35%). 5 respondents (8%) aged 36-45 years, and only 1 respondent (2%) aged <17 years. In this experiment, we didn't use the gestational age.

Table 4. Distribution of Respondents by Number Child.

Amount Child	f	%
Pregnancy first	19	32%
1 child	24	40%
2 children	15	25%
3 children	2	3%
Amount	60	100%

Table 4 shows that out of a total of 60 respondents, most of them had one child as many as 24 respondents (40%). 19 respondents (32%) were in their first pregnancy, 15 respondents (25%) had 2 children, and only 2 respondents (3%) had 3 children.

Table 5. Distribution of Respondents Based on Education Final

Education Final	f	%
No School	1	2%
SD	5	8%
Junior High School	9	15%
Senior High School	29	48%
Bachelor	16	27%
Amount	60	100%

Table 5 shows from 60 respondents, most of whom had a high school education background: 29 respondents (48%), followed by respondents with a bachelor's degree: 16 respondents (27%), respondents with a junior high school education background: 9 respondents (15%), respondents with an elementary education background: 5 respondents (8%) and one respondent had no educational background (2%).

Table 6. Distribution of Respondents by Occupation

Work	f	%
Mother House Ladder	53	88%
Farmers / Traders	0	0%
Employee Private	4	7%
civil servant	3	5%
Amount	60	100%

Table 6 shows that out of 60 respondents, most have the status of housewives, namely 53 respondents (88%). While the rest work as private employees: 4 respondents (7%) and civil servants: 3 respondents (5%).

Table 7. Effectiveness of web - based E-WoHealth on the skill level of pregnant women regarding breast care (n = 60).

	Mean ± SD	Difference Average Rating	p-value
Pre-Test	46.50 ± 6.36	37.06	0.000
Post-Test	83.56 ± 6.91		

Table 7 shows happen change level skills mother get pregnant seen from difference average pre-test 46.50 with standard deviation 6.36 & post-test 83.56 with standard deviation 6.91. Besides that is the p-value obtained from test statistic 0.000 ($P < 0.05$), H_0 is rejected . There are difference significant between skills mother pregnant before & after given E-WoHealth Education based web about maintenance breast at the Kabila Bone Bolango Health Center .

Skills are individual abilities that are influenced by education and training to apply the knowledge gained in the form of behavior (Fiantika & Sugesti, 2021). The amount of expertise that a person has achieved in various activities is considered a skill that describes his level of expertise (Jauhari & Hasibuan, 2022).

In this study, it was found that there was a difference in the skills of pregnant women before and after being given web-based breast care education media. There was an increase in the skill score of pregnant women before the intervention of 46.50 and after the intervention was 83.56, so the skills variable increased by 37.06. The results of the analysis obtained a p-value of 0.000 < 0.05 , it can be concluded that web-based breast care education media is significant in increasing the skills of pregnant women, which means that web-based E-WoHealth is effective in increasing the skills of pregnant women about breast care.

It has been proven to be able to increase the ability of pregnant women, meaning that this website is considered better, more appropriate, and more successful as an educational medium. The implication of this study is to help students understand breast care, and it has also been shown to be able to do so. Due to the existence of health education can play a role in changing the attitudes of people, groups, and society so that they are more in line with health ideals. The anticipated shift in mindset will enable maintenance or improvement of health, as well as prevention of the dangers of stunting in children through routine and adequate breast care.

Therefore, educational interventions in the form of E-WoHealth which are delivered via the internet also focus on education on breast care for pregnant women which has the potential to have a good impact and succeed in increasing knowledge and skills related to breast care for pregnant women. Professional health care should not only be oriented towards health problems among groups of pregnant women, but should also be supported to be implemented in all posyandu and puskesmas so that breast care is carried out properly and increases exclusive breastfeeding and prevents stunting in children.

Research conducted by (Lisa & Putri, 2019) showed a significant increase in breast care skills in third trimester pregnant women after being given a demonstration with $p=0.000$. Another study conducted by (Ningsih, Sri, 2021) also showed that counseling on breast care using communicative techniques was effective on knowledge and skills on related issues. These studies imply that health education via the web can help change attitudes of individuals and communities to maintain health and prevent the risk of stunting in children with good and routine breast care.

Web-based E-WoHealth educational interventions for breast care education for pregnant women can have a positive impact and effectively increase skills on related issues. Professional health care should not only be oriented towards health problems among groups of pregnant women, but should also be supported to be implemented in all posyandu and puskesmas so that breast care is carried out properly and increases exclusive breastfeeding and prevents stunting in children.

4. CONCLUSION

Based on the results of research and data analysis that has been done about Education Women Health (E-wohealth) is web-based, the conclusions that can be drawn are the Web-based E-wohealth educational model is appropriate and valid to educate pregnant women on breast care at the Kabila Bone Bolango Health Center. Then, Web-based E-WoHealth is effective in increasing the skills of pregnant women regarding breast care at the Kabila Bone Bolango Health Center. For the next experiment it may be needed to took the sample about gestational age to known relatedness one to another.

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