

DIGITAL MEDIA VS LEAFLETS: ENHANCING WOMEN'S KNOWLEDGE AND PREMENOPAUSAL READINESS

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ARTICLE INFORMATION (COMPLETED/VERIFIED BY EDITORIAL TEAM)

DOI	https://doi.org/10.33024/jkm.v12i8.28076	Received	3 September 2026
Revised	21 September 2026	Accepted	29 September 2026
Published/Available Online	30 September 2026	License	CC BY 4.0

ABSTRAK

Latar Belakang: Transisi menuju masa menopause (premenopause) sering ditandai oleh perubahan hormonal yang berdampak pada timbulnya keluhan fisik maupun psikologis. Rendahnya tingkat pemahaman dan kesiapan perempuan dalam menghadapi perubahan klimakterium dapat memicu kecemasan berlebih, penurunan kualitas hidup, hingga risiko penyakit degeneratif. Intervensi edukasi kesehatan dengan pemilihan media yang tepat sangat penting untuk meningkatkan pengetahuan dan kesiapan menghadapi premenopause.

Tujuan: Menganalisis perbandingan efektivitas antara edukasi berbasis media digital (video audio-visual) dan media cetak (leaflet) terhadap tingkat pengetahuan serta kesiapan perempuan dalam menghadapi premenopause di Puskesmas Palmerah Jakarta Barat.

Metodologi Penelitian ini eksperimen semu (*quasi-experiment*) dengan desain *control group pre-test post-test design*. Subjek penelitian terdiri dari 40 perempuan usia 40–49 tahun yang terbagi secara proporsional ke dalam kelompok intervensi media digital (n=20) dan kelompok kontrol leaflet (n=20), dipilih menggunakan teknik *purposive sampling*. Analisis komparatif dilakukan menggunakan uji statistik *paired sample t-test* dan *independent t-test*.

Hasil: Terjadi peningkatan rerata pengetahuan yang signifikan pada kelompok media digital dari pre-test ke post-test dengan selisih 3,85, sementara kelompok leaflet mengalami peningkatan sebesar 1,75. Pada variabel kesiapan, kelompok media digital menunjukkan peningkatan rerata sebesar 2,85, sedangkan kelompok leaflet sebesar 1,95. Hasil uji statistik menunjukkan kedua media efektif meningkatkan pengetahuan dan kesiapan ($p < 0,000$). Uji beda efektivitas membuktikan bahwa media digital secara signifikan lebih unggul dibandingkan leaflet dalam meningkatkan pengetahuan ($p < 0,000$) dan kesiapan ($p < 0,041$).

Kesimpulan: Edukasi kesehatan berbasis media digital terbukti lebih efektif secara signifikan dibandingkan media cetak leaflet dalam meningkatkan pengetahuan dan kesiapan perempuan menghadapi transisi premenopause.

Saran: Studi lanjut untuk melakukan evaluasi daya ingat jangka panjang serta dampak edukasi digital terhadap Tingkat pengetahuan dan kesiapan diri ibu premenopause.

Kata Kunci: Digital, Edukasi, Kesiapan, Leaflet, Premenopause

ABSTRACT

Background : Transition approaching menopause (premenopause) often characterized by hormonal changes that result in the emergence of complaint physique and psychological . Low level understanding and readiness Woman in face change climacteric can trigger anxiety excess , decrease quality live , until risk disease degenerative . Intervention education health with choosing the right media is very important For increase knowledge and readiness face premenopause.

Objective : Analyze comparison effectiveness between education based on digital media (audio-visual video) and print media (leaflets) towards level knowledge as well as readiness Woman in face premenopause at the Community Health Center Palmerah, West Jakarta.

Methodology Study This experiment quasi - experiment with design *control group pre-test post-test design* . Subject study consists of 40 women 40–49 year olds divided in a way proportional to in group digital media intervention (n=20) and group leaflet control (n=20), selected use technique *purposive sampling* . Analysis comparative done using statistical tests *paired sample t-test* and *independent t-test* .

Result: Occurred improvement average significant knowledge in the digital media group from pre-test to post-test with difference of 3.85, while leaflet group experienced improvement of 1.75. On the variable readiness , digital media groups show improvement average of 2.85, while leaflet group of 1.95. Statistical test results show both media are effective increase knowledge and readiness ($p < 0.000$). Differential test effectiveness prove that digital media is significant more superior compared to the leaflet in increase knowledge ($p < 0.000$) and readiness ($p < 0.041$).

Conclusion: Education health proven digital media based more effective in a way significant compared to printed media leaflets in increase knowledge and readiness Woman face transition premenopause .

Suggestion: Further study For do evaluation Power remember term long as well as impact digital education on the level of knowledge and readiness self Mother premenopause .

Keywords: Digital, Education, Leaflet, Premenopause, Readiness

INTRODUCTION

Transition premenopause in women age 40–49 years characterized by hormonal fluctuations that trigger change physique as well as disturbance psychological , in particular anxiety (El Hajj et al., 2020). Adequate knowledge hold role important in control anxiety and forming readiness Mother face menopause phase (Dinengsih et al., 2024).(Norisa et al., 2022) During this time , promotion health in facilities service primary health care is still relying on print media such as leaflets that are One direction . However , print media often not enough in demand Because The text is dense and the visuals are limited , so not enough effective maintain Power remember as well as attention audience (Dwi et al., 2023).

On the other hand , the utilization of *smartphones* and interactive digital media (such as short videos via *WhatsApp*) among woman increase fast , but its application as instrument education midwifery community measurable Still limited (Dental et al., 2025)(Bernardo Aldo et al., 2024). There is gap related comparison effectiveness between audio-visual based digital media education and printed leaflet media to improvement knowledge as well as readiness Mother premenopause.

Research novelty This lies in the comparison direct effectiveness of interactive digital media duration short with *leaflet* media print applied to women premenopausal (40–49 years) in the work area Community Health Center Palmerah , West Jakarta, with measure knowledge and readiness Mother premenopause in a way simultaneously ..

Based on background behind said , research This aim For analyze effectiveness giving digital media education compared to leaflet media level knowledge and readiness Mother premenopause in facing menopause at the Community Health Center Palmerah , West Jakarta.

RESEARCH METHODS

Study This use quasi-experimental design with non-equivalent control group pretest-posttest design. This design aim For compare effectiveness of two groups intervention without appointment sample in a way random full namely group treatment given education through digital media and groups control provided by leaflet media.(Widodo & Dkk, 2023)

Study This implemented in the work area Community Health Center Palmerah , West Jakarta. Field data collection and intervention done start date December 2025 to January 2026.

Population This is all over Woman age 40–49 years (age premenopausal) who are registered and visiting in the work area Community Health Center Palmerah West Jakarta . **Sample Size:** Calculated use hypothesis test formula difference between two averages group independent , with a total sample as many as 40 people divided equally into 20 groups treatment (digital) and 20 people group control (leaflet). **Sampling Technique :** Use *purposive sampling* based on criteria inclusion and exclusion that have been determined(Karimun Abdullah, 2022)

The sample of this study was selected based on inclusion and exclusion criteria . inclusion covers Woman aged 40–49 years in the work area Community Health Center Palmerah , cooperative , willing sign *informed consent* , and special group treatment own *smartphone* active linked application *WhatsApp* . Meanwhile that ,

criteria exclusion covering Mother premenopause with condition emergency medical , disorders mental health heavy , or that which is delayed oneself in the midst of the intervention process .

Study This test variables independent in the form of application of educational media health (audio-visual digital media vs. *leaflets* conventional) against variables dependent consisting of from level knowledge and level anxiety Mother premenopause . Data collection was carried out use instrument questionnaire knowledge and questionnaire both of them are ready measured use Guttman scale (Suleman I et al, 2020). Temporary that , the intervention media used in the form of educational video modules duration short (3–5 minutes) and sheets print leaflets.

Data collected analyzed in a way univariate For describe distribution frequency characteristics respondents as well as average mark knowledge and readiness before and after intervention . For analysis bivariate , normality test *Shapiro-Wilk* done moreover first ; normally distributed data was tested use *Paired Sample T-Test* and *Independent Sample T-Test* , while the data is not normally distributed analyzed using alternative tests *Wilcoxon* and *Mann-Whitney* at the level meaning $\alpha = 0.05$

Ethics and Participant Protection

Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, National University, Jakarta, Indonesia, No.141/c-KEPK/FIKES/XII/2025, dated December 22, 2025. New field data collection was carried out after the ethical permit was issued . All respondents who participated voluntarily and had given written consent (*informed consent*) after receiving a complete explanation of the procedures, objectives, benefits, and guarantees of data confidentiality before the intervention was carried out.

RESEARCH RESULTS.

This study involved 40 respondents, equally divided into a digital media treatment group (n = 20) and a leaflet media control group (n = 20). The mean knowledge and readiness scores before and after the intervention in both treatment groups can be seen in Tables 1 and 2.

Tabel 1. Mean Knowledge Score Before and After in the Digital group and leaflet group (n = 40)

Group	Time	Mean	SD	Min	Max
Digital	Pre-test	7,70	3,85	1,658	5
	Post-test	11,55		1,932	7
Leaflet	Pre-test	7,45	1,75	1,701	5
	Post-test	9,20		1,609	6

Tabel 2. Average Readiness Score Before and After in the Digital group and Leaflet group (n = 40)

Group	Time	Mean	SD	Min	Max
Digital	Pre-test	6,30	2,85	1,780	3
	Post-test	9,15		1,785	6
Leaflet	Pre-test	5,95	1,95	1,731	2
	Post-test	7,90		1,944	3

Table 3. Influence Digital Education for Knowledge and Readiness

Variabel	<i>Pretest</i>	<i>Posttest</i>	Selisih Mean	<i>P Value</i>
	<i>Mean</i>	<i>Mean</i>		
Knowledge	7,70	11,55	-3,85	0,000
Readiness	6,30	9,15	-2,85	0,000

Table 4. Influence Educational Media *Leaflet* to Knowledge and Readiness

Variabel	<i>Pretest</i>	<i>Posttest</i>	Selisih Mean	<i>p-value</i>
	<i>Mean</i>	<i>Mean</i>		
Knowledge	7,45	9,20	-1,75	0,000
Readiness	5,95	7,90	-1,95	0,000

Table 5. Comparison Effectiveness Digital Media Education and *Leaflets* to Knowledge and Readiness

Kelompok		Pretest mean	Posttest mean	Mean difference	Std. Deviation	t	Sig. (2-tailed)
Digital	Knowledge	7,70	11,55	2,35	0,562	4,179	0,000
	Readiness	6,30	9,15				
Leaflet	Knowledge	7,45	9,20	1,250	0,590	2,118	0,041
	Readiness	5,95	7,90				

Each method intervention (both digital media and *leaflet*) proven influential significant in a way separated to improvement knowledge and readiness ($p < 0.000$, Tables 3 and 4). However , the results analysis The comparison in Table 5 shows that more digital media education effective in a way significant ($t = 4.179$; $p < 0.000$) compared to *leaflet* media ($t = 2.118$; $p < 0.041$), which is indicated by the difference average further improvement large (*Mean Difference* 2.35 vs 1.250).

DISCUSSION

Influence Digital Media Education for Knowledge and readiness

The results of the analysis in Tables 1, 2, and 3 show that giving education through digital audio-visual media significant increase average score knowledge from 7.70 to 11.55 ($p < 0.000$; difference -3.85) and average score readiness from 6.30 to 9.15 ($p < 0.000$; difference -2.85). This finding aligns with research (Dwi et al., 2023) which confirms that modern technology-based education can improve a person's knowledge and preparedness in facing the transition period . theory , the advantages of digital media are based on *the Cognitive Theory of Multimedia Learning* , that man will processing visual and verbal information through track separated . Multimedia use (combination text , images , audio, or video) maximize capacity memory working *memory* without burden one channel only (*cognitive overload*)(Hanum et al., 2023)

This is also in line with study (Setiawan et al., 2020) that give education health using combined audio-visual media and effective booklets increase understanding , improving efficacy self , as well as dampen stress in women facing premenopause . Improvement knowledge woman premenopause will have an impact positive on readiness they in facing menopause because good knowledge will become mechanism important For reduce anxiety as well as build preparation adaptive early childhood.(Astuti & Mulyani, 2020)(Xin et al., 2025).(Kartikasari et al., 2025) Improvement complete knowledge about change physiological premenopause This in a way direct trigger awareness independent (*self-awareness*), so that form readiness emotional mother so as not to consider symptom premenopause as something threat frightening health (Anisa & Aprilina, 2023)(Dinengsih & Hakim, 2020)(Yati & Firly Lativa Erliza, 2024)(Novianti & Yunita, 2019)

Influence Leaflet Media Intervention on Improvement Knowledge and Readiness

In the group control provided by *leaflet* media conventional (Tables 1, 2, and 4), the results study show existence improvement average score significant knowledge from 7.45 to 9.20 ($p < 0.000$; difference -1.75) and the average score readiness from 5.95 to 7.90 ($p < 0.000$; difference -1.95). Findings This confirm that education health print media based Still own role positive in convey information base health reproduction at the level primary (Srimiyati et al., 2020). The increase knowledge in groups *leaflet* happen Because material print give chance for respondents For read repeat information in a way independent at home . Although thus , power reach and effectiveness *leaflet* limited by exposure material dense text and static visuals, which are less than optimal in motivating as well as maintain attention cognitive audience in term long (Dwi et al., 2023); Lestari & Handayani, 2022).

Giving education health proven *leaflet* media based effective increase knowledge Mother in facing menopause. Understanding concise and visual information in the *leaflet* helps minimize concern Mother as well as increase readiness they welcoming the non- productive period in a way healthy (Siska, 2024) giving education health structured using influential *leaflet* media positive in a way significant in jack up level knowledge and readiness Mother in facing menopause(Indriani, 2023)(Handayani et al., 2025)(Khalida et al., 2022)(Norisa et al., 2022)(Armaijn et al., 2024)

Comparison of the Effectiveness of Digital Media and Leaflets

Table 5 statistically proves that education through digital media is much more effective than *leaflet media* in increasing the knowledge and preparedness of premenopausal mothers ($t = 4.179$, $p < 0.000$ vs. $t = 2.118$, $p < 0.041$). The higher combined mean difference value in the digital group (2.35 vs. 1.250) indicates a greater practical impact on changes in the cognitive and affective domains of respondents. This finding supports the results of research (Anggraini et al., 2023) serta (Dental et al., 2025) (Dental et al., 2025) which found that health promotion interventions based on interactive digital platforms (such as *WhatsApp*) provide superior clinical results compared to conventional promotional media. This advantage is influenced by the flexibility of digital accessibility, where interactive videos sent periodically allow for repeated exposure to information that strengthens short-term memory retention into long-term memory, while increasing maternal self-efficacy and preparedness (Armala et al., 2024). Health education interventions based on audiovisual media (animated videos) are significantly effective in increasing readiness to face menopause in pre-elderly women (Kartikasari et al., 2025). Use of intermediary media like *leaflets*, *booklets*, audiovisuals, videos, brochures, cards, quartet, as well as highly recommended application in the promotional program health. All instrument the own role strong in jack up literacy health reproduction women (Yakob et al., 2019) (Nasution et al., 2025) (Susanti et al., 2022).

Study Limitations

Study This own a number of limitations, including the use of design *quasi-experimental* with technique *non-random sampling* in one Health centers that limit generalization results in the population Woman more premenopausal extensive. In addition, the evaluation *post-test* which only done in the 3rd to 4th week yet capable measure retention Power remember term long and change sustainable behavior. Criteria inclusion based ownership *smartphones* also limit involvement group socio-economic low, and use instrument *self-report* potential cause *social desirability bias* in answers respondents.

CONCLUSION

Giving education health based on digital audio-visual media and *leaflet media* conventional in a way significant capable increase score knowledge and readiness Mother premenopause (40–49 years) in facing menopause at the Community Health Center Palmerah, West Jakarta ($p < 0.000$). However, digital media education has been proven to be effective in a way significant more effective compared to *leaflet media* ($t = 4.179$; $p < 0.000$), which is proven with improvement average knowledge (3.85 vs. 1.75) and readiness respondents (2.85 vs. 1.95) which is far more high. Packaging information interactive audio-visual as well as convenience open digital media accessibility more optimal in strengthen retention understanding cognitive at a time build readiness self Mother premenopause approaching menopause at the level service health base.

SUGGESTION

Utilization of *WhatsApp* - based digital audio-visual educational media as one of the... effort in promotion health at the Community Health Center and midwives community. Because has proven efficient in increase knowledge and readiness self Mother premenopause at the level service primary and for researchers furthermore recommended extend duration monitoring (follow-up) to evaluate retention knowledge term long, apply random sampling technique with coverage more samples wide, and anticipate smartphone limitations through provision offline digital media options.

DECLARATIONS

Ethics Approval and Informed Consent

Ethical approval was obtained from the Health Research Ethics Committee of Universitas Nasional No. 141/c-KEPK/FIKES/XII/2025. Written informed consent was obtained from all individual participants prior to their inclusion in the study.

Author Contributions

S.D. contributed to conceptualization, methodology, and draft writing; A.A. contributed to data collection, intervention procedures, and statistical analysis; A.S. contributed to supervision, validation, and manuscript review. All authors read and approved the final manuscript.

Funding

This research received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

Artificial Intelligence Declaration

The authors used OpenAI ChatGPT/Google Gemini solely for language editing, structural formatting, and proofreading support. All outputs were reviewed, verified, and edited by the authors, who remain fully responsible for the accuracy, originality, integrity, and final content of the manuscript

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to applicable ethics, privacy, and confidentiality requirements..

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