

ORIGINAL ARTICLE

Development of auditory and palpatory educational media on pregnancy danger signs for visually impaired mothers

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ABSTRACT

Objectives: This study was a preliminary study (pilot project) on auditory and palpatory educational media of pregnancy danger signs for blind mothers. With the development of auditory and palpatory educational media, it was hoped that it helps blind mothers to understand pregnancy danger signs.

Materials and Methods: The design of the study was a research and development study adapted into two stages, namely the needs analysis and the product design stages.

Results: The results of the development of auditory and palpatory educational media included braille-lettered health education media and audio mp4 media which contained material on the danger signs of pregnancy in blind mothers.

Conclusion: Auditory and palpatory media can increase the knowledge in health education because of their function to help overcoming many problems of difficulties in understanding and facilitating the reception of information by blind mothers.

Keywords: pregnancy danger signs; visually impaired mothers; auditory educational media; palpatory; accessible

ABSTRAK

Tujuan: Penelitian ini merupakan studi pendahuluan (pilot project) tentang media edukasi auditori dan palpatori tanda-tanda bahaya kehamilan bagi ibu tunanetra. Dengan adanya pengembangan media edukasi auditori dan palpatori diharapkan dapat membantu ibu tunanetra dalam mengetahui tanda bahaya kehamilan.

Bahan dan Metode: Penelitian ini merupakan penelitian dan pengembangan diadaptasi menjadi dua tahapan yaitu analisis kebutuhan dan tahap desain produk.

Hasil: Hasil pengembangan media edukasi auditori dan palpatori meliputi media edukasi kesehatan berhuruf Braille dan media audio mp4 yang memuat materi tentang tanda-tanda bahaya kehamilan pada ibu tunanetra.

Simpulan: Media auditori dan palpatori dapat meningkatkan pengetahuan dalam pendidikan kesehatan karena fungsinya yang membantu mengatasi banyak permasalahan hambatan dalam pemahaman dan memudahkan penerimaan informasi oleh ibu tunanetra.

Kata kunci: tanda-tanda bahaya kehamilan, tunanetra, media edukasi auditori, palpatori; aksesibilitas

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INTRODUCTION

Visually impaired people rank the highest for people with disabilities in Indonesia. The number of these people reached 3.5 million in 2015.¹ According to International Agency for The Prevention of Blindness, two thirds of visually impaired people are women.¹

Women with disabilities, including those with visually impaired, are always treated discriminatively and stigmatized in certain conditions. Women with disabilities are also often victims, both in domestic and public spheres. Visually impaired women find it more difficult to access education, affordable health services, work opportunities, and experience isolation at a higher ratio than visually impaired men.¹⁻³

Homeyard's study (2016) found that women with disabilities rarely visit health facilities. This also happens when pregnant. Women with disabilities also very rarely make antenatal visits. This results in poor maternal and infant welfare and pregnancy outcomes when compared to the general population. They are also more likely to have premature and low birth weight babies.⁴

There is a stigma in the society that visually impaired women are unable to become mothers, even though visually impaired adult women also want to have children.⁵⁻⁶ This stigma causes visually impaired women to be reluctant to make antenatal visits when pregnant. In addition, health workers often do not have adequate competence to provide antenatal services to those women. Problems in communication when providing health education about pregnancy make the antenatal services not of quality.³⁻⁷

Midwives, as one of health professionals who are very close to women, should be able to answer these challenges. In social context, midwives must have skills in providing services to marginalized groups of women such as young mothers, women with disabilities, lesbian groups, and commercial sex workers. Midwives must have good communication skills so that they can build trust and good relationships with clients.⁸ From year to year, the number of women with disabilities who become mothers continues to increase. However, studies on their access to and experiences during pregnancy, delivery, and the puerperium are very rare.^{3,9}

A case study on 16 blind mothers conducted in 2019 found that 43.75% of informants had negative perception of the antenatal care they received during pregnancy. The informants also revealed that they had never been introduced to educational media that were easily accessible to visually impaired mothers. Visually

impaired mothers are still receiving MCH handbook from the midwife or community health center. However, the handbook does not provide any information to them because they cannot use the handbook due to their limitations.

Current MCH handbook is only a medium of communication between health workers regarding client pregnancy information. MCH handbook is available only in alphabet and not available in braille which is accessible to blind mothers. In fact, the MCH handbook also contains health information that is needed by mothers during pregnancy, childbirth, the puerperium and breastfeeding, as well as information related to the growth and development of infants, toddlers, and children.

The recommendation from the results of the author's investigation is the procurement of educational media that can be used by blind mothers independently without having to depend on others when using them. The educational media that are most likely to be developed are auditory (audio) and palpatory (Braille) educational media. This educational media is considered effective as a media for health education for clients with visual impairment or blindness. Therefore, researchers are interested in developing these educational media to be used by clients with visual impairments.

MATERIALS AND METHODS

This study had received ethical approval from the Research Ethics Commission, Faculty of Medicine, Andalas University, Padang, Indonesia, number 142/UN.16.2/KEP-FK/2020 on November 25, 2020. This study was a Research and Development (R & D) study. D). The development model used in this study was the model from Dick & Carey (2015)¹⁰ which consists of 10 stages. These stages in this study were limited to four because this study only created models/patterns of auditory and palpatory media for pregnancy danger signs for mothers with visual impairment. The stages in this research were: (1) Identifying Instructional Goals, (2) Conducting Instructional Analysis, (3) Identifying Entry Behaviors, and (4) Writing Performance Objectives. Based on the four steps in the R & D development stage, the Dick & Carey development stages¹⁰ were adapted into this development study into two steps, the needs analysis stage and the product design stage.

Needs Analysis Stage

This stage aimed to examine the purpose of the auditory and palpatory educational media that would be

developed, which were the auditory and palpatory educational media. Data in this development were collected through focused discussion techniques, observation, interviews, and literature studies. Data sources were taken from visually impaired mothers, practitioners, academics of special education, the Indonesian Blind Union, and books and journals on auditory and palpatory media, as well as danger signs of pregnancy and health disability, especially for mothers with visual impairment.

Product Design Stage

The results of the needs analysis determined the design of the media to be developed. Activities at the product design stage include: determining the components of auditory and palpatory educational media, and the concept of delivering and organizing material. This stage produced initial product design in the form of auditory and palpatory educational media on the danger signs of pregnancy for visually impaired mothers. The development procedure/step can be seen in Figure 1.

RESULTS AND DISCUSSION

The results of this study were formulated referring to the results of observations and interviews with visually impaired mothers, practitioners, academics of special education, and the Indonesian Blind Union. Women with visual impairment were also found to experience discrimination more often than visually impaired men. They find it more difficult to access affordable health services.^{1,2} In his study, Homeyard (2016) stated that women with disabilities rarely visit health facilities. This also happens when they are pregnant. Women with

disabilities also rarely have antenatal visits, resulting in poor maternal and infant well-being as well as poor pregnancy outcomes compared to general population. They are more likely to experience premature birth and low birth weight babies.^{4,11} This problem had prompted the authors to create auditory and palpatory educational media on the danger signs of pregnancy for visually impaired mothers as shown in Figure 2.

Figure 2 describes the development of media for auditory and palpatory education on danger signs of pregnancy for visually impaired mothers. The educational media is the one that can be used by those mothers independently without having to depend on others when using them.

The result of this study was a product in the form of educational media on danger signs of pregnancy for visually impaired mothers in Braille and audio mp4 media. The following is the explanation on the development of the resulted media in each stage according to Mulyatiningsih (2019).¹²

Define stage (defining)

The defining stage included facts and a series of needs in health education for visually impaired pregnant women. The development of this health education media was based on research recommendations in 2019 regarding the Perception and Experience of Antenatal Care Assessment for Blind Mothers in the City of Padang, Indonesia. The informant stated that they had never been introduced to educational media for visually impaired mothers, so the development of this media was urgent.

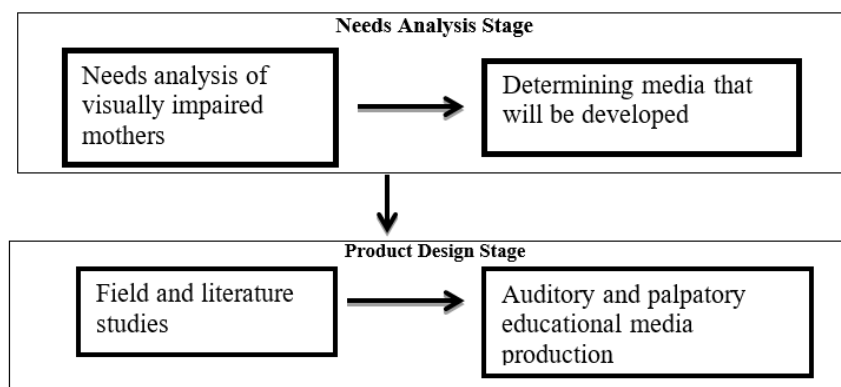


Figure 1. Procedures/steps for developing auditory and palpatory educational media on danger signs of pregnancy for visually impaired mothers.

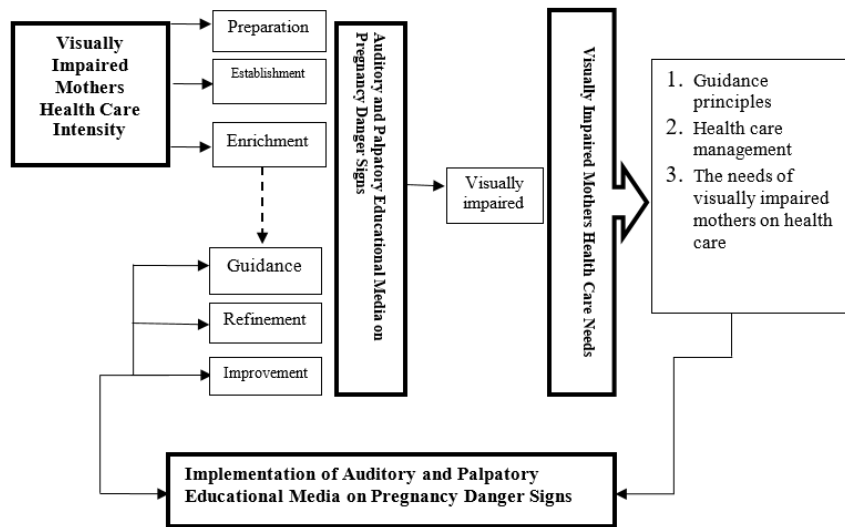


Figure 2. Prototype of auditory and palpatory education media on danger signs of pregnancy for visually impaired mothers

Design stage (designing)

At this stage the media design was generated. The steps were as follows: 1) Format selection. In this step, the educational media developed were in the form of palpatory media in Braille and audio media in mp4 format. 2) Initial media design. At this stage the educational materials were made based on MCH book published by Padang City Health Office in 2016. The materials were typed in docx format, then rewritten in Braille.

The audio media developed in mp4 format were created using Anchor application. The steps for creating audio media with Anchor application are as follows: 1) The Anchor application is installed on Android, 2) The Anchor application is opened and the (+) menu is selected then the "record" menu is selected, 3) After the recording process is complete, the "add background music" menu is selected and the desired background music is selected, 4) After the background music is embedded, the audio recording is saved.

Development stage (develop)

This development stage aimed to produce a final product after going through a validation and revision process. The validation results would be considered in the final product. The validation was carried out by validators of media feasibility experts, material experts, and audio experts. In this study, the authors involved 3

validators with an average result of 3.52 with a note: very valid.

Dissemination stage (field test)

After going through the validation stage, the developed media were tested on trial subjects that matched the criteria, ie. the respondents from previous research in 2019. The field test in this study was limited to a small scale, only 16 trial subjects. In the field test, the average score for the developed educational media was 19.06 with a percentage of 95.31%.

The validity test stated that the educational media about the danger signs of pregnancy for the visually impaired women that had been developed was valid. The validity test by material experts showed that the developed media reached 3.90 points with a very valid category. The material presented in educational media was considered very valid because it was in accordance with the needs of the pregnant women. The material presented was quoted from the 2016 handbook on Maternal and Child Health.

The validity test by the media experts showed that the developed media obtained 3.20 points in the valid category. The recommendation from the validator was the use of printed paper using special Braille paper so that it was not easily damaged and the retention of the legibility of the letters was longer. Language and audio experts gave 3.76 points with a very valid category on

the developed media. Linguists and audio experts recommended the use of a simpler language and in accordance with the user's level of education in the developed audio media.

The results of this study were in line with Mardiaty's study (2018) who found that both audio and Braille leaflets increased respondents' knowledge about how to maintain oral and dental hygiene in visually impaired children. This study proved that Braille and audio media were valid to be used as health education media.¹³

Another similar study by Dewi et al. in 2019 about the effectiveness of braille media in increasing knowledge of HIV/AIDS for the visually impaired people at PPSDN Pendowo Kudus, Indonesia, also found that braille media was effective and valid to be used as a medium for health education for the visually impaired.¹⁴

In the field test with a small group of 16 people, this study obtained an average score of 19.06 (95.3%). On the first question about "How useful is this educational media for the blinds?", all respondents (100%) answered that it was very useful. Furthermore, on the second question about "How effective is the use of this educational media in providing health information to pregnant women?", as many as 81.25% of respondents gave the answer: very effective. According to the respondents, so far they had never been introduced to such educational media regarding information on the danger signs of pregnancy. The use of Braille media helps the blind who do not have android to access health information, while the audio media makes it easier to access for the visually impaired people who are not very proficient at reading Braille.

In the next question items, "How is the legibility of the Braille printed on this educational media?" and "How is the clarity of the information conveyed through audio media?", as many as 62.5% of the respondents gave the response: very good. In the last question, "How is the material presented in this educational media?", all respondents (100%) stated that the material was presented very well.

CONCLUSION

Visually impaired people have the right to obtain information and communication in health. This can be met through health education. Health education with right media will increase knowledge, especially for visually impaired people who have limitations, so that Braille media is the right medium in increasing their knowledge.¹⁴

Media plays an important role in increasing knowledge in health education because of its function which helps to overcome many obstacles in understanding and facilitates the acceptance of information by the target, especially those with visual impairment. Braille allows the transfer of information to be more adequate for visually impaired people and provides an opportunity for them to respond to the information so that it can be obtained properly.¹⁵ The use of printed media with Braille for visually impaired people's education is to complement the orally-provided information.

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