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Feasibility Analysis of *Endorphin Massage* Module as an Effort to Increase Breast Milk Production in Puerperal Mothers

Subriah

Poltekkes Kemenkes Makassar, Indonesia

Email: subriah@poltekkes-mks.ac.id

Zulaeha A. Amdadi

Poltekkes Kemenkes Makassar, Indonesia

Email: zulaeha_amdadi@poltekkes-mks.ac.id

Andi Wilda Arianggara

Institut Kesehatan Mitra Bunda, Batam, Indonesia

Corresponding author email: andiwildaarianggara@gmail.com

Siti Nurul Fajriah

Poltekkes Kemenkes Makassar, Indonesia

Email: lulu@poltekkes-mks.ac.id

Imelda Iskandar

Sekolah Tinggi Ilmu Kesehatan Makassar, Indonesia

Email: imel.midwife@gmail.com

Jumrah

Universitas Megarezky Makassar, Indonesia

Email: jumrah.mega.rezky@gmail.com

Abstract---*This study aims to determine the feasibility of the Endorphin Massage module as a learning medium. The method used in this study is Research and Development (RnD) by adopting the development steps of the Borg and Gall models. This research was carried out at the Jongaya Health Center, Kassi-Kassi Health Center, and Minasa Upa Health Center in November August 2022. Sampling was carried out using the Purposive Sampling Technique, which was 40 samples, validation test results from media experts averaged 90.9% and validation results from material experts averaged 92.7% which showed that the Endorphin Massage module is very feasible to use without revision. The results of user validation (Midwives) in small groups of 10 Midwives with an average eligibility score of 89.5% and the results of large-scale user validation in 30 Midwives with an average eligibility score of 93.4% of the data showed that the Endorphin Massage module was very feasible to use. The Endorphin Massage module is suitable for use as a learning medium in an effort to increase breast milk expenditure in Postpartum mothers.*

Keywords---*breast milk, eligibility, massage endorphin, modules, puerperal mothers.*

Introduction

The implementation of balanced nutrition efforts every family must be able to recognize, prevent and overcome nutritional problems of each member of their family. One of the efforts made by breastfeeding newborns up to 6 months of age without additional food or drinks (Ministry of Health, 2019).

Breast milk contains complex nutrients, namely containing colostrum which is rich in protein as antibodies so that breastfeeding can reduce the risk of infant death due to infection. Breast milk also contains immunoglobulins, proteins, fats, calories and lactose. In addition to containing food substances, breast milk also contains absorbent substances in the form of its own enzymes that will not interfere with enzymes in the intestines. Formula milk does not contain enzymes so that food absorption depends on the enzymes found in the baby's intestines (Ministry of Health, 2016, 2018).

According to WHO in 2011, only 40% of babies in the world get exclusive breastfeeding, while another 60% of babies have actually received breast milk complementary food (MP-ASI) when they are less than 6 months old. This illustrates that exclusive breastfeeding is still low. WHO stipulates that the target in 2025 of at least 50% of the number of babies under 6 months of age must be exclusively breastfed (WHO, 2017).

Based on the results of nutritional status monitoring in 2017, the percentage of babies who get exclusive breastfeeding in Indonesia is 35.73%. For Provinsi South Sulawesi it is 42.13%, while for the city of Makassar it is 45.8% (Ministry of Health, 2018).

The factor that is a problem in breastfeeding is the lack of breastfeeding intensity so that it affects breast milk production. This is due to the lack of control of the hormone oxytocin which is a hormone that plays a role in the production of breast milk (Darmayanti & Armayanti, 2020; Kadatua et al., 2022). Some studies prove that the work of the hormone oxytocin is influenced by the psychological state. So that a method is needed that is able to control the mother's psychology so that she can relax, not worry excessively, the mother is in a state of pleasure, calm and confident because this plays a very important role in the breastfeeding process (Nugraheni & Heryati, 2017; Widayanti, 2014).

Endorphin Massage is a light massage technique that is done at certain points of the body, namely on the neck, back and arms to create a sense of reflex / comfort, confidence and reduce stress in breastfeeding mothers. With a feeling of pleasure, calm, relaxation and confidence, breast milk will come out smoothly. Endorphins in several studies have been shown to have an effect in the release of the hormone oxytocin which plays a role in the process of breast milk production (Fitriani et al., 2021; Nugraheni & Heryati, 2017; Widayanti, 2014).

Previous studies have scientifically proven the influence of endorphins massage. The study conducted by Masning et al. (2017), found that endorphins massage affects breast milk production with a value of $p = 0.000$. The results of the research above are in line with the results of research conducted by Rahayu et al. (2019), based on the results of the study can be analyzed that endorphins have an effect on the duration of breast milk production with a value of $p = 0.026$, the results of the study showed that mothers with endorphin massage intervention, their milk production was earlier / faster than the control group, namely <24 hours. Research conducted by Alza & Nurhidayat (2020) found that endorphins have an effect on breast milk production in breastfeeding mothers with a p value = 0.0001 (Alza & Nurhidayat, 2020; Masning et al., 2017; Rahayu et al., 2019).

Based on the description above, it can be concluded that endorphins massage is a non-pharmacological alternative that can be applied in helping the success of mothers in breastfeeding. Based on preliminary studies conducted at the Kassi-Kassi Health Center and Jongaya Health Center, the results of interviews with midwives found that midwives had never applied endorphins massage to help postpartum mothers in the breastfeeding process at the Puskesmas. Based on the results of the needs analysis conducted by researchers, it was found that an edutainment media was needed that could support midwives to be able to learn and understand deeply about endorphin massage (Kapikiran & Özkan, 2021; McCullough et al., 2018).

Modules are one of the things that can support this. Modules are learning media that can allow recipients of learning information independently with only a little help from extension workers (Yaumi, 2018). Modules are learning media formed to improve the ability of students in the form of print media. Based on the study, it was found that the module can effectively be used as a tool for conveying information to adolescents about reproductive health (Johariyah & Mariati, n.d.; Yuliana, 2012). Thus, it is also hoped that learning media in the form of the *Endorphin Massage* module can increase the knowledge of Midwives and Postpartum Mothers. Based on the above description, researchers intend to develop an *Endorphin Massage* module as an effort to increase breast milk production in postpartum mothers.

Research Method

The method used in this study is *Research and Development (RnD)*. R & D is carried out through several stages according to Borg and Gall, namely 1) Product analysis, 2) Product development, 3) Validation of media experts and material experts, 4) Small group trials 5) Large group trials. This research was carried out at the Jongaya Health Center, Kassi-Kassi Health Center, and Minasa Upa Health Center in November August 2022. Sampling was carried out using the *Purposive Sampling* technique, which was 40 samples. The feasibility of the module is assessed using

media expert validation questionnaires, material expert validation questionnaires and user validation questionnaires. Research data were analyzed using qualitative and quantitative statistical analysis.

Result and Discussion

The stages of development of the Endorphin Massage module carried out by the researcher are described as follows:

Needs analysis

The needs analysis was carried out in the form of FGD (*Focus Group Discussion*) which was attended by 7 Midwives as resource persons, research supervisors and supervisors. In this FGD, 8 questions were thrown open. The result of the FGD is that breast milk is a very important substance, both physically and psychologically. Physically, breast milk plays a role in the growth and development needs of the baby (Walker, 2010; Martín et al., 2007). Meanwhile, psychologically, with the breastfeeding process between mother and baby, bonding attachment will occur. And those who have an important role in the success of mothers in breastfeeding are the family, mothers themselves and also stakeholders including midwives as caregivers. The biggest cause of the mother's failure in breastfeeding is ignorance of the importance of breast milk and the non-discharge of breast milk after giving birth and the mother does not know how her milk can come out. The efforts that have been made so far are increasing maternal knowledge about exclusive breastfeeding, but this method has not been able to support breast milk expenditure so other methods are needed such as increasing maternal skills in increasing breast milk expenditure (Weng et al., 2010; Martin et al., 2010). The obstacle is that midwives do not know specifically about the method of increasing breast milk expenditure. One of the methods is to do an endorphins massage. So that when offered about the Endorphin Massage Module as a Midwife's guide in the application of endorphins massage, they agreed very much and hoped that after they learned about the application of endorphin massage, they could teach it to Puerperal mothers (Winani et al., 2007; Miller et al., 2013).

Product design

The *Endorphin Massage* module is designed with several parts, namely:

Introduction

The introduction consists of a background to the creation of the module, a brief description of endorphins and endorphins massage.

Module manuals

The module manual section consists of the role of Midwife education, module management, description of activities and steps for educational activities.

Material description

In the description section, the material will contain 4 (four) subject matter, namely the basic concepts of the puerperium, the basic concepts of breast milk, the basic concepts of endorphins and endorphins massage techniques.

Material preparation

The material in this module is prepared based on the initial design of the product which consists of 3 (three) main parts, namely the introduction, module manual and material description. The dissemination of material is based on the development of up-to-date knowledge by conducting literature studies from various sources both domestically and abroad.

Initial Product Development

The initial product of this study is a Module with 3 (Three) main parts, namely:

Introduction

The introduction consists of a background to the creation of the module, a brief description of endorphins and endorphins massage.

Module Manuals

The module manual section consists of the role of Midwife education, module management, description of activities and steps for educational activities.

Material Description

In the description section, the material will contain 4 (four) subject matter, namely the basic concepts of the puerperium, the basic concepts of breast milk, the basic concepts of endorphins and endorphins massage techniques.

Validity test

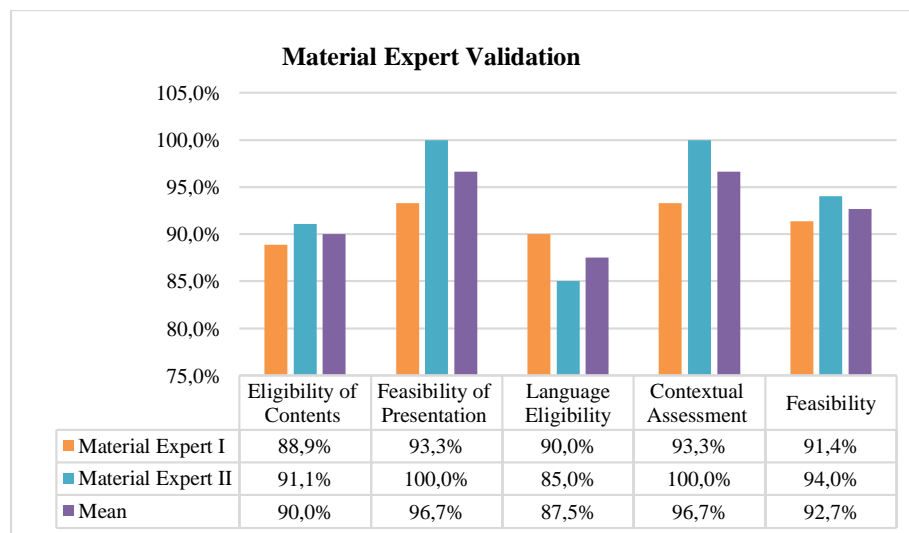
The expert validity test was conducted on June 29 - August 8, 2022. The feasibility assessment of the Endorphin Massage module is carried out through three validation processes, namely material expert validation, media expert and user validation. Validation is carried out as a process to objectively assess the feasibility of the product and to rationally assess whether this product can be used effectively. The assessment results are obtained from filling out media expert validation questionnaires, material expert validation questionnaires, and user questionnaires for user (student) validation. The following is the data from the validation of the feasibility of the Endorphin Massage module:

Material expert validation

Material validation was carried out by two material experts, namely Dr. Jumrah SST., M.Keb (Lecturer of Midwifery at Mega Rezky University) and Dr. Imelda Iskandar, SST., SKM., M.Kes., M.Keb (Lecturer at the Makassar College of Health Sciences). The data from the validation of material experts in the form of quantitative and qualitative data are presented as follows:

Quantitative data

The results of the feasibility assessment of the material in the *Endorphin Massage Module* are presented in the form of a graphic below:



Graph 1. Material Expert Validation Results

Based on graph 1, the feasibility of the *Endorphin Massage* module in terms of content is 90.0%, from the presentation aspect 96.7%, from the language aspect 87.5%, and from the contextual aspect 96.7%. The overall average of aspects was 92.7%. So it can be concluded that the *Endorphin Massage* module is categorized as very feasible to be used in terms of material in terms of content, presentation, language, and contextual aspects.

Qualitative data

Suggestions and input from material experts are presented in the form of a table as follows:

Table 1
Material expert advice

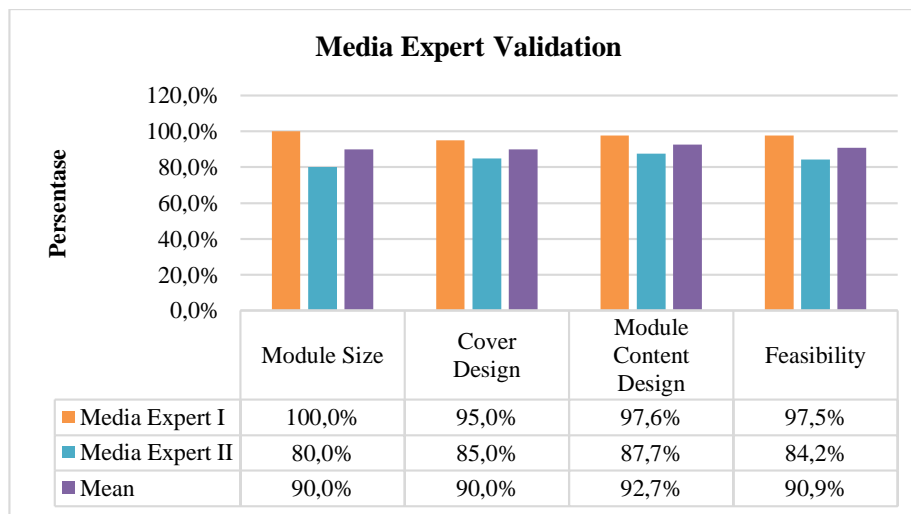
No	Suggestions or Feedback	Information
1	The need for the addition of international references	It has been revised
2	<i>Background redesign</i>	It has been revised
3	Revision of Part 2 (add targets, implementation, suggestions and infrastructure, implementation preparation stage, monitoring and evaluation	It has been revised
4	Add basic concepts of puerperium and lactation	It has been revised
5	Add Instrument Pretest and Posttest	

Media expert validation

Media validation was carried out by two media experts, namely Hamsar Hasfat, M.Pd (Developer of Learning Technology Poltekkes Kemenkes Makassar) and Dr. Siti Nurul Fajriah (Head of Education Development of Poltekkes Makassar). The data from media expert validation is in the form of quantitative and qualitative data presented as follows:

Quantitative data

The results of the media feasibility assessment of *the Endorphin Massage Module* are presented in the form of a graphic below:



Graph 2. Media Expert Validation Results

Based on chart 2, the media feasibility of the *Endorphin Massage* module in terms of module size is 90%, from the cover design aspect 90%, and the module content design aspect 92.7%. The overall average of aspects is 90.9%. So it can be concluded that the *Endorphin Massage* module is in the category of very feasible to use in terms of media in terms of size, cover design and module content design.

Qualitative data

Suggestions and input from material experts are presented in the form of a table as follows:

Table 2
Media Expert Advice

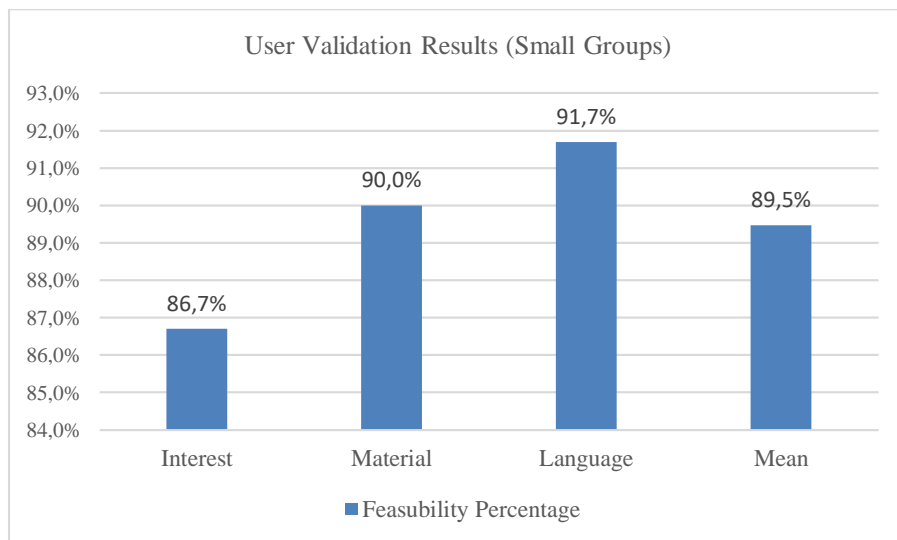
No	Suggestions or Feedback	Information
1	Model Ethics (The image of the model should be <i>blurred</i>)	It has been revised
2	Font and <i>background</i> colors should be contrasting	It has been revised

User Validation (Midwife)

User validation (Midwife) is carried out after product revision is carried out based on suggestions and input from media experts and material experts. User validation (Midwife) is carried out through two stages, namely small-scale trials and large-scale trials. The validation results are described in the form of a graph as follows:

Small-Groups Trials

Small-scale trials were conducted on 10 Midwives, The results of small-scale trials are described in the form of graphs as follows:

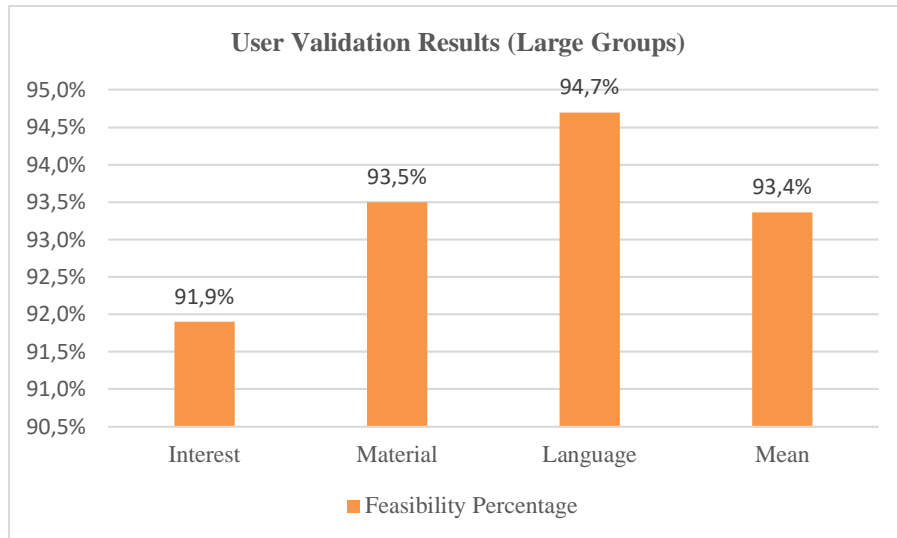


Graph 3. Results of Small-Scale Trials

Based on Graph 3, the percentage of feasibility of the *Endorphin Massage* module in terms of 3 (Three) aspects, namely interest by 86.7%, material by 90.0%, and language by 91.7%. The average percentage of the three aspects is 89.5%, so it can be concluded that the *Endorphin Massage* module as a learning medium, is very feasible to use.

Large-groups trials

Large-scale trials were carried out on 30 midwives, spread across three puskesmas, namely, Kassi-Kassi, Jongaya, and Minasa Upa Health Centers. The results of large-scale trials are outlined in the form of graphs as follows:



Graph 4. Large-Scale Trials

Based on Graph 4, the percentage of feasibility of *the Endorphin Massage* module is reviewed from 3 (Three) aspects, namely interest of 91.9%, material of 93.5%, and language of 94.7%. The average percentage of the three aspects is 93.4%, so it can be concluded that the *Endorphin Massage* module as a learning medium, is very feasible to use.

Final products

The final product in this study is the final result of all stages of R&D research design. From the validation results, suggestions and inputs for product improvement were obtained. Then product revisions are carried out according to the advice of media and material experts, then field tests of the product are carried out. After field tests, the final product of this study has been completed. The final product of this study is the Endorphin Massage module which is intended for health workers, especially midwives in applying quality puerperal care to support breastfeeding.

The feasibility test results of the Endorphin Massage Module can be seen in Graphs 1, 2, 3 and 4. Based on graph 1, the percentage of media expert validation test results against the Endorphin Massage Module is 90.9%, graph 2 shows that the percentage of material expert validation test results is 92.7%, graphs 3 and 4 show that user validation test results in small groups are 89.5% and in large groups are 93.4%. The four eligibility percentages show that the Endorphin Massage Module is very feasible to use as a learning medium.

The research entitled "The Effectiveness of Smoking Prevention Module Towards Knowledge and Smoking Refusal Skills among Adolescents in Kota Bharu, Kelantan, Malaysia" stated that the module is one of the media that can increase learning output. In this study it was found that the module not only improved knowledge but also improved adolescents' refusal skills to smoke. In line with the above in the research with the title "Training and Formation of KP-Asi in Breastfeeding Mothers in the Working Area of the Sudiang Raya Makassar Health Center". In this study, training was carried out using modules as a learning medium, and significantly modules in increasing maternal knowledge about breast milk and mothers' behavior in breastfeeding. The effectiveness of the module in increasing knowledge is also supported by the results of a study entitled "Module for Assisting Pregnant Women as an Innovation in Increasing Knowledge of Anemia Prevention". This study proves that giving modules can increase the knowledge of pregnant women companions about anemia prevention (Aminin et al., 2019; Anuar et al., 2019; Fanny et al., 2021).

Knowledge is a very important domain for the formation of one's actions. Based on experience and research it turns out that the actions of a person realized by knowledge will be more regular than actions that are not realized by knowledge. So that increased knowledge is very necessary for the realization of an action. Based on the results of the research presented above, it can be concluded that the Endorphin Massage module is a learning medium that is worthy of being used to increase reader knowledge. Modules can be used as independent teaching materials that are systematically directed, and measurable to achieve learning objectives (Bizzi et al., 2008; Bourne & Henrissat,

2001). The implication of this study is that it makes it easier to learn the basic concepts of puerperium, breast milk, endorphin hormone and endorphin massage.

Conclusion

This study proves that the *Endorphin Massage* Module is declared feasible with an average feasibility score of 91% (very feasible) to be used as a learning medium.

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