

DESIGNING EDUCATIONAL MEDIA ON LABOR DANGER SIGNS TO PREVENT COMPLICATIONS AMONG EXPECTANT MOTHERS AT BANTAR PUBLIC HEALTH CENTER, TASIKMALAYA

Nita Nurvita¹, Sri Gustini², Qanita wulandara³

^{1,2,3} Midwifery Department, Poltekkes Kemenkes Tasikmalaya (Affiliate)

***Co-responding author:**

qanitawulandara@gmail.com

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Abstract

Background: Labor complications are among the leading causes of maternal morbidity and mortality, most of which can be prevented by increasing mothers' knowledge about danger signs of labor.. **Objectives:** This study aimed to develop and validate an audio-visual educational media product titled "MEDITASI" (Media Informasi Tanda Bahaya Persalinan), designed to increase awareness of childbirth danger signs.. **Methods:** Using a Research and Development (R&D) approach based on Sugiyono's model, the research adapted nine steps to create this product. The video was developed with engaging visuals, animations, music, and narration to ensure clarity and appeal. **Results:** Validation and feasibility testing involved healthcare providers, pregnant women, and community members, resulting in the media being deemed valid and highly appropriate for educational purposes. Small-scale and large-scale trials yielded excellent ratings, particularly in terms of visual clarity (92%-94 %) and audio appeal (94%-95 %). This highlights the effectiveness of audio-visual media in improving comprehension and information retention. **Conclusion:** The study supports the use of "MEDITASI" as a recommended tool for health education, particularly in maternal health.

INTRODUCTION

The Maternal Mortality Rate (MMR) is one of the key indicators of a nation's success in healthcare services. Considering the complex causes and circumstances surrounding maternal mortality, which span multiple sectors within both government and private domains, efforts to accelerate the reduction of MMR require a comprehensive approach involving all relevant stakeholders.

To address this issue, four strategies have been implemented to expedite the reduction of MMR:

1. Improving the quality and accessibility of maternal and neonatal healthcare services.
2. Fostering cross-program and cross-sectoral collaboration, including community and private sector involvement.

3. Empowering women, families, and communities.
4. Enhancing surveillance, monitoring, evaluation, and financing for maternal and child health (MCH).

Although various initiatives to enhance the quality of MCH services have been implemented in collaboration with related programs and international organizations, further efforts are needed to increase community involvement in maternal and newborn health care and attention. Evidence shows that over 90% of maternal deaths are caused by obstetric complications, which are often unpredictable during pregnancy. Most complications occur during or immediately after labor. Therefore, it is recommended to treat every pregnancy as high-risk and ensure all pregnant women have access to safe childbirth assistance and adequate obstetric care.

Early detection by healthcare professionals and communities of risk factors, complications, and danger signs during pregnancy, labor, and the postpartum period, along with prompt and adequate management, is key to reducing MMR and neonatal mortality rates. To support this effort, this research aims to design educational media for pregnant women about the danger signs of labor, enabling them to recognize when to seek medical assistance and thereby ensure the timely detection and management of complications. (Gobran et al., 2021)

Modern technology offers the opportunity to utilize audiovisual media to enhance knowledge. Such media attract attention through visuals and sound, stimulating both visual and auditory senses to achieve learning objectives. Compared to other types of media, audiovisual tools are more effective and engaging, promoting broader thinking and improving memory retention. Their advantage lies in the combination of imagery, sound, and flexibility of use. (Yibalih et al., 2020)

Preliminary studies indicate that some pregnant women in the working area of Bantar Public Health Center, Tasikmalaya City, are unaware of the danger signs of labor, partly because they rarely read the MCH handbook. Furthermore, most interviewed pregnant women already use Android-based smartphones but have not leveraged them to access educational videos about labor danger signs.

This study aims to develop an educational media design focusing on labor danger signs as a preventive measure against complications for expectant mothers in the working area of Bantar Public Health Center, Tasikmalaya City. Specifically, the research will create an educational video titled **"MEDITASI"** (Media for Education on Labor Danger Signs) to increase awareness and preparedness among expectant mothers.

This research is crucial in supporting the reduction of maternal and neonatal mortality rates. It serves as an effective and practical educational tool for pregnant women to recognize signs of labor danger.

METHOD

This study develops an audiovisual information medium (video) titled **"MEDITASI"** (Media for Education on Labor Danger Signs), using the Research and Development (R&D) method. According to Sugiyono (2019), R&D is a research method used to create specific products and test their effectiveness. The research process adopts Sugiyono's R&D design, with nine of the ten steps adapted for this study:

1. Identifying Potential Problems and Needs Assessment

Potential problems and needs are identified based on the high maternal mortality rate (MMR) in Indonesia. One contributing factor is the lack of knowledge among pregnant women regarding the danger signs of labor. A preliminary study conducted in the working area of Bantar Public Health Center, Tasikmalaya City, revealed that some pregnant women were unaware of labor danger signs due to infrequent reading of the Maternal and Child Health (MCH) handbook. Additionally, the interviewed pregnant women had not utilized video media to access information on labor danger signs.

2. Data Collection

Preliminary study results showed that approximately 65% of pregnant women did not meet the minimum standard of six prenatal visits. This was due to a limited understanding of the importance of prenatal checkups and the perception that such visits are only necessary when problems arise. The researcher collected references and materials from library books, journals, and other available resources to support the study.

3. Product Design

The product designed in this study is a health information medium in the form of an audiovisual tool—a video about labor danger signs to educate pregnant women.

4. Design Validation

The design validation process was conducted before product testing. This involved evaluation by two experts: one content expert and one media expert. Revisions were made to improve the weaknesses and shortcomings of the video based on the feedback provided by the experts.

5. Design Revision

The designed product was revised based on the weaknesses identified during the validation process.

6. Product Testing (Phase 1)

In the first phase of product testing, a small group trial was conducted, involving 10 third-trimester pregnant women in the working area of Bantar Public Health Center, Tasikmalaya City. The purpose was to assess the feasibility of the video. A questionnaire was used to evaluate the product's attractiveness, ease of use, and utility.

7. Product Revision

Revisions were made to address any identified weaknesses and shortcomings of the video following the first phase of product testing.

8. Product Testing (Phase 2)

The second phase of product testing was conducted in the working area of the Bantar Public Health Center with 30 third-trimester pregnant women. A questionnaire was administered to evaluate the effectiveness of the educational video. The assessment focused on the product's attractiveness, ease of use, and utility.

9. Final Product Revision

The final revision was performed to improve the weaknesses and shortcomings of the video based on the results of the second phase of product testing.

By following these steps, the study aims to develop an effective and practical educational medium to enhance pregnant women's knowledge of labor danger signs, ultimately contributing to a reduction in maternal mortality.

RESULTS AND DISCUSSION

The data collected in this study were analyzed using univariate analysis.

1. Potential and Problems

The identified problem in the research area was the low literacy level among pregnant women in reading the Maternal and Child Health (MCH) Handbook. Based on limited interviews with several pregnant women, it was found that they typically brought the MCH Handbook to antenatal visits with midwives, Puskesmas, or Posyandu, but rarely read it at home. Some pregnant women also seldom attend antenatal classes. Consequently, many of them were unaware of the danger signs of childbirth.

According to the coordinating midwife, efforts to improve pregnant women's understanding of childbirth danger signs included providing information to third-trimester pregnant women after each antenatal visit and during regular antenatal classes held at each Posyandu. Additionally, midwives

encouraged women to read the MCH Handbook. However, in practice, many women still did not read the handbook, leading to some cases of declining maternal health or emergencies during delivery.

The midwives noted the absence of educational media specifically addressing childbirth danger signs. They expressed the need for accessible media that women, their spouses, families, and communities could use to remind pregnant women of these signs. Many pregnant women preferred to seek information online independently. Some suggested that educational media in the form of engaging videos would better illustrate the danger signs of childbirth and preventive measures.

The identified potential included support from midwives, active Posyandu programs, widespread internet access, and the majority of families owning smartphones for accessing health information, as well as community support for promoting health education related to childbirth danger signs.

2. Data Collection

The researcher gathered data on community needs, particularly among pregnant women, to address the lack of knowledge about childbirth danger signs. The proposed solution was to create engaging audio-visual promotional media that could be replayed and accessed via smartphones, enabling spouses and families to also benefit from the information.

3. Product Design

Before designing the product, a literature review was conducted on childbirth danger signs to align with the Ministry of Health of Indonesia's programs. The team designed an audio-visual media product featuring information on danger signs, symptoms, and preventive measures.

The design process included creating illustrations, text, and information sources. A storyboard was developed to outline the media's content sequentially, with detailed explanations of each visual element (Dhimas, 2013). Sources for illustrations and text were carefully reviewed using the latest literature on childbirth danger signs.

The media design adhered to quality criteria, such as simplicity, minimal text, coherence between images and text, and clear, easily readable fonts. The media used attractive colors, animation, and balanced messaging tailored to the audience's characteristics (Hess & Brook, cited in Wulandari, 2017). According to Laksana and Bagas (2020), visual elements are critical, as 75–87% of information processed by the brain comes through vision, compared to 13–25% through other senses. Colors have psychological effects, influencing the target audience's mood, especially when paired with background audio (Sugiarto, 2016).

The media included voiceovers to enhance comprehension and was developed using Adobe Illustrator, Adobe Premiere, 3DMax, and Adobe After Effects. The visuals, fonts, and colors were carefully selected for aesthetic appeal.

4. Design Validation

a. Validation by Subject-Matter Expert

The content was validated by Dr. Polar Silumi, SpOG, an obstetrics and gynecology specialist, with the following results: The validation concluded that the material was excellent, required no revision, and was highly suitable for use.

b. Validation by Media Expert

The media design was validated by Riya Rahmi, S.E., M.S.I., an expert in information systems, with the following results: The media expert concluded that the design was good, required minor revisions, and was highly suitable for use.

5. Design Revision

Revisions were made in response to expert feedback. This included adding information on placenta previa, placental abruption, hypertension risk factors during pregnancy, and preventive measures. Text and visuals in the video were improved, and relevant images were added.

6. Product Testing

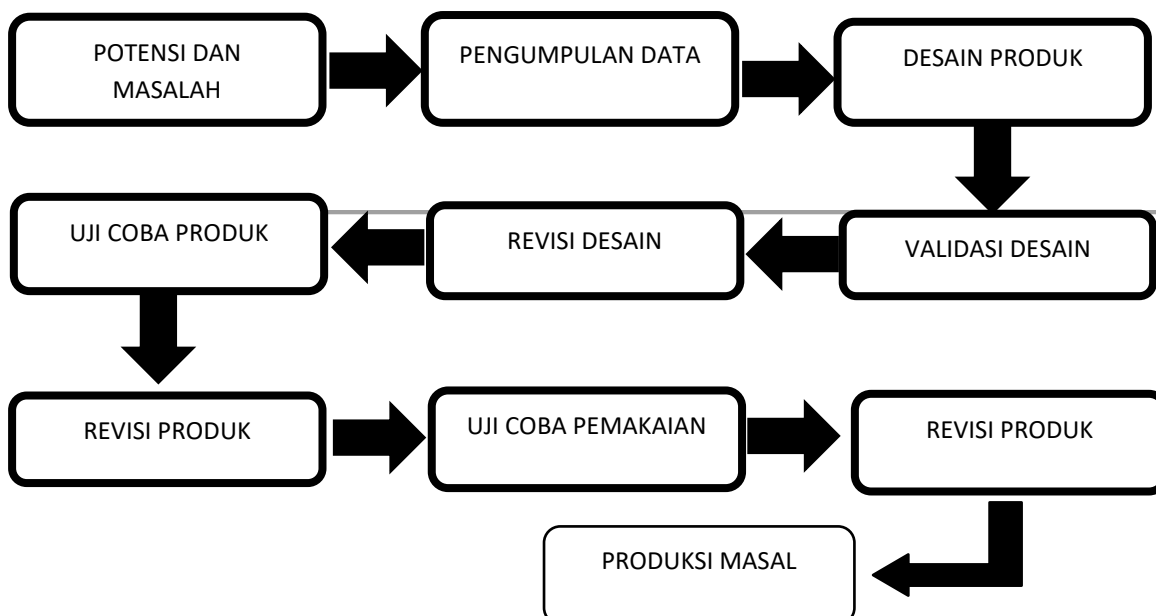
After validation and revisions, the product underwent testing with a small sample of 10 pregnant women in their third trimester of pregnancy. The results demonstrated excellent feasibility across all aspects, with an average score of 92.63%.

7. Product Revision

Further revisions were made based on feedback from small-scale testing before proceeding to larger-scale testing.

This study developed an informational medium in the form of an audio-visual product (video) on the topic of childbirth danger signs, branded as “MEDITASI,” using the Research and Development (R&D) methodology. According to Sugiyono (2019), R&D is a research method used to create specific products and test their effectiveness. The research process adopted Sugiyono's R&D design, comprising the following steps:

Figure 1.
Research and Development (R&D) Model by Sugiyono (2019)



From Sugiyono's 10-step R&D model, this study adapted nine steps. Supporting factors for the product's development were identified through a questionnaire distributed to midwives, pregnant women, and the general community, with a focus on determining the most effective health promotion media. Based on the gathered information and discussions, the decision was made to design audio-visual media on the danger signs of childbirth, called “MEDITASI.”

The video media was developed using applications such as Adobe Illustrator, Adobe Premiere, 3DMax, and Adobe After Effects. The press incorporates music, voiceovers, and animations to visually enhance the content visually, thereby improving clarity and providing engaging information. Careful adjustments were made to the images, fonts, and colors to create an appealing and community-friendly product.

Product Validation and Testing

The feasibility of this informational video was assessed through validation and trials involving various stakeholders. The results demonstrated that the video on childbirth danger signs is a valid product and highly suitable for use as an educational and informational medium.

The video media was designed with visually engaging images that provide concrete examples to clarify the material being presented. This aligns with the findings of Sudarma et al. (2015), who asserted that images convey multiple meanings and effectively clarify messages. This effectiveness is evidenced by evaluations showing that the clarity of images scored "excellent" (92%) in small-group testing and "excellent" (94%) in large-scale testing (Wahyuni Sri, 2021).

The "excellent" qualification was further supported by the addition of a musical background, which enhances attention and engagement during the learning process. Cheppy Riyana (2007) highlighted that incorporating music in video media effectively captures the attention of pregnant women, encouraging them to focus on the information provided. This was confirmed by the evaluations, where the audio's attractiveness scored "excellent" (94%) in small-group testing and "excellent" (95%) in large-scale testing (Wahyuni Sri, 2021).

Effectiveness of Audio-Visual Media in Health Education

Delivering health education using audio-visual media involves disseminating messages and fostering understanding, awareness, and motivation among pregnant women. This approach not only informs but also empowers them to take appropriate actions based on the recommendations presented.

Audio-visual media combine visual and auditory stimuli, enhancing the learning process. The effectiveness of such media is influenced by the number of senses engaged. The more senses involved, the easier it becomes to understand the conveyed message (Hajar Nabil et al., 2023). Additionally, audio-visual media can serve as a health education tool by presenting concise, engaging, and easy-to-understand information. These features stimulate both visual and auditory senses simultaneously, improving knowledge and comprehension (Garzon et al., 2019).

This finding is consistent with those of Qona et al. (2021), who recommended audio-visual media as an educational tool due to its superior information absorption compared to other formats.

CONCLUSIONS AND RECOMMENDATIONS

This research successfully developed an audio-visual media product titled "MEDITASI" to educate pregnant women about the danger signs of childbirth. Employing the Research and Development (R&D) methodology, the study adapted nine steps from Sugiyono's model to create a valid and highly effective educational tool. The media, designed with engaging visuals, animations, music, and straightforward narration, demonstrated excellent results in small-group and large-scale trials, confirming its feasibility as an educational medium. The use of audio-visual media enhances the learning process by stimulating multiple senses, thereby improving comprehension and knowledge retention. This aligns with previous research that supports audio-visual press as an effective method for health education.

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