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Hybrid Education Program for Couples: A Strategy to Enhance Pregnancy Quality of Life

Edukasi Hybrid untuk Pasangan: Strategi Peningkatan Kualitas Hidup pada Kehamilan

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ABSTRACT

Background: Pregnancy involved physical, emotional, and social changes, making spousal support crucial in reducing stress, anxiety, and improving maternal quality of life. However, participation of mothers and husbands in prenatal classes in Indonesia remained low. A hybrid education model (online and face-to-face) had the potential to address these limitations.

Objective: This study aimed to assess the effectiveness of a digital-based hybrid companion class on improving the quality of life of pregnant women in Magelang City.

Methods: This was a quasi-experimental study with a non-randomized pretest-posttest with control group design. The sample consisted of 60 couples of reproductive age (30 intervention, 30 control) selected through simple random sampling. The hybrid class intervention included modules, educational videos, and mentoring through WhatsApp, conducted in four sessions. Quality of life was measured using WHOQOL-BREF at three time points and analyzed with GLM-RM.

Results: The intervention significantly improved the quality of life of pregnant women in the psychological domain ($p = 0.001$; $\eta^2 = 69.3\%$), social domain ($p = 0.021$; $\eta^2 = 34.2\%$), and environmental domain ($p = 0.001$; $\eta^2 = 65.7\%$), while the physical domain was not significant ($p = 0.510$).

Conclusion: The digital-based hybrid companion class was effective in improving the quality of life of pregnant women in psychological, social, and environmental aspects. Integration of the program into antenatal services was recommended to enhance the role of husbands in pregnancy care.

Keywords: pregnancy; hybrid education; quality of life; antenatal

ABSTRAK

Latar Belakang: *Masa kehamilan melibatkan perubahan fisik, emosional, dan sosial, sehingga dukungan suami berperan penting dalam menurunkan stres, kecemasan, serta meningkatkan kualitas hidup ibu. Namun, partisipasi ibu dan suami di Indonesia dalam kelas prenatal masih rendah. Model edukasi hybrid (daring dan tatap muka) berpotensi menjadi solusi atas keterbatasan tersebut.*

Tujuan: *Penelitian ini bertujuan untuk menilai efektivitas kelas pendamping hybrid berbasis digital terhadap peningkatan kualitas hidup ibu hamil di Kota Magelang.*

Metode: *Penelitian quasi-experimental dengan desain non-randomized pretest-posttest with control group. Sampel terdiri dari 60 pasangan usia subur (30 intervensi, 30 kontrol) dipilih dengan simple random sampling. Intervensi kelas hybrid dengan modul, video edukasi, dan pendampingan melalui WhatsApp, dilakukan dalam empat sesi. Kualitas hidup diukur menggunakan WHOQOL-BREF pada tiga waktu dan dianalisis dengan GLM-RM.*

Hasil: *Intervensi meningkatkan kualitas hidup ibu hamil secara signifikan pada domain psikologis ($p = 0{,}001$; $\eta^2 = 69{,}3\%$), sosial ($p = 0{,}021$; $\eta^2 = 34{,}2\%$), dan lingkungan ($p = 0{,}001$; $\eta^2 = 65{,}7\%$), sedangkan domain fisik tidak signifikan ($p = 0{,}510$).*

Kesimpulan: *Kelas pendamping hybrid berbasis digital efektif meningkatkan kualitas hidup ibu hamil, pada aspek psikologis, sosial, dan lingkungan. Integrasi program ke layanan antenatal direkomendasikan untuk meningkatkan peran suami dalam perawatan kehamilan.*

Kata Kunci: *kehamilan; kelas hybrid, kualitas hidup; antenatal*

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INTRODUCTION

Pregnancy was an important stage in a woman's life that was characterized by various complex physical, emotional, and social transformations (Alizadeh-Dibazari, Abdolalipour and Mirghafourvand, 2023; Wallace et al., 2023). The presence and active involvement of husbands during this period was key in supporting the overall well-being of pregnant women (Eze et al., 2023; van Lonkhuijzen et al., 2023; Degefa et al., 2024).

Husband participation, especially in the form of emotional and physical support, was proven to reduce stress and anxiety levels due to hormonal changes and psychological challenges during pregnancy (Meirna Eka Fitriasnani et al., 2022; Rasidah and Rohmah, 2024). Studies showed that the role of husbands as primary supporters was able to improve the quality of life of pregnant women, including physical, mental, and social well-being (Boutib et al., 2022; Özer and Güvenç, 2024). Conversely, lack of husband support was associated with increased perinatal depression, health problems, and suboptimal fetal development (Tabita et al., 2021; Woromboni et al., 2022).

Antenatal education for husbands about aspects of pregnancy, childbirth, postpartum, and baby care was proven to be an effective intervention in increasing husbands' knowledge and role in supporting their wives (Kortsmit et al., 2020; Dagla et al., 2023; Jeong, Sullivan and Mccann, 2024). This education not only increased their insight, but also expanded husbands' ability to provide the necessary emotional, physical, and informational support, thus having a positive impact on the well-being of pregnant women (Mohammad Alipour et al., 2022; Palioura et al., 2023). Antenatal education programs involving husbands were proven effective in increasing couples' readiness to welcome the birth of a baby, strengthening family relationships, and preparing them for postpartum challenges (Lafaurie-Villamil and Valbuena-Mojica, 2020; Anakwe et al., 2022).

In Indonesia, husband involvement in direct antenatal classes was still low (Lafaurie-Villamil and Valbuena-Mojica, 2020; Anakwe et al., 2022), which caused their lack of understanding about the vital role that should be played during pregnancy (Kucukkaya and Basgol, 2023; Wynter et al., 2024). Work busyness, limited time, and difficulty obtaining permission from workplaces were frequently found reasons (Wallace et al., 2023). Prenatal education based on hybrid methods (combination of online and face-to-face learning) for husbands was a promising solution to overcome these challenges (Sae-Eun Park and 1Assistant, 2022; Wallace et al., 2023). This education provided the necessary flexibility for husbands who had difficulty attending face-to-face sessions due to time or location constraints, so that more couples could be actively involved (Wallace et al., 2023).

The use of digital platforms for antenatal education increased husbands' knowledge and awareness, and strengthened their role in providing pregnancy care (Dagla et al., 2023). Research revealed that the use of training modules or digital media could increase husbands' understanding and concern for their responsibilities during pregnancy (Iskandar et al., 2023; Rahayu, 2023).

Husband involvement in supporting pregnancy care was proven to provide benefits not only for maternal health (Dehshiri et al., 2023; Arenlila Jamir, Sangeeta Kharde, 2024), but also for fetal development and more harmonious family relationships (Woromboni et al., 2022). Therefore, it was important to design antenatal education specifically targeted at husbands and integrated into antenatal services. This program would contribute to improving the quality of life of pregnant women by strengthening the role of

husbands in accompanying pregnant women throughout the pregnancy process.

MATERIALS AND METHODS

A. Research Design

This study used a quasi-experimental design with a non-randomized pretest-posttest with control group approach. The research was conducted from June to August 2024 in Magelang City.

B. Population and Sample

The research population consisted of couples of reproductive age in Magelang City who participated in KIH, totaling 255 pregnant women and their partners. The sample was calculated using a formula for known populations and resulted in 60 couples (30 intervention group and 30 control group). Groups were selected randomly using simple random sampling method. Research inclusion criteria included pregnant women with gestational age of 12–32 weeks, who had made at least one antenatal visit, had communication devices, and were willing to participate in all stages of the research.

C. Data Collection Technique

The intervention was delivered through a hybrid-based companion class that combined face-to-face and online meetings. Learning media used included modules, educational videos, and mentoring through WhatsApp groups with midwife facilitators. Classes were conducted in 4 sessions with themes of pregnancy, childbirth, postpartum, and childcare.

D. Research Instruments

Data collection was conducted using structured questionnaires and the standardized WHOQOL-BREF measurement tool to measure the quality of life of mothers during pregnancy. Measurements were taken at three time points: pretest, posttest 1, and posttest 2 (1 week and 3 weeks after intervention) to capture longitudinal changes in quality of life.

E. Data Analysis Technique

Bivariate analysis was performed using paired t-test and independent t-test. Multivariate analysis used General Linear Model-Repeated Measures (GLM-RM) to estimate changes in the quality of life of pregnant women at the three measurement time points and considered the significant effect of the intervention. Ethical approval was obtained from the Health Research Ethics Committee of Jenderal Achmad Yani University Yogyakarta (Skep/350/KEPK/XI/2022).

RESULT AND DISCUSSION

A. Research Results

A complete description of the characteristics of pregnant women respondents could be observed in Table 1. Table 1 showed the characteristics of respondents with an average maternal age of 28 years. The majority of pregnant women in both groups had 1–2 pregnancies. In terms of education, most participants had a high school education level, namely 53.3% in the intervention group and 50% in the control group. For occupation, the majority of respondents in the intervention group worked as self-employed (36.7%), while the control group were mostly housewives (36.6%). The majority of respondents in both groups had income below the minimum wage, namely 43.3% in the intervention group and 50% in the control group.

Table 2 showed the results of the *paired t-test* analysis to examine changes in each group. There were significant changes in pregnant women's behavior across all domains (physical, psychological, social, and environmental) in both groups.

In the physical domain, the intervention group recorded a greater increase between pretest and posttest 1 with a mean difference (Mean Diff) of 1.867 ± 2.080 (p = 0.001) compared to the control group. The increase from posttest 1 to posttest 2 in the intervention group was

also higher (1.500 ± 1.358; p = 0.001) compared to the control group.

In the psychological domain, the intervention group showed a greater significant change between pretest and posttest 1 (Mean Diff 3.233 ± 1.524; p = 0.001). The increase between posttest 1 and posttest 2 was also greater in the intervention group (1.133 ± 1.042; p = 0.001).

The social domain also showed significant increases in both groups. In the intervention group, the mean difference from pretest to posttest 1 was 2.167 ± 1.555 (p = 0.001), much higher compared to the control group. The change from posttest 1 to posttest 2 was greater in the intervention group (1.000 ± 0.871; p = 0.001).

In the environmental domain, the intervention group showed a greater significant change from pretest to posttest 1 (Mean Diff 5.667 ± 2.354; p = 0.001). The increase between posttest 1 and posttest 2 was also significant in both groups, with a Mean Diff of 1.700 ± 1.622 (p = 0.001) in the intervention group.

Table 1. Profile of Pregnant Women by Intervention and Control Groups

No.	Characteristics	Intervention (N=30) (Mean±SD)		Control (N=30) (Mean±SD)	
		f	%	f	%
1	Age	28.10±4.544		28.07±4.487	
2	Number of Pregnancies	1.70±0.877		2.07±0.691	
3	Education				
	Elementary School	2	6.7	2	6.7
	Junior High School	5	16.7	6	20
	Senior High School	16	53.3	15	50
	Diploma	1	3.3	2	6.7
	Bachelor's Degree	6	20	5	16.7
4	Occupation				
	Laborer	4	13.3	2	6.7
	Housewife	7	23.3	11	36.6
	Private Sector	6	20	7	23.3
	Self-employed	11	36.7	8	26.7
	Civil Servant/Military/Police	2	6.7	2	6.7
5	Income				
	Below Minimum Wage	13	43.3	15	50
	At Minimum Wage	8	26.7	7	23.3
	Above Minimum Wage	9	30	8	26.7

Table 2. Analysis of Paired T-Test QOL Domain of Pregnant Women in Magelang City Before and After Intervention

Domain			Intervention N = 30		Control N = 30	
			Mean Diff ± SD	Sig.	Mean Diff ± SD	Sig.
Physical	Pre	Post 1	1,867±2,080	0	0,733±1,202	0
	Post 1	Post 2	1,500±1,358	0	0,900±0,995	0
Psychological	Pre	Post 1	3,233±1,524	0	0,300±0,750	0,04
	Post 1	Post 2	1,133±1,042	0,02	0,400±0,894	0
Social	Pre	Post 1	2,167±1,555	0	0,333±0,884	0,05
	Post 1	Post 2	1,000±0,871	0	0,900±0,923	0
Environmental	Pre	Post 1	5,667±2,354	0	1,100±1,029	0
	Post 1	Post 2	1,700±1,622	0	1,500±1,042	0

Table 3 showed the results of the independent t-test analysis to compare the intervention and control groups. The results indicated significant differences in the quality of life of pregnant women between the two groups across various domains (physical, psychological, social, and environmental) after the intervention. In the pretest, no significant differences were found in all domains.

In the physical domain, posttest 1 showed a significant increase in the

intervention group (Mean = 23.33 ± 1.155). This result continued in posttest 2, with the intervention group consistently showing higher scores (Mean Diff = 0.800; p = 0.003). In the psychological domain, no significant difference was found in the pretest (Mean Diff = 0.167; p = 0.692). However, in posttest 1 and posttest 2, the intervention group showed higher scores.

In the social domain, significant differences were observed in posttest 1 (Mean Diff = 1.867; p = 0.001) and posttest 2 (Mean Diff = 1.767; p = 0.001), with the intervention group's scores being consistently higher. The environmental domain also recorded significant differences after the intervention. In posttest 1, the intervention group showed a much greater increase (Mean = 31.70 ± 1.512). This increase continued in posttest 2, with the intervention group recording a higher average score (Mean Diff = 4.167; p = 0.001).

Table 3. Independent T-Test Analysis of QOL Domains of Pregnant Women in Magelang City Before and After Intervention Between Groups

Domain		Intervention Group (N=90)		Control Group (N=80)		Mean Diff.	Sig.
		Mean	SD	Mean	SD		
Physical	Pretest	21,47	1,613	21,2	1,648	0,267	0,529
	Posttest 1	23,33	1,1155	21,93	1,437	1,4	0,001
	Posttest 2	24,23	0,728	23,43	1,223	0,8	0,003
Psychological	Pretest	17,9	1,626	18,07	1,617	0,167	0,692
	Posttest 1	21,13	1,074	18,37	1,474	2,767	0,001
	Posttest 2	21,53	0,9	19,5	1,432	2,033	0,001
Social	Pretest	10,73	1,818	10,7	1,418	0,033	0,937
	Posttest 1	12,9	0,923	11,03	1,629	1,867	0,001
	Posttest 2	13,8	0,805	12,03	1,217	1,767	0,001
Environmental	Pretest	26,03	3,09	26,23	3,07	0,2	0,802
	Posttest 1	31,7	1,512	27,33	2,604	4,367	0,001
	Posttest 2	33,2	1,064	29,03	1,65	4,167	0,001

Table 4. Fixed Model GLM-RM Test of Quality of Life Variables of Pregnant Women

Dependent Variable	Physical	Psychological	Social	Environmental
Sig. Intervention	0,51	0,001	0,021	0,001
Confounding	No proven confounding variables	Number of Pregnancies (0,046) Income (0,008)	No proven confounding variables	Age (0,008) Occupation (0,001) Income (0,006)
Posttest 1 vs Pretest				
Sig.	0,245	0,001	0,005	0,001
Partial Eta Squared	0,07	0,693	0,342	0,657
Posttest 2 vs Pretest				
Sig.	0,385	0,001	0,012	0,004
Partial Eta Squared	0,04	0,524	0,29	0,359

B. Discussion

The research results showed that the hybrid companion class intervention significantly improved the quality of life of pregnant women, particularly in the psychological, social, and environmental domains. In the psychological domain, a significant improvement was observed from the GLM-RM test results with a large effect size of 69.3% from pretest to posttest 1 in the intervention group compared to the control group, demonstrating the effectiveness of this approach. The education provided to partners not only increased their knowledge but also strengthened empathy and involvement in supporting pregnant women (Wulandari RD, Laksono AD, 2022). This was important because pregnancy was often accompanied by hormonal and psychological changes that could increase the risk of stress and anxiety (Mohammadpour et al., 2021; Dehshiri, Ghorashi and Lotfipur, 2023; Arenlila Jamir, Sangeeta Kharde, 2024). Emotional support from partners helped create emotional stability in pregnant women, making them feel more valued and able to face pregnancy challenges (Mohammadpour et al., 2021).

The identification of confounding factors such as birth order ($p = 0.046$) and income ($p = 0.008$) provided important insights into how previous pregnancy experience and economic conditions influenced intervention outcomes. Mothers who had previous pregnancy experience tended to be more adaptive to emotional challenges because they had gone through the same process before (Penner and Rutherford, 2022; Semeia et al., 2023). On the other hand, higher income enabled partners to provide additional resources, such as access to quality healthcare services or supportive environments, which contributed to improving maternal quality of life (Puspitasari, 2023; Wójcik, Aniśko and Siatkowski, 2024).

In the social domain, the intervention also provided significant improvement, with results showing a higher mean difference in posttest 1 in the intervention group. These results indicated that the intervention successfully improved the interpersonal relationships of pregnant women through strengthening communication and partner support. Studies stated that adequate social support during pregnancy increased mothers' confidence in facing pregnancy challenges (Teskereci, Akgün and Boz, 2022; Santos et al., 2023). In this study, the hybrid approach (face-to-face and online) that facilitated direct and virtual interactions with partners and healthcare providers contributed to strengthening social support (Jiang and Zhu, 2022; Rosenbaum, Gillen and Hutson, 2024).

In the environmental domain, the intervention provided a highly significant effect, with differences in improvement between groups at posttest 1. This showed that partner support strengthened with access to educational resources influenced pregnant women's perceptions of their environment. Access to adequate health information could increase pregnant women's sense of security (Rosenbaum, Gillen and Hutson, 2024). In this study, confounding factors such as age, occupation, and income showed that socioeconomic conditions had a significant effect on mothers' perceptions of environmental quality.

Conversely, in the physical domain, although there was an increase from pretest to posttest 1 in the intervention group, this change was not statistically significant ($p = 0.510$). This result indicated that education-based interventions, although effective in the psychological and social domains, had limitations in directly affecting physical changes in pregnant women. Factors such as mothers' basic health conditions, physical fatigue due to daily activities, and unavoidable physiological changes during

pregnancy were likely to be obstacles (Wu et al., 2021). For example, physical complaints such as back pain, nausea, or sleep disturbances often occurred during pregnancy and were difficult to overcome with education alone without more specific physical intervention support (Imelda, 2021; Altaş, Lüleci and Hıdıroğlu, 2023).

Changes in the physical domain often required specifically designed programs, such as structured physical exercise or dietary management. Programs such as pregnancy yoga or prenatal exercise, which could help improve body flexibility, reduce pain, and improve posture, proved to have a direct positive impact on the physical health of pregnant women (Franisia, Dahlan and Suralaga, 2022; Ribeiro, Andrade and Nunes, 2022; Altaş, Lüleci and Hıdıroğlu, 2023). In addition, proper nutritional management through dietary counseling could improve physical conditions by ensuring the fulfillment of nutritional needs required to support maternal health and fetal growth (Marshall et al., 2022). Although partner education provided significant emotional support, additional components were needed in the intervention program to address physical problems more directly and effectively (Alizadeh-Dibazari, Abdolalipour and Mirghafourvand, 2023).

Overall, this study showed that the hybrid-based companion class with partner participation was an effective strategy to improve the quality of life of pregnant women (Mazaheri Habibi et al., 2024). This intervention strengthened social support, increased emotional stability, and created a more supportive environment for pregnant women. However, it was important to consider socioeconomic factors as an integral part of this intervention to ensure its success in broader groups. Policy support that expanded access to similar programs could also enhance the sustainability of this intervention on a population scale.

CONCLUSION

Intervention based on hybrid education with partner involvement significantly improved the quality of life of pregnant women, particularly in the psychological, social, and environmental domains. Partner support strengthened with structured education became a key factor in enhancing emotional stability, social relationships, and pregnant women's perception of their environment. Hybrid-based partner class programs involving partners could be widely adopted by health facilities as a strategy to improve the quality of life of pregnant women and partner participation in maternal and child health programs. This study had limitations in sample coverage and had not explored external factors such as family culture or socioeconomic conditions. Further studies with larger populations, longitudinal designs, and integration of contextual variables were needed to strengthen generalization and assess the sustainability of intervention effects.

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