



DEVELOPMENT OF INTERACTIVE MEDIA AS FAMILY ASSISTANCE TO PREGNANT WOMEN IN IMPROVING QUALITY OF LIFE IN YOGYAKARTA, INDONESIA

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Abstract

Background: *Pregnancy is a physiological or natural condition that can occur physical and emotional changes. One way to improve the quality of life (QOL) is with family assistance. Interactive learning media is a learning method based on information and communication technology.*

Objective: *To analyze the quality of life of pregnant women who are given interactive media as family assistance.*

Method: *Quasi Experimental research design with Non-equivalent pre-test and post-test control group design. The quality of life instrument used in this study uses WHOQOL-Bref which consists of 26 questions with a Likert scale. Samples were taken by purposive sampling as many as 108 pregnant women who were divided into 2 intervention and control groups spread across at works area of Sleman Primary Health Centre.*

Results: *The average increase in QOL for pregnant women in the intervention group was 1.74 and in the control group the average increase in QOL for pregnant women was 0.65. Mann-Whitney statistical test 0.025 (<0.05) which means there is a difference in the increase in QOL of pregnant women in the group of mothers who were given interactive media in the form of learning videos and those who were not given videos.*

Conclusion: *There is a significant difference in increasing the Quality of Life for pregnant women before and after providing interactive media in the form of learning videos. Health workers are advised to make interactive media as a form of promotive and preventive efforts for maternal and child health services.*

Keywords: *Quality of Life, Interactive Media, Pregnant Women*

INTRODUCTION

The maternal mortality rate (MMR), which is still very high, is one of the determinants of the welfare of society. According to the World Health Organisation (WHO), an estimated 800 women die every day from complications related to pregnancy or childbirth.¹ About 287,000/100,000 live births of women died during and after pregnancy and childbirth in 2020. In Indonesia, the MMR trend has decreased from year to year (MMR is still around 300 per 100,000 live births), but the figure is still too far from the 2024 Medium Term Development Plan target of 183/100,000 live births.² The high maternal mortality rate may be due to the mother's physical and psychological unhealthiness during pregnancy.

Pregnancy is a physiological or natural condition that can result in physical and emotional changes.³ These changes can affect the body's functions as well as the overall health

of pregnant women, thus affecting the quality of life of pregnant women⁴. This is in line with Tang's research, 2019 which explains that pregnancy greatly affects the quality of life because pregnant women experience a decrease in physical function in early pregnancy.⁵ According to the WHO, quality of life is defined as an individual's perception of his or her life in society in the context of existing culture and value systems related to goals, expectations, standards, and concerns.⁶ Health workers play an important role in improving women's quality of life during pregnancy.⁷ One way to improve quality of life is with family assistance. Family support, especially from husbands, has an important role in improving the quality of life of pregnant women so that the risk of depression or other health problems is lower.⁸

The family approach seeks to find positive behaviors and strengths in the community and

what can be built upon. Family mentoring interventions aim to encourage changes in understanding and behavior and empower families of pregnant women to jointly engage and take responsibility for the health of pregnant women using local knowledge and resources.⁹

Family assistance itself is defined as a series of activities that include counseling, facilitation of referral services, and facilitation of social assistance that aims to increase access to information and services to families and/or families of pregnant women. Interactive learning media is a method of learning based on information and communication technology. This interactive media can be in the form of text, graphics, images, photos, audio, video, and animation in an integrated manner.¹⁰ In this study, the interactive media used was video. This is following research¹¹ which says that the provision of videos is very effective in

increasing the knowledge and confidence of pregnant women in retaining the information provided.

The maternal mortality rate in Sleman Regency in 2021 reported 45 cases of maternal death. The number of maternal deaths that occurred during pregnancy was 17 people. Meanwhile, when compared based on the age group of the incident, the highest number of maternal deaths occurred at the age of 20-34 years.¹² Sleman Regency has 25 Health Centers consisting of 5 inpatient Health Centres and 20 outpatient Health Centers spread across 17 sub-districts. The results of the preliminary study in December 2022 from the Sleman Health Office data there were 10 Health Centers that had K4 which was still below the target. In addition, there are several health problems of pregnant women both physical and psychological that have an impact on the mother's quality of life.

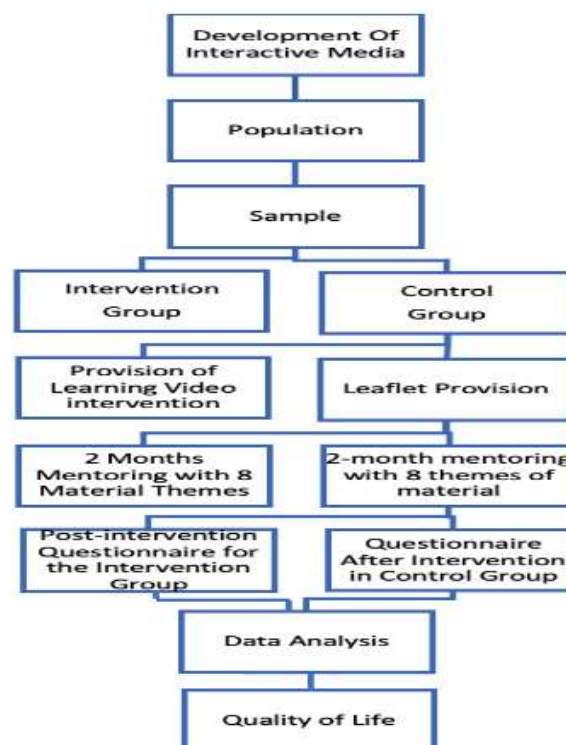


Figure 1. Scheme Of Research Stage

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This needs to be aware that quality of life effects can increase the risk during pregnancy, about 5-10% of pregnancies include high-risk pregnancies. Based on the above background, the authors are interested in conducting research on the Development of Interactive Media as Family Assistance To Pregnant Women In Improving their Quality of Life At Work Area Of Sleman Health Centre Yogyakarta.

METHODS

This research used the Quasi Experiment method. The design used was a research design of Non-equivalent pre-test and post-test control group design, namely observations made twice, namely before and after the experiment and there is a control group that is given a leaflet. Observations made before the experiment are called pre-test and observations made after the experiment are called post-test.

The population in this study were all pregnant women in trimesters I, II, and III in the Sleman District Primary Health Centre Working Area. The sample was taken by purposive sampling as many as 109 pregnant women divided into 2 groups. The sample is pregnant women who have been selected according to the inclusion sample criteria. The inclusion criteria for this study were pregnant women registered at the Primary Health Centre pregnant women who had a personal smartphone, pregnant women who had husbands, and pregnant women with a maximum gestational age of 30 weeks. Exclusion criteria are pregnant women who do not have husbands, and pregnant women who are still respondents at the time of the study cancel because they need other examinations. Each pregnant woman selected as a respondent is divided into 2 intervention and control groups per the inclusion sample criteria. The number of respondents for the intervention group was 54 mothers and the control group was 54 pregnant women. The next step was to inform the intervention and control group respondents about the purpose, benefits, and procedures of the study. If the mother was willing, then the researcher gave informed consent to be signed. The husband or family was asked to sign the witness sheet on the informed consent as proof that the mother was willing without coercion to become a research respondent. Respondents who were willing were given instruments of

respondent characteristics and WHOQOL-BREF (quality of life).

After that, pregnant women who became respondents and their husbands were included in the WhatsApp group. Researchers divided the group into 4 WhatsApp groups named Pena Siaga 1 (intervention group), Pena Siaga 2 (intervention group), Pena Siaga 3 (control group), and Pena Siaga 4 (control group). Each group consists of 27 couples (pregnant women and husbands), so a total of 216 respondents are in the WhatsApp group. Then interactive media in the form of videos in the intervention group while the control group was given leaflets. This study was conducted in September - November 2023.

This study examines the variable Quality of Life in Pregnant Women. Data were collected by using a structured questionnaire that had been tested for validity and reliability. Measurement of Quality of Life was carried out twice, namely before and after the provision of Interactive Media in the form of learning videos.

The materials prepared in this study consisted of 8 themes. The themes were: quality of life, husband support, pregnancy, danger signs of pregnancy, labor, postpartum, baby care, and preparation for parenthood. The materials were given once a week at the same time each week. In addition to providing material, respondents held discussions/sharing about their health with researchers and other respondents in the group.

Measurement of Quality of Life using the WHOQOL-BREF quality of life questionnaire There were 26 questions in the WHOQOL-Bref (WHO Quality of Life Bref) measuring instrument consisting of general questions with a total of 2 questions regarding the quality of life and life satisfaction that are not linked to quality-of-life assessments. There are other questions with a total of 24 which are about four aspects of quality of life. The score results on each aspect are entered into a 4-20 scale (b) with the mean of each domain multiplied by 4 then the score of each aspect is transformed into a 0-100 scale by writing the standard formula from WHO, namely $(\text{score } b - 4) \times (100/16)$. the score results are accumulated and then divided by 4. The next step is classified as criteria <56 (poor), 56-75 (moderate), and 76 - 100 (good). This questionnaire uses a Likert scale with 5 points that are given a value of 1-5 so that it has

five points (1 to 5). There are four aspects in the distribution of this quality-of-life questionnaire, namely physical health, psychological health, social relationships, and the environment.

Quality of Life data before and after the provision of interactive media was statistically analyzed with Mann-Whitney analysis because the data were not normally distributed. Quality of life was measured using the *WHOQOL-Bref* questionnaire before and after the provision of interactive media. Then the data were statistically analysed with Mann-Whitney analysis. Mann Whitney analysis to see if there is a significant difference between the intervention group and the control group on the improvement of Quality of Life in pregnant

women, and to see if there is a significant difference between the intervention group and the control group.

This research has received Ethical Clearance from the Research Ethics Commission of the School of Nursing Wira Husada Yogyakarta with letter number 466/KEPK/STIKES-WHY/VII/2023.

RESULT

The results of the research on the development of interactive media as family assistance in improving the Quality of Life in pregnant women in the Sleman Primary Health Centre Working Area are generally presented in the following table.

Table 1. Univariate Analysis of Frequency Distribution of Respondents' Characteristics and Homogeneity in Control and Intervention Groups

Mother's characteristics	Intervention Group (n=54)		Control Group (n=54)		Total		P-value
	n	%	n	%	n	%	
Socio-demographic Factor							
1. Age							
At risk (< 20 th dan > 35 th)	5	9.3	7	13	12	11.1	0.070
Not at risk (20-35 th)	49	90.7	47	87	96	88.9	
2. Parity							
Primipara	39	72.2	42	77.8	81	75.0	0.700
Multipara	15	27.8	12	22.2	27	25.0	
3. Education							
Primary education	3	5.6	6	11.1	9	8.3	0.995
Secondary education	32	59.3	30	55.6	62	57.4	
Higher education	19	35.2	18	33.3	37	34.3	
4. Living status							
Live with more than one household	15	27.8	17	31.5	32	29.6	0.937
Live alone	39	72.2	37	68.5	76	70.4	
5. Occupation							
Housewife	27	50	31	57.4	58	53.7	0.881
Workers	27	50	23	42.6	50	46.3	

Based on the results of the study presented in Table 1, it shows that the p-value is > 0.05, which means that there is no difference in the characteristics of respondents in the intervention group and control group. The characteristics of respondents in Table 1 are age, parity, education, living status, and occupation. This shows that the characteristics of respondents in the intervention group and control group are the same or homogeneous.

Average Difference in Quality-of-Life Improvement in Pregnant Women

The results of the data normality test with Shapiro-Wilk are said to be normal if the p-value > 0.05. The results of this study obtained in the control and intervention groups of quality of life in pregnant women showed that the data were not normally distributed. So bivariate analysis using *Mann Whitney*.

Table 2. Bivariate Analysis of the Mean Difference in Quality-of-Life Improvement in Pregnant Women in the Control and Intervention Groups

Group	Median (Minimum-maximum)	Mean±SD	Mean Different	Sig. Mann- Whitney
Intervention				
Pre-test	0.00 (0-2)	0.22 ± 0.50	1.74	0.025
Post-test	2.00 (1-2)	1.96 ± 0.19		
Control				
Pre-test	0.00 (0-2)	0.42 ± 0.66	0.65	
Post-test	1.00 (0-2)	1.07 ± 0.5		

Based on the results of the study presented in Table 2, show that the Quality of life in the intervention and control groups has the same median pre-test value of 0. As for the post-test, the median value in the intervention group is 2 and the control group is 1. The average increase in Quality of Life of pregnant women in the intervention group is 1.74 and the control group has an average increase in Quality of Life of pregnant women of 0.65. Of the two groups, the results obtained with the Mann-Whitney statistical test were 0.025 (<0.05), which means that there is a difference in improving the Quality of Life of pregnant women in the group of mothers who are given interactive media in the form of learning videos and those who are not given videos.

DISCUSSION

The results of this study answer the research hypothesis that interactive media affects improving the quality of life of pregnant women as seen from the improvement of WHOQOL-BREF Quality of Life. Interactive media in this study is the provision of information through learning videos that contain materials according to predetermined themes. This study was conducted by dividing respondents into 4 WhatsApp group groups, namely 2 intervention groups and 2 control groups. Interactive media in the form of videos was given to the intervention group. While the control group was given a leaflet. This interactive media is given once a week with a total of 8 themes so that the length of the study is approximately 2 months. The materials prepared in this study consisted of 8 themes, namely: quality of life, husband support, pregnancy, pregnancy danger signs, labor, postpartum, baby care, and preparation for parenthood. Researchers conducted mentoring and two-way discussions through WhatsApp

groups on an ongoing basis throughout the study. The video is uploaded on YouTube then the link is shared through the respondent's WhatsApp group.

Based on the results of statistical tests in Table 2, it shows that the intervention group and control group both experienced an increase in Quality of Life after the intervention (post-test assessment). However, the increase in Quality Of Life is greater in the group given interactive media in the form of learning videos. It can be seen in the difference in the average increase in Quality Of Life of pregnant women after being given intervention, the average increase in Quality Of Life in the control group was 1.07 from 0.42, while in the treatment group, the average increase in Quality Of Life was 1.96 from 0.22 and both groups had a p-value of 0.025 (<0.05), which means that there is a significant difference in Quality Of Life improvement before and after intervention in both the control group and the treatment group.

In addition, it can be seen that the average increase in Quality of Life is higher in pregnant women in the treatment group, namely 1.74 while in the control group, it is 0.65. The results of the average increase in Quality Of Life in pregnant women, show that interactive media is proven to have a higher value compared to respondents who are not given interactive media. Quality Of Life (QoL) is defined as an individual's perception of an individual's position, which lives in the context of the culture and value system in which the individual lives, and its relationship is related to the goals, expectations, standards set, and a person's concern.¹³

Several studies have identified important dimensions that contribute to QoL, namely physical health, psychological health and social functioning, and environment.¹⁴ Health status is

a major component in early quality of life. Pregnancy is an important transition period in a woman's life. For nine months, a woman's body undergoes significant physical and emotional changes in preparation for the birth of a baby.¹⁵

The physical and emotional changes that occur during pregnancy can have a significant impact on the quality of life of pregnant women and affect maternal and infant health in monitoring pregnancy, childbirth, postpartum health, and infant psychomotor development. Pregnant women with low quality of life need to prepare themselves by paying more attention to their health conditions in facing pregnancy. With improved health conditions that have a direct impact on improving quality of life, pregnant women can give birth safely and have healthy babies. Poor health quality can be improved if the problem is found and treated early.¹⁶ Supported by research by Karimeh reported that physical and psychological health problems in pregnant, giving birth, and postpartum women can interfere with the mother's ability to enjoy caring for her baby and have a significant effect on quality of life such as physical limitations, fatigue, and pain.¹⁷

In research Lagadec said that one of the factors that greatly affect the quality of life of pregnant women is the level of education.¹⁸ This is in line with research Zhan, et al which explains that the impact of education is very significant on the quality of life in improving one's welfare. In addition, education can affect good knowledge towards the acceptance of information.¹⁹

Low health education can lead to risky behaviors that have a negative impact, especially in health decision-making.²⁰ Knowledge about quality of life can help pregnant women understand all information and make health decisions.^{20, 21} In his research, he said that interactive media affects changes in a person's behavior by providing information so that it can increase knowledge and change perceptions by using social media.²²

Information provision is closely related to interactive media. Interactive media is a learning method based on information and communication technology. Interactive media combines two or more media elements consisting of text, graphics, images, photos, audio, learning videos, and animations in an integrated manner.⁶ Providing

information/education with interactive media to pregnant women can increase knowledge and change the behavior of pregnant women in a more positive attitude so that the quality of life of pregnant women can be better. Research conducted by Setiani & Warsini showed that learning videos as promotional media are very effective in increasing knowledge compared to leaflet media.²³ Interactive media in providing information on the health of pregnant women has a positive impact on the welfare of pregnant women and improves social life. This is in line with research by Özden which states that rehabilitation exercises based on learning videos have a positive effect on improving Quality of Life for patients.²⁴ Interactive media can also increase social support due to increased knowledge and improved perception.²⁵

During pregnancy, there are many changes in pregnant women both physically and psychologically, this affects the quality of life of pregnant women. From some of the research results above, it is known that interactive media affects the increase in maternal knowledge to improve the quality of life in pregnant women.

CONCLUSIONS

There is a significant difference in improving the Quality of Life in pregnant women before and after the provision of interactive media in the form of learning videos. The development of interactive media as family assistance is proven to affect the Quality of Life of pregnant women.

SUGGESTION

It is recommended that health workers be able to develop interactive media as one of the mother's assistants during pregnancy integrated in Antenatal Care and Postnatal Care. In addition, assistance from the closest person, namely the husband, is needed to optimize the mother's positive experience during the antenatal period. Interactive media in the form of learning videos can be used as a medium in providing information or education in the digitalization era that is interesting and easy to understand.

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REFERENCE

1. WHO. Trends in maternal mortality 2000 to 2020: estimates. WHO, Geneva. 2021. 12 p.
2. Badan Pusat Statistik. Profil Kesehatan Ibu dan Anak 2022. [cited 2024 Jan 1]; Available from: <https://www.bps.go.id/id/publication/2022/12/23/54f24c0520b257b3def481be/profil-kesehatan-ibu-dan-anak-2022.html>
3. Bourgoin E, Callahan S, Séjourné N, Denis A. Image du corps et grossesse : Vécu subjectif de 12 femmes selon une approche mixte et exploratoire. *Psychologie Française*. 2012;57(3):205–13.
4. Vachkova E, Jezek S, Mares J, Moravcova M. The evaluation of the psychometric properties of a specific quality of life questionnaire for physiological pregnancy [Internet]. 2013. Available from: <http://www.hqlo.com/content/11/1/214>
5. Tang X, Lu Z, Hu D, Zhong X. Influencing factors for prenatal Stress, anxiety and depression in early pregnancy among women in Chongqing, China. *J Affect Disord*. 2019 Jun 15;253:292–302.
6. World Health Organization. Definition of skilled health personnel providing [Internet]. 2018 [cited 2024 Jan 1]. Available from: <https://www.icn.ch/sites/default/files/in-line-files/WHO-RHR-18.14-eng.pdf>
7. Mogos MF, August EM, Salinas-Miranda AA, Sultan DH, Salihu HM. A Systematic Review of Quality of Life Measures in Pregnant and Postpartum Mothers. Vol. 8, *Applied Research in Quality of Life*. 2013. p. 219–50.
8. Redinger S, Norris SA, Pearson RM, Richter L, Rochat T. First trimester antenatal depression and anxiety: Prevalence and associated factors in an urban population in Soweto, South Africa. *J Dev Orig Health Dis*. 2018 Feb 1;9(1):30–40.
9. Permenkes. Peraturan Menteri Kesehatan Republik Indonesia 2016. 2016.
10. O'Sullivan TA, Cooke J, McCafferty C, Giglia R. Online video instruction on hand expression of colostrum in pregnancy is an effective educational tool. *Nutrients*. 2019 Apr 1;11(4).
11. Mubin MN. Perancangan Media Pembelajaran Interaktif Sistem Skeletal Pada Mata Kuliah Dasar Keperawatan I. Vol. 0, *Jurnal Sistem Skeletal*.
12. Dinkes DIY. Profil Kesehatan Daerah Istimewa Yogyakarta. 2021;1–66.
13. Brekke M, Berg RC, Amro A, Glavin K, Haugland T. Quality of Life instruments and their psychometric properties for use in parents during pregnancy and the postpartum period: a systematic scoping review. Vol. 20, *Health and Quality of Life Outcomes*. BioMed Central Ltd; 2022.
14. Peter M. Fayers DM. Quality of Life : The Assesment, Analysis, and Reporting of Patient-Reported Outcomes, 3rd Editions. 2016. 1–648 p.
15. Freer J, Orr J, Walton R, Storr HL, Dunkel L, Prendergast AJ. Does stunting still matter in high-income countries? Vol. 50, *Annals of Human Biology*. Taylor and Francis Ltd.; 2023. p. 267–73.
16. Fauzy R, Fourianalisyawati E. Hubungan antara Depresi dengan Kualitas Hidup pada Ibu Hamil Berisiko Tinggi The Relationship Of Depression With Quality Of Life In Pregnant Women At High Risk. Vol. 4, *Jurnal Psikogenesis*. 2016.
17. Alnuaimi K, Alshraifeen A, Aljaraedah H. Factors influencing quality of life among syrian refugees pregnant women in Jordan: A cross-sectional study. *Heliyon*. 2022 Sep 1;8(9).
18. Lagadec N, Steinecker M, Kapassi A, Magnier AM, Chastang J, Robert S, et al. Factors influencing the quality of life of pregnant women: A systematic review. *BMC Pregnancy Childbirth*. 2018 Nov 23;18(1).
19. Zhan Z, Su ZW, Chang HL. Education and Quality of Life: Does the Internet

- Matter in China? *Front Public Health*. 2022 Mar 18;10.
20. Cooke A, Mills TA, Lavender T. Advanced maternal age: Delayed childbearing is rarely a conscious choice. A qualitative study of women's views and experiences. *Int J Nurs Stud*. 2012 Jan;49(1):30–9.
21. Fontenele de Oliveira M, Parker L, Ahn H, Livia Oliveira Catunda H, Braga Rodrigues Bernardo E, Fontenele de Oliveira M, et al. Maternal Predictors for Quality of Life during the Postpartum in Brazilian Mothers. *Health N Hav* [Internet]. 2015;7(7):371–80. Available from: <http://www.scirp.org/journal/health%5Cnhttp://dx.doi.org/10.4236/health.2015.73042%5Cnhttp://creativecommons.org/licenses/by/4.0/>
22. Goodyear VA, Boardley I, Chiou SY, Fenton SAM, Makopoulou K, Stathi A, et al. Social media use informing behaviours related to physical activity, diet and quality of life during COVID-19: a mixed methods study. *BMC Public Health*. 2021 Dec 1;21(1).
23. Özden F, Sarı Z, Karaman ÖN, Aydoğmuş H. The effect of video exercise-based telerehabilitation on clinical outcomes, expectation, satisfaction, and motivation in patients with chronic low back pain. *Ir J Med Sci*. 2022 Jun 1;191(3):1229–39.
24. Özden F, Sarı Z, Karaman ÖN, Aydoğmuş H. The effect of video exercise-based telerehabilitation on clinical outcomes, expectation, satisfaction, and motivation in patients with chronic low back pain. *Ir J Med Sci*. 2022 Jun;191(3):1229–39.
25. Gao Z, Ryu S, Zhou W, Adams K, Hassan M, Zhang R, et al. Effects of personalized exercise prescriptions and social media delivered through mobile health on cancer survivors' physical activity and quality of life. *J Sport Health Sci*. 2023 Nov 1;12(6):705–14.