Research Paper

The Effects of Group Discussion and Multimedia Package Education Interventions on Healthy Lifestyle of Pregnant Women: A Field Trial Study

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ABSTRACT

Background: Healthy lifestyle affects the health of the mother and fetus during pregnancy. This study aimed to compare the effects of group discussion and multimedia package education interventions on healthy lifestyles among pregnant women.

Methods: This quasi-experimental study was conducted on 151 pregnant women during their 16-28 weeks of pregnancy who were referred to comprehensive health centers in Bajestan City, Iran. They were randomly allocated to three groups: Group discussion (n=50), multimedia package education (n=52), and control group (n=49). The demographic questionnaire and Walker's health-promoting lifestyle profile II were used for data collection before and one month after the intervention. The educational intervention in the group discussion was held in 4 sessions. The multimedia package group received software consisting of text, video, animation, and audio materials. Finally, the control group received routine educational support in health centers. The study data were analyzed using descriptive and inferential statistics and at a significance level of 0.05.

Results: The result showed no significant difference between the three groups before intervention (P=0.073) regarding their mean lifestyle scores. However, the mean lifestyle score was significantly lower in the control group compared to the other two groups one month after the intervention (P<0.001). However, the mean lifestyle score was significantly higher in group discussion and multimedia groups (P<0.001).

Conclusion: The findings showed that multimedia package and group discussion methods improved lifestyle in pregnant women. Therefore, we suggest that health providers use these methods for pregnant women regarding their rationales and facilitations.

Keywords: Pregnancy, Teaching materials, Multimedia, Focus group, Lifestyle

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1. Introduction

A healthy lifestyle during pregnancy is a major factor in completing a successful pregnancy and having a healthy newborn [1]. Factors such as coping with stress, communication with others, duration of physical activity and rest, nutritional habits, and prenatal care compose a healthy lifestyle among pregnant women [2]. Previous studies have shown that an unhealthy lifestyle during pregnancy may increase pregnancy complications, including low birth weight and prematurity [3-6]. However, it was reported that pregnant women residing in Gonabad City, Iran had an unfavorable lifestyle regarding physical activity and stress management [7]. The transition to motherhood can be considered a significant life event, and pregnant women are more motivated to change their lifestyle during pregnancy. Therefore, the pregnancy period allows health providers to promote a healthy lifestyle [8].

Previous studies showed that educational programs could improve healthy life among pregnant women [9-11]. Rapid growth in multimedia systems, network-based technology, and internet-based education have pushed traditional education methods toward accommodating virtual environments [12]. Previous studies proved the effectiveness of multimedia education methods in improving healthy nutrition among pregnant women and reducing uncertainty among postmenopausal women [13, 14]. In terms of nutrition, previous systematic reviews and meta-analyses on the effects of mobile health education on the nutritional intake of pregnant women in low-income countries and pregnant women with gestational diabetes mellitus indicated that these interventions were beneficial in improving supplement intake and nutrition status in pregnant women [3, 15]. A systematic review and meta-analysis on 23 articles reported that antenatal education could reduce the risk of performing Caesarean section and the use of epidural anesthesia, and stress, while increased self-efficacy in pregnant women [16]. A meta-analysis on the effects of lifestyle intervention through online education among pregnant women with the risk of pre-eclampsia in 2019 on two eligible randomized controlled trials reported that education on lifestyle behavior change improved the knowledge of pregnant women regarding risk factors for cardiovascular diseases and benefits of healthy eating, and physical activity; however, the intervention did not improve their healthy lifestyle behavior [17].

Another valuable educational method is group discussion, a deliberate and regulated discussion about a specific topic of common interest to the audience. Group discussion is also a time-efficient and economically low-cost method, which is learner- and subject-based [18].

As the lifestyle of pregnant women is directly related to maternal and fetal health, improving the healthy lifestyle of pregnant women through education intervention can promote and preserve maternal and fetal health. Furthermore, previous studies have focused on the effects of multimedia education on healthy nutrition behavior change, as a component of a healthy lifestyle, in menopause or non-pregnant women, while to the best of our knowledge, the effects of multimedia education on healthy lifestyle behavior change as a whole in pregnancy has not been fully studied. Therefore, this study was conducted to compare the impact of two educational methods (group discussion and multimedia package) on the lifestyle of pregnant women.

2. Methods

Study design

This quasi-experimental study was conducted in the comprehensive health center of Bajestan City, Iran, in 2018. Participants entered the study after giving written informed consent, and the anonymity and confidentiality of their data were ensured during the data collection and analysis. They were free to leave the study whenever they desired, and a version of the multimedia package was provided at the end of the study as requested.

Study participants

The sample size was determined based on the one-way analysis of variance (ANOVA) using the G*Power software version 3.1.9.2. For this purpose, the F test family and ANOVA: Fixed effects, the omnibus was selected. The effect size for f was 0.25 (average), and type I and II errors were set as 5% and 80%, respectively. The sample size was increased by 10% to account for 10% dropout. The final sample size was 159 participants for the three study groups (53 participants in each group).

The inclusion criteria were as follows: Gestational age between 16 and 28 weeks, having access to the computer, familiarity with using a computer to use the multimedia package, no restrictions in physical activity during pregnancy, no mental illness, no severe illness or complications during pregnancy, and willingness to participate in the study. The exclusion criteria were be-

ing absent in education sessions for more than two consecutive sessions, not using the multimedia package, unwillingness to continue the investigation, occurrence of illness or complications related to pregnancy during the educational program, and pregnancy termination due to miscarriage or premature labor.

Allocation of participants

The list of all pregnant women who were referred to comprehensive health centers of Bajestan City was used to screen pregnant women based on the inclusion and exclusion criteria. Eligible pregnant women who agreed to participate were randomly assigned to one of the three study arms (group discussion, multimedia package, and control).

Study instruments

Demographic questionnaire

The demographic questionnaire included variables such as age, education level, occupation, family income, and type of pregnancy.

The Walker's health-promoting lifestyle profile ii

The Walker's health-promoting lifestyle profile (HPLP) questionnaire is a standard tool for measuring health-promoting behaviors. This questionnaire includes 52 items and 6 components (including spiritual growth and self-fulfillment, health responsibility, social and interpersonal relationships, stress management, physical activity, and nutrition). Items are scored on a 4-point Likert scale (always, often, sometimes, and never). In calculating the score, positive performances are scored as 1, 2, 3, and 4. Therefore, the total HPLP score can range between 52 and 208. The validity and reliability of the Persian version of the HPLP questionnaire were evaluated by Mohammadi Zeidi et al., and the Cronbach α coefficient for the whole questionnaire was 0.82 and ranged between 0.64 and 0.91 for the 6 components [19].

Interventions and outcomes

The education content for the group discussion and the multimedia package was prepared based on a literature review and discussions with experts in reproductive health, midwifery, nutrition, health education, and promotion fields. Similar educational content was used for the group discussion and multimedia package groups.

At the beginning of the study, all participants completed the demographic and HPLP questionnaires. The educational intervention in the group discussion arm was held in 4 sessions (each session lasted for 60 minutes) with the cooperation of a psychologist and a midwife. Group discussion sessions were held in 13 to14-member groups. The educational intervention material in the multimedia package group was prepared as text, video, animation, and audio software. The participants were instructed about the software and how to use it. The participants were asked to view the multimedia package contents for five days according to a predefined schedule. They were given a contact number to share and resolve any issues they faced using the multimedia package. Furthermore, telephone follow-up was performed during the 5-day use of the multimedia package to ensure the proper use of the software. The control group received no educational intervention and only routine education and care during pregnancy from healthcare workers in the comprehensive health centers.

All participants completed the HPLP questionnaire again one month after the educational intervention.

Statistical analysis

The statistical package for social sciences SPSS software, version 22 was used for data analysis. Data were analyzed using descriptive and inferential statistical tests (the Shapiro-Wilk, Chi-squared, one-way ANOVA, Dunnett, Kruskal-Wallis, Wilcoxon, and paired t-test) at a significance level of 0.05.

3. Results

Of 159 participants, 151 completed the study (52 in the multimedia package group, 50 in the group discussion group, and 49 in the control group), and their data were analyzed.

There was no statistically significant difference between the study arms in demographic characteristics except for income, type of pregnancy, occupation, and education level ($P<0.05$). A comparison of the demographic characteristics between groups is presented in Table 1.

In this study, spiritual growth and self-fulfillment, interpersonal relationships, stress management, nutrition, and lifestyle scores were normally distributed in the three groups at baseline and after the intervention. Health responsibility and physical activity were not normally distributed in the three study groups at baseline and after the intervention. The one-way ANOVA showed no statistically significant difference between the three study arms in the mean scores of spiritual growth and self-fulfillment ($P=0.117$), interpersonal relationships

Table 1. Demographic characteristics of the study participants

Variables		No. (%)			P*
		Group Discussion	Multimedia Package	Control	
Education level	Below high school	10(20)	9(17.3)	13(26.5)	0.81
	High school	19(38)	19(36.5)	15(30.6)	
	University degree	21(42)	24(46.2)	21(42.9)	
Occupation	Housewife	43(86)	42(80.8)	45(91.8)	0.27
	Employed	7(42)	10(19.2)	4(8.2)	
Type of pregnancy	Intended	43(86)	10(19.2)	36(73.5)	0.30
	Unintended	7(14)	41(78.8)	13(26.5)	
Income level (Rial)	<5 million	14(28)	4(7.7)	3(13.9)	0.003
	5-10	13(26)	20(38.5)	26(53.1)	
	>10 million	23(46)	28(53.8)	23(40.8)	

* The Chi-square test

(P=0.280), stress management (P=0.323), and nutrition (P=0.069) at baseline. However, after the educational intervention, there was a significant difference between the three study arms (P<0.001) in the mean scores of spiritual growth and self-fulfillment, interpersonal relationships, stress management, and nutrition. The Kruskal-Wallis test showed no statistically significant difference in the median scores of health responsibility (P=0.152) and physical activity (P=0.296) between the three study groups at baseline. However, after the educational intervention, there was a significant difference between the three study groups (P<0.001) in the median scores of health responsibility and physical activity (Table 2).

There was no statistically significant difference between the three study arms at baseline (P=0.073) in total lifestyle scores. However, after the educational intervention, there was a significant difference in lifestyle scores between the three study arms (P<0.001), with the lowest scores belonging to the control group participants.

Table 2. Comparing the lifestyle scores between three study groups before and after theintervention

Lifestyle Components	Mean±SD						P	
	Group Discussion		Multimedia Package		Control			
	Before	After	Before	After	Before	After	Baseline	After
Spiritual growth and self-fulfillment	25.98±4.66	28.08±37.3	27.23±3.52	29.81±2.63	25.53±4.53	24.51±4.45	0.117*	<0.001*
Health responsibility	27.18±4.55	30.24±3.15	26.67±6.13	32.32±2.16	25.94±4.52	25.37±4.39	0.152**	<0.001*
Social and inter-personal relationship	25.38±4.01	27.90±3.57	26.11±4.20	29.25±3.14	24.77±4.42	24.77±4.82	0.280*	<0.001*
Stress management	20.18±3.74	23.36±3.61	19.58±3.62	24.60±3.39	19.06±3.73	18.24±3.31	0.323*	<0.001*
Physical activity	15.50±4.39	19.32±3.76	14.46±3.89	21.05±3.23	14.12±4.68	13.71±3.77	0.296**	<0.001*
Nutrition	28.12±4.20	31.40±2.81	27.52±4.63	31.96±2.02	26.08±4.54	26.08±4.94	0.069*	<0.001*
Total Lifestyle score	142.34±15.60	160.30±13.4	142.58±17.43	160.09±12.5	135.51±18.89	136.92±18.17	0.073*	<0.001*

*One-way ANOVA test;**The Kruskal-Wallis test

4. Discussion

The results of the present study showed education intervention based on both the multimedia package and group discussion methods significantly increased the mean healthy lifestyle score in pregnant women. These findings were similar to those of a previous study that reported that multimedia package and face-to-face training effectively taught danger signs among pregnant women [20]. Also, two other studies reported multimedia's effectiveness compared with lecture and traditional methods [21, 22]. In a previous study, multimedia package education effectively improved sports behavior among Tehrani women [23]. This effect might be due to easy access to education materials, low cost, and ease of follow-up by educators [24]. A qualitative study on the experience of pregnant women with mobile health application intervention to increase postnatal health care visits indicated that this intervention increased self-reported awareness of pregnant women about the necessity of postnatal visits, while they experienced good feelings about the messages and the reminders [25]. These findings may justify the possible benefits of multimedia and online education interventions in promoting lifestyle behaviors during pregnancy. It was also shown that multidisciplinary online interventions were more effective in increasing physical activity behaviors than interventions focused only on physical activity [26].

In contrast to this study's findings, a previous study on the effects of group discussion and multimedia package-based interventions on learning domains of pregnant women reported that multimedia package education was significantly more effective than the group discussion method [13]. This different finding seems to be due to the various outcome measures in the studies.

In this study, the multimedia package method increased the mean score of all lifestyle components except for spiritual growth and self-fulfillment. These findings might indicate that these aspects of well-being might be more related to face-to-face contact and the feelings shared between the educator and the learner compared to the ease of access and cost. To the best of our knowledge, the effects of multimedia education packages on spiritual growth and self-fulfillment have not been evaluated in pregnant women. It was previously reported that online discussion was superior to an electronic portfolio in improving ethical behaviors in nursing students [27]. This finding can justify the mentioned hypothesis that group discussion might result in increased behavior change and acceptability of spiritual-related topics compared to simple online messages that do not include discussion.

Overall, these results show that the emergence of computers and the development of information and communication technology have converted this method into a valuable tool to improve the awareness and knowledge of people in various fields and reduce the need for the simultaneous physical presence of educators and recipients.

In the present study, group discussion increased the mean scores for all lifestyle components, which showed its effectiveness on the lifestyle of pregnant women. This finding was similar to previous studies that reported the effectiveness of group discussion for learning [28-30]. Group discussion is an inclusive activity that is topic- and method-based through which learners exchange their information, feelings, and opinions with each other and the educator. Therefore, group discussion is a suitable method to improve educational content transfer and increase the efficiency of education intervention programs [18].

5. Conclusion

Based on the present study's findings, both the group discussion and multimedia package education methods effectively improved healthy lifestyles among pregnant women. Therefore, it is recommended that health providers use these educational method base on their facilities to improve healthy lifestyles among pregnant women.

One of the study's limitations was that the participants' learning conditions in the multimedia group were not evaluated because they used multimedia in their homes.

Ethical Considerations

Compliance with ethical guidelines

All participants provided written informed consent for participating in the study. The study trial was approved by the Regional Ethics Committee of Medical Research, Gonabad University of Medical Sciences (Approval ID: IR.GMU.REC 1396.121). All participants' information was kept in a personal file and collected in a locked office with limited access.

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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References

[1] Bagherzadeh R, Gharibi T, Safavi B, Mohammadi SZ, Karami F, Keshavarz S. Pregnancy; an opportunity to return to a healthy lifestyle: A qualitative study. BMC Pregnancy Childbirth. 2021; 21(1):751. [DOI:10.1186/s12884-021-04213-6] [PMID] [PMCID]

[2] Mate A, Reyes-Goya C, Santana-Garrido Á, Vázquez CM. Lifestyle, maternal nutrition and healthy pregnancy. Curr Vasc Pharmacol. 2021; 19(2):132-40. [DOI:10.2174/1570161118666200401112955] [PMID]

[3] Mijatovic-Vukas J, Capling L, Cheng S, Stamatakis E, Louie J, Cheung NW, et al. Associations of diet and physical activity with risk for gestational diabetes mellitus: A systematic review and meta-analysis. Nutrients. 2018; 10(6):698. [DOI:10.3390/nu10060698] [PMID] [PMCID]

[4] Rasmussen L, Poulsen CW, Kampmann U, Smedegaard SB, Ovesen PG, Fuglsang J. Diet and healthy lifestyle in the management of gestational diabetes mellitus. Nutrients. 2020; 12(10):3050. [DOI:10.3390/nu12103050] [PMID] [PMCID]

[5] Sehati Shasaei F, Sheibaei F. [Lifestyle and its relation with pregnancy outcomes in pregnant women referred to Tabriz Teaching hospitals (Persian)]. Iran J Obstet Gynecol Infertil. 2015; 17(131):13-9. [DOI:10.22038/IJOGI.2015.3942]

[6] Kamali Fard M, Alizadeh R, Sehati Shafaei F, Gojazadeh M. [The effect of lifestyle on the rate of preterm birth (Persian)]. J Ardabil Univ Med Sci. 2010; 10(1):55-63. [Link]

[7] Moshki M, Bahri N, Sadegh Moghadam L. [Lifestyle of pregnant women living in Gonabad (Iran) (Persian)]. J Res Health. 2012; 2(2):200-6. [Link]

[8] Lindqvist M, Lindkvist M, Eurenius E, Persson M, Mogren I. Change of lifestyle habits - motivation and ability reported by pregnant women in northern Sweden. Sex Reprod Healthc. 2017; 13:83-90. [DOI:10.1016/j.srhc.2017.07.001] [PMID]

[9] Zhai J, Hu X, Wen Z, Chen L, Ye R, Zheng X, et al. Promoting healthy lifestyle considerations during pregnancy in midwifery clinics in China: A best practice implementation project. JBI Evid Implement. 2020; 19(3):219-27.[DOI:10.1097/XEB.0000000000000247] [PMID]

[10] Jalili Bahabadi F, Estebsari F, Rohani C, Rahimi Khalifeh Kandi Z, Sefidkar R, Mostafaei D. Predictors of health-promoting lifestyle in pregnant women based on pender's health promotion Model. Int J Womens Health. 2020; 12:71-7. [DOI:10.2147/IJWH.S235169] [PMID] [PMCID]

[11] Bahri N, Tohidinik HR, Bahri N, Iliati HR, Moshki M, Darabi F. Educational intervention to improve oral health beliefs and behaviors during pregnancy: A randomized-controlled trial. J Egypt Public Health Assoc. 2015; 90(2):41-5. [DOI:10.1097/01.EPX.0000464139.06374.a4] [PMID]

[12] Heo M, Toomey N. Learning with multimedia: The effects of gender, type of multimedia learning resources, and spatial ability. Comput Educ. 2020; 146:103747. [DOI:10.1016/j.compedu.2019.103747]

[13] Seyedi Sani SK, Meshki M, Shafaghi K. [Comparative effectiveness of group discussion and multimedia nutrition education among pregnant women in learning domains (Persian)]. J Sabzevar Univ Med Sci. 2014; 21(3):441-52. [Link]

[14] Afshari F, Bahri N, Sajjadi M, Mansoorian MR, Tohidinik HR. Menopause uncertainty: The impact of two educational interventions among women during menopausal transition and beyond. Prz Menopauzalny. 2020; 19(1):18-24. [DOI:10.5114/pm.2020.95305] [PMID] [PMCID]

[15] Saronga NJ, Burrows T, Collins CE, Ashman AM, Rollo ME. mHealth interventions targeting pregnancy intakes in low and lower-middle income countries: Systematic review. Matern Child Nutr. 2019; 15(2):e12777. [DOI:10.1111/mcn.12777] [PMID] [PMCID]

[16] Hong K, Hwang H, Han H, Chae J, Choi J, Jeong Y, et al. Perspectives on antenatal education associated with pregnancy outcomes: Systematic review and meta-analysis.Women Birth. 2021; 34(3):219-30. [DOI:10.1016/j.wombi.2020.04.002] [PMID]

[17] Lui NA, Jeyaram G, Henry A. Postpartum interventions to reduce long-term cardiovascular disease risk in women after hypertensive disorders of pregnancy: A systematic review. Front Cardiovasc Med. 2019; 6:160.[DOI:10.3389/fcvm.2019.00160] [PMID] [PMCID]

[18] Nyumba TO, Wilson K, Derrick CJ, Mukherjee N. The use of focus group discussion methodology: Insights from two decades of application in conservation. Methods Ecol Evol. 2018; 9(1):20-32. [DOI:10.1111/2041-210X.12860]

[19] Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. [Reliability and validity of Persian version of the health-promoting lifestyle profile (Persian)]. J Mazandaran Univ Med Sci. 2011; 20(1):102-13. [Link]

[20] Naeeni MR, Farid M, Tizvir A. [A comparative study of the effectiveness of multimedia software and face-to-face education methods on pregnant women's knowledge about danger signs in pregnancy and postpartum (Persian)]. J Educ Commun Health. 2015; 2(1):50-7. [Link]

[21] Mohammadi BBM, Vahed Parast H, Ravanipour M, Sadeghi T. [Comparing the effects of heart dysrhythmia training through both lecture and multimedia software approaches on the knowledge retention of nursing students (Persian)]. Educ Dev Judishapur. 2015; 6(2):115-21. [Link]

[22] Feizalahzadeh H, Zagheri Tafreshi M, Moghaddasi H, Ashghali Farahani M, Zareh Z, Khalilzadeh M. [Effectiveness of multimedia based on education and traditional methods on life quality of hemodialysis patients (Persian)]. J Holistic Midwifer. 2016; 26(2):69-78. [Link]

[23] Shirvani ZG, Ghofranipour F, Gharakhanlou R, Yaghmaei F. [The effectiveness of theory-based multimedia software on exercise behavior and physical activity among women: The women and active life study (Persian)]. Payesh. 2016; 15(5):549-58. [Link]

[24] Carrandi A, Hu Y, Karger S, Eddy KE, Vogel JP, Harrison CL, et al. Systematic review on the cost and cost-effectiveness of mHealth interventions supporting women during pregnancy. Women Birth. 2023; 36(1):3-10. [DOI:10.1016/j.wombi.2022.03.007] [PMID]

[25] Olajubu AO, Fajemilehin BR, Olajubu TO. Mothers' experiences with mHealth intervention for postnatal care utilisation in Nigeria: A qualitative study. BMC Pregnancy Childbirth. 2022; 22(1):843. [DOI:10.1186/s12884-022-05177-x] [PMID] [PMCID]

[26] Sharp KJ, Sherar LB, Kettle VE, Sanders JP, Daley AJ. Effectiveness of interventions to increase device-measured physical activity in pregnant women: Systematic review and meta-analysis of randomised controlled trials. Int J Behav Nutr Phys Act. 2022; 19(1):142. [DOI:10.1186/s12966-022-01379-w] [PMID] [PMCID]

[27] Baghbani R, Rakhshan M, Zarifsanaiey N, Nemati R, Daneshi S. Comparison of the effectiveness of the electronic portfolio and online discussion forum methods in teaching professional belonging and ethical behaviors to nursing students: A randomized controlled trial. BMC Med Educ. 2022; 22(1):618. [DOI:10.1186/s12909-022-03677-0] [PMID] [PMCID]

[28] Kumar S, Zayapragassarazan Z, Kadambari D. An evidence of group discussion and problem-solving skills in MBBS freshers: Implications and applications. J Adv Med Educ Prof. 2021; 9(1):50-3. [DOI:10.30476/jamp.2019.81219.0]

[29] Abedini Z, Parvizy S. The effects of group discussion and self-learning on nursing students' civility. Iran J Nurs Midwifery Res. 2019; 24(4):268-73. [DOI:10.4103/ijnmr.IJNMR_212_18] [PMID] [PMCID]

[30] Habibzadeh H, Sofiani A, Alilu L, Gillespie M. The effect of group discussion-based education on self-management of adults with type 2 diabetes mellitus compared with usual care: A randomized control trial. Oman Med J. 2017; 32(6):499-506. [DOI:10.5001/omj.2017.95] [PMID] [PMCID]

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