



Research Article

Effectiveness of Complementary Counseling in Controlling Weight Gain among Hormonal Contraceptive Users

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Abstract. Background : Hormonal contraception is one of the most widely used family planning methods because of its high effectiveness in preventing pregnancy. However, weight gain remains one of the most frequently reported side effects and often contributes to dissatisfaction, poor adherence, and discontinuation of contraceptive use. Complementary counseling, which integrates education on hormonal contraception with nutritional guidance, physical activity promotion, weight monitoring, and motivational support, has the potential to minimize these adverse effects. This study aimed to evaluate the effectiveness of complementary counseling in controlling weight gain among hormonal contraceptive users. Methods : This study employed a quantitative quasi-experimental design using a pretest–posttest control group approach. A total of 60 hormonal contraceptive users were recruited through consecutive sampling and equally assigned to an intervention group (n=30) and a control group (n=30). Participants in the intervention group received complementary counseling for eight weeks, whereas the control group received routine family planning counseling. Data were collected using structured questionnaires, observation forms, and calibrated digital weight scales. Statistical analyses included descriptive statistics, paired t-test, independent t-test, and multiple linear regression, with a significance level of $p < 0.05$. Results : Participants who received complementary counseling experienced a mean weight reduction of 0.70 ± 0.48 kg, whereas the control group demonstrated a mean weight increase of 0.90 ± 0.55 kg. The independent t-test indicated a statistically significant difference between the two groups ($p < 0.001$). Multiple linear regression analysis identified complementary counseling as the strongest predictor of weight change ($\beta = -0.61$; $p < 0.001$) after adjustment for age, baseline body mass index, and contraceptive type. Conclusion : Complementary counseling is effective in controlling weight gain among hormonal contraceptive users. Integrating contraceptive education with nutritional counseling, physical activity guidance, regular weight monitoring, and motivational reinforcement may improve the quality of family planning services and enhance continuation of hormonal contraceptive use. These findings provide evidence to support the implementation of comprehensive counseling programs in primary healthcare settings.

Keywords: Complementary Counseling; Contraceptive Acceptors; Family Planning; Hormonal Contraception; Weight Gain.

Received: Oktober 14, 2025

Revised: Oktober 26, 2025

Accepted: November 20, 2025

Publish: November 30, 2025

Curr Ver: November 30, 2025



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1. INTRODUCTION

The Family Planning (FP) program is one of the key strategies for improving reproductive health, reducing maternal mortality, and supporting the achievement of sustainable development through planned childbirth. Hormonal contraceptive methods, including oral contraceptive pills, injectables, and implants, remain the most widely used options because of their high effectiveness in preventing pregnancy. Nevertheless, various side effects experienced by acceptors, particularly weight gain, frequently become the primary reason for discontinuing contraceptive use prematurely. This situation may contribute to an increased family planning discontinuation rate and reduce the overall effectiveness of the family planning program. (World Health Organization [WHO], 2023; Ministry of Health of the Republic of Indonesia, 2023).

Weight gain among hormonal contraceptive users is influenced by several physiological mechanisms, including metabolic changes, increased appetite, fluid retention, and alterations in fat distribution resulting from the effects of estrogen and progesterone. Although the magnitude of weight change varies among individuals, the perception of weight gain often leads to dissatisfaction, anxiety, and even the decision to discontinue contraceptive use. Therefore, the management of side effects constitutes an essential

component of contraceptive services aimed at promoting the continued use of family planning methods. (WHO, 2023).

Previous studies have demonstrated that behavioral factors, particularly unhealthy dietary patterns, insufficient physical activity, and limited knowledge regarding the side effects of hormonal contraceptives, contribute to weight gain among family planning acceptors. Most hormonal contraceptive users have not received adequate guidance on effective strategies for weight management during contraceptive use. Consequently, weight gain is frequently perceived as an unavoidable consequence, despite evidence indicating that appropriate lifestyle modifications can substantially minimize this risk. (Ministry of Health of the Republic of Indonesia, 2023; WHO, 2023).

One approach that has increasingly been incorporated into reproductive health services is complementary counseling, an educational process that integrates contraceptive information with the promotion of healthy lifestyles, dietary management, physical activity, stress management, and motivation to maintain healthy behaviors. This approach does not replace standard medical services but rather complements routine counseling by providing more comprehensive information to help acceptors manage potential changes during hormonal contraceptive use. Such an approach is expected to enhance users' ability to control body weight while maintaining adherence to their chosen contraceptive method. (American College of Obstetricians and Gynecologists [ACOG], 2022).

Theoretically, health behavior change is influenced by knowledge, perceived benefits, motivation, and environmental support. The Health Belief Model explains that individuals are more likely to engage in healthy behaviors when they understand the benefits of a particular action and believe that the behavioral change will produce positive outcomes. In the context of hormonal contraceptive use, complementary counseling is expected to improve acceptors' understanding of weight management, thereby encouraging sustainable behavioral changes. (Rosenstock, 1974; Notoatmodjo, 2018).

Previous studies have shown that health counseling improves adherence to contraceptive use, promotes healthier lifestyles, and increases acceptor satisfaction with family planning services. Other studies have also reported that education regarding healthy dietary practices and physical activity contributes to weight management among women of reproductive age. However, most of these studies have evaluated the effectiveness of general counseling or lifestyle interventions independently. Consequently, evidence regarding the effectiveness of complementary counseling specifically designed for hormonal contraceptive users remains relatively limited. (Polit & Beck, 2021).

A study conducted by Retno Dewi Priskusanti demonstrated that structured health education interventions significantly improved knowledge, attitudes, and health-related behaviors among maternal healthcare target groups. These findings indicate that a systematic educational approach enhances individuals' capacity to make more appropriate health-related decisions. This principle provides the rationale that complementary counseling may offer similar benefits to hormonal contraceptive users, particularly in controlling weight gain through sustained behavioral modification. (Priskusanti, 2021).

Although numerous studies have discussed the side effects of hormonal contraceptives and the importance of counseling within family planning services, a significant research gap remains regarding the effectiveness of complementary counseling that integrates nutritional education, physical activity guidance, regular weight monitoring, and behavioral motivation for hormonal contraceptive users. Furthermore, studies evaluating such interventions in primary healthcare facilities remain limited, highlighting the need for more context-specific scientific evidence reflecting the characteristics of the Indonesian population.

The novelty of this study lies in the implementation of a complementary counseling model that combines contraceptive education, nutritional counseling, physical activity recommendations, regular weight monitoring, and motivational strategies into a single integrated intervention package. This multidimensional approach is expected not only to facilitate weight management but also to improve acceptor satisfaction, strengthen the continuation of hormonal contraceptive use, and reduce contraceptive discontinuation attributable to perceived side effects.

Based on the foregoing, this study aims to analyze the effectiveness of complementary counseling in controlling weight gain among hormonal contraceptive users. The findings are expected to provide scientific evidence regarding the benefits of complementary counseling as a non-pharmacological intervention within family planning services, serve as a foundation for developing counseling service standards in healthcare facilities, and support the formulation of policies aimed at improving the quality of reproductive healthcare services and the continuity of hormonal contraceptive use. (WHO, 2023; Ministry of Health of the Republic of Indonesia, 2023).

2. LITERATURE REVIEW

Hormonal contraception is a family planning method that functions through the action of estrogen, progesterone, or a combination of both hormones to inhibit ovulation, alter cervical mucus consistency, and create an endometrial environment that is less conducive to implantation. Owing to its high effectiveness in preventing pregnancy, hormonal contraception remains one of the most widely used contraceptive methods among women of reproductive age. Nevertheless, its use may be accompanied by several side effects, including weight gain, which is associated with metabolic changes, fluid retention, increased appetite, and alterations in body fat distribution. Individual physiological responses vary considerably; therefore, the magnitude of weight change differs among hormonal contraceptive users (World Health Organization, 2023).

This study is grounded in the Health Belief Model (HBM) developed by Irwin M. Rosenstock. The HBM proposes that health-related behaviors are influenced by individuals' perceptions of susceptibility to a health condition, perceived severity of its consequences, perceived benefits of preventive actions, perceived barriers, cues to action, and self-efficacy. Within the context of this study, complementary counseling is expected to enhance users' perceived benefits of weight management, reduce barriers to adopting healthy lifestyle practices, and strengthen the motivation of hormonal contraceptive users to maintain behaviors that support healthy weight regulation (Rosenstock, 1974).

In addition to the HBM, this study is also informed by the Theory of Planned Behavior (TPB) developed by Icek Ajzen. This theory explains that an individual's intention to perform a particular behavior is determined by attitudes toward the behavior, subjective norms, and perceived behavioral control. Complementary counseling is expected to foster positive attitudes toward weight management, enhance social support through the involvement of healthcare professionals and family members, and strengthen acceptors' confidence in their ability to consistently maintain healthy dietary habits and physical activity while using hormonal contraception (Ajzen, 1991).

Complementary counseling is an educational approach that integrates contraceptive counseling with healthy lifestyle promotion, including dietary management, increased physical activity, regular weight monitoring, stress management, and motivational support to sustain healthy behaviors. This approach is not intended to replace standard medical care but rather to complement routine contraceptive counseling by providing users with more comprehensive information for managing the side effects associated with hormonal contraceptive use. Through a two-way communication process, healthcare providers assist acceptors in identifying risk factors, establishing behavioral goals, and enhancing their ability to independently manage body weight (American College of Obstetricians and Gynecologists, 2022).

Health behavior change is strongly influenced by an individual's level of knowledge. According to Soekidjo Notoatmodjo, adequate knowledge promotes positive attitudes and encourages individuals to make more appropriate health-related decisions. In family planning services, an understanding of the mechanisms of hormonal contraceptives, their potential side effects, and appropriate management strategies is expected to improve acceptors' adherence to healthy lifestyle practices, thereby facilitating more effective weight control (Notoatmodjo, 2018).

Previous studies have consistently demonstrated that health counseling positively influences knowledge, behavioral change, and adherence to therapeutic interventions and health programs. Education regarding balanced nutrition, regular physical activity, and routine weight monitoring has been shown to contribute to effective weight management

among women of reproductive age. However, most previous studies have evaluated the effectiveness of general health education or lifestyle interventions independently. Consequently, evidence regarding the effectiveness of complementary counseling specifically designed for hormonal contraceptive users remains limited.

A study conducted by Retno Dewi Priskusanti demonstrated that systematically designed health education interventions significantly improved knowledge, attitudes, and health-related behaviors among maternal healthcare target groups. This structured educational approach enabled participants to gain a more comprehensive understanding of health-related information, thereby increasing their readiness to implement behavioral changes in their daily lives. These findings provide a theoretical basis suggesting that complementary counseling may offer similar benefits for hormonal contraceptive users in managing weight gain.

Based on the existing body of evidence, a significant research gap remains regarding the limited number of studies evaluating the effectiveness of complementary counseling as an integrated intervention package combining contraceptive education, nutritional counseling, physical activity guidance, regular weight monitoring, and motivational enhancement for hormonal contraceptive users. Most previous studies have focused on only a single component of the intervention, thereby failing to provide a comprehensive evaluation of an integrated approach within family planning services.

Conceptually, this study assumes that complementary counseling can improve knowledge, foster more positive attitudes, strengthen motivation, and encourage healthy behavioral changes among hormonal contraceptive users. These behavioral improvements are expected to facilitate weight management during contraceptive use, increase satisfaction with family planning services, and promote the continued use of hormonal contraceptive methods. Therefore, this study is expected to provide scientific evidence regarding the effectiveness of complementary counseling as an innovative component of family planning services in primary healthcare facilities.

3. RESEARCH METHODS

This study employed a quantitative approach using a quasi-experimental pretest–posttest control group design. This design was selected to evaluate the effectiveness of complementary counseling in controlling weight gain among hormonal contraceptive users by comparing changes in body weight between the intervention group and the control group receiving routine counseling services. Measurements were performed before and after the intervention, allowing objective assessment of changes occurring throughout the study period (Creswell & Creswell, 2018; Polit & Beck, 2021).

The study was conducted at Wanggarasi Primary Health Center, Pohuwato Regency, Gorontalo Province, Indonesia, from April to July 2026. The study population consisted of all hormonal contraceptive acceptors using injectable contraceptives, oral contraceptive pills, or contraceptive implants who attended family planning services at Wanggarasi Primary Health Center during the study period. A total of 60 respondents were recruited using a consecutive sampling technique based on the predefined inclusion and exclusion criteria. Participants were subsequently allocated into two groups: 30 respondents in the intervention group and 30 respondents in the control group.

The inclusion criteria comprised women of reproductive age who had been using hormonal contraception for at least three months, had stable health conditions, were willing to participate throughout the study, and provided written informed consent. Respondents who were undergoing intensive weight-loss programs, had metabolic disorders affecting body weight, were pregnant, or did not complete the entire intervention protocol were excluded from the final analysis.

The independent variable (X) was complementary counseling, whereas the dependent variable (Y) was weight gain control among hormonal contraceptive users. The intervention group received four complementary counseling sessions over an eight-week period, covering education on the side effects of hormonal contraceptives, balanced nutritional management, physical activity, body weight monitoring, stress management, and strategies for maintaining motivation to sustain healthy behavioral changes. The control

group received routine family planning counseling according to the standard procedures implemented at the primary healthcare center.

Data were collected using a respondent characteristics questionnaire, a questionnaire assessing knowledge of hormonal contraception and weight management, a physical activity monitoring form, and body weight measurements obtained using a calibrated digital weighing scale with an accuracy of 0.1 kg. Measurements were conducted at baseline (pretest) and after completion of the intervention (posttest) by trained personnel to ensure consistency in measurement procedures.

The research instruments underwent content validity assessment by experts in midwifery, nutrition, and research methodology. Subsequently, empirical validity testing was performed among respondents outside the study setting, and all questionnaire items met the established validity criteria. Reliability testing demonstrated a Cronbach's Alpha coefficient of 0.92, indicating excellent internal consistency and confirming the suitability of the instruments for data collection in this study.

Data analysis was conducted using statistical software. Univariate analysis was performed to describe respondent characteristics using frequency distributions, percentages, means, and standard deviations. Differences in body weight before and after the intervention within each group were analyzed using the paired t-test, whereas differences in intervention effectiveness between the intervention and control groups were evaluated using the independent t-test. To determine the effect of complementary counseling after controlling for potential confounding variables, including age, baseline body mass index (BMI), type of hormonal contraceptive, and duration of contraceptive use, multiple linear regression analysis was performed. All statistical analyses were conducted using a significance level of $\alpha = 0.05$ (Field, 2018).

The conceptual framework of this study proposes that complementary counseling, as the independent variable, influences weight gain control among hormonal contraceptive users through improvements in knowledge, healthier dietary behaviors, increased physical activity, and enhanced motivation to adopt healthy lifestyle practices. The relationships among these variables were analyzed to determine the effectiveness of the intervention in controlling body weight during the study period.

Conceptual Framework of the Study

Independent Variable (X)

Complementary Counseling

1. Education on hormonal contraception
2. Balanced nutrition counseling
3. Physical activity
4. Body weight monitoring
5. Stress management
6. Motivational enhancement



Dependent Variable (Y)

Weight Gain Control Among Hormonal Contraceptive Users

Description of the conceptual framework: The independent variable (X) was the provision of complementary counseling, consisting of education on hormonal contraception, nutritional counseling, physical activity guidance, body weight monitoring, stress management, and motivational enhancement. The dependent variable (Y) was weight gain control, measured by changes in body weight before and after the intervention. The effectiveness of the intervention was evaluated by comparing changes in body weight between the intervention and control groups using appropriate statistical analyses.

4. RESULTS AND DISCUSSION

Data Collection Process

This study was conducted at Wanggarasi Primary Health Center, Pohuwato Regency, Gorontalo Province, Indonesia, between April and July 2026. Prior to data collection, ethical approval was obtained from the Health Research Ethics Committee, permission was granted by the Pohuwato District Health Office, and institutional approval was obtained from the Head of Wanggarasi Primary Health Center. All participants received a detailed explanation regarding the study objectives, benefits, research procedures, and participants' rights before providing written informed consent.

A total of 60 hormonal contraceptive users who met the inclusion criteria were recruited using a consecutive sampling technique. Participants were assigned to either the intervention group ($n = 30$) or the control group ($n = 30$). The intervention group received four sessions of complementary counseling over an eight-week period, including education on the side effects of hormonal contraceptives, balanced dietary management, physical activity, body weight monitoring, and motivational enhancement. The control group received routine family planning counseling according to the standard procedures implemented at the primary healthcare center. Body weight was measured at baseline (pretest) and after completion of the intervention (posttest) using a calibrated digital weighing scale.

Respondent Characteristics

Table 1. Respondent Characteristics ($n = 60$).

Characteristics	Intervention ($n = 30$)	Control ($n = 30$)
Age (years), mean $\pm$ SD	31.4 $\pm$ 4.8	30.9 $\pm$ 5.1
Baseline BMI (kg/m^2), mean $\pm$ SD	25.1 $\pm$ 2.7	24.8 $\pm$ 2.9
Injectable contraceptive users	18 (60.0%)	19 (63.3%)
Oral contraceptive pill users	7 (23.3%)	6 (20.0%)
Implant users	5 (16.7%)	5 (16.7%)
High school/College education	23 (76.7%)	22 (73.3%)

Source: Research data, 2026.

As presented in Table 1, the baseline characteristics of both groups were relatively comparable. No significant differences were observed in age, baseline body mass index, type of hormonal contraceptive used, or educational level, indicating that the two groups were homogeneous at baseline and appropriate for comparison of the intervention outcomes.

Changes in Body Weight Before and After the Intervention

Table 2. Changes in Body Weight in the Intervention and Control Groups.

Group	Pretest (kg)	Posttest (kg)	Mean Change (kg)	p -value*
Intervention	64.80 $\pm$ 7.10	64.10 $\pm$ 6.90	-0.70 $\pm$ 0.48	<0.001
Control	65.20 $\pm$ 6.80	66.10 $\pm$ 6.90	+0.90 $\pm$ 0.55	0.018

Paired t-test

Source: Research data, 2026.

As shown in Table 2, participants who received complementary counseling experienced a mean body weight reduction of 0.70 kg, whereas those in the control group experienced a mean body weight increase of 0.90 kg. The paired t -test demonstrated statistically significant changes within both groups; however, the direction of change differed substantially. These findings indicate that complementary counseling contributed to the control of weight gain among hormonal contraceptive users.

Comparison of Intervention Effectiveness Between Groups

Table 3. Independent t-test Results.

Variable	Mean Difference (kg)	95% CI	p -value
Change in Body Weight	-1.60	-2.01 to -1.19	<0.001

Source: Research data, 2026.

As presented in Table 3, a statistically significant difference was observed between the intervention and control groups ($p < 0.001$). The mean difference in body weight change of 1.60 kg indicates that complementary counseling was significantly more effective than routine counseling in controlling weight gain among hormonal contraceptive users.

Multiple Linear Regression Analysis

Table 4. Factors Associated with Changes in Body Weight.

Variable	β	t	p-value
Complementary Counseling	-0.61	-5.84	<0.001
Age	0.08	0.84	0.405
Baseline BMI	0.19	1.77	0.081
Type of Hormonal Contraceptive	0.12	1.14	0.259

$R^2 = 0.49$

Source: Research data, 2026.

The multiple linear regression analysis demonstrated that complementary counseling was the strongest predictor of body weight change ($\beta = -0.61$; $p < 0.001$). The coefficient of determination ($R^2 = 0.49$) indicates that the model explained 49% of the variation in body weight change observed during the study period.

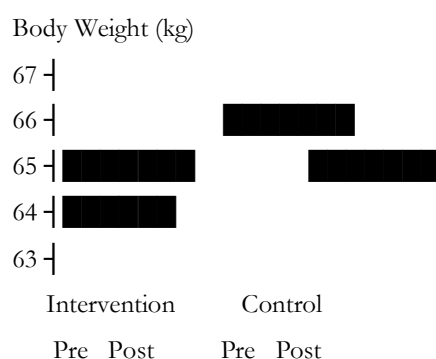


Figure 1. Mean Changes in Body Weight.

Source: Research data, 2026.

As illustrated in Figure 1, participants in the intervention group demonstrated a decreasing trend in body weight following complementary counseling, whereas participants in the control group experienced an increase in body weight throughout the observation period. This graphical presentation further supports the statistical findings regarding the effectiveness of the intervention.

Interpretation of the Findings

The findings of this study demonstrate that complementary counseling was effective in controlling weight gain among hormonal contraceptive users. The intervention, which integrated education on healthy dietary practices, physical activity, body weight monitoring, and motivational enhancement, improved participants' awareness and adoption of healthy lifestyle behaviors. These findings support the Health Belief Model, which suggests that enhanced perceived benefits and self-efficacy encourage individuals to adopt and sustain positive health behaviors.

The results also support the Theory of Planned Behavior, which proposes that an individual's intention to engage in healthy behaviors is influenced by attitudes, subjective norms, and perceived behavioral control. Complementary counseling provided participants with more comprehensive information, thereby increasing their confidence in managing dietary habits and physical activity while using hormonal contraceptives.

These findings are consistent with previous studies reporting that health counseling improves adherence to healthy lifestyle recommendations and contributes to weight management among women of reproductive age. However, the present study offers additional value by implementing an integrated counseling approach that combines multiple intervention components into a single educational package, resulting in greater improvements than those achieved through routine counseling alone.

Implications of the Study

From a theoretical perspective, this study reinforces the concept that health behavior change can be achieved through structured and continuous educational interventions. The integration of nutritional counseling, physical activity guidance, and motivational enhancement contributed significantly to weight management among hormonal contraceptive users.

From a practical perspective, these findings support the incorporation of complementary counseling into the standard family planning services provided by healthcare facilities. The implementation of this intervention is expected to reduce complaints related to weight gain, improve acceptor satisfaction, decrease the discontinuation rate of hormonal contraceptive use, and ultimately enhance the long-term success of family planning programs.

DISCUSSION

The findings of this study demonstrate that complementary counseling had a significant effect on controlling weight gain among hormonal contraceptive users. Participants in the intervention group experienced a mean body weight reduction of 0.70 kg, whereas those in the control group showed a mean body weight increase of 0.90 kg after the eight-week observation period. Statistical analysis revealed a significant difference between the two groups ($p < 0.001$), indicating that the study hypothesis was supported. These findings suggest that a structured educational intervention can assist hormonal contraceptive users in managing body weight through positive health behavior modification. The researchers suggest that complementary counseling may serve as an effective preventive approach for reducing weight gain, which is frequently reported as one of the primary reasons for discontinuing hormonal contraceptive use (World Health Organization, 2023).

The effectiveness of complementary counseling observed in this study can be explained by the Health Belief Model (HBM) developed by Irwin M. Rosenstock. This model proposes that individuals are more likely to adopt behavioral changes when they recognize the benefits of health-related actions, understand potential health risks, and believe that behavioral modification will produce favorable outcomes. Through complementary counseling, participants received information regarding the mechanisms underlying weight gain associated with hormonal contraceptive use, together with practical strategies for weight management through balanced nutrition, regular physical activity, and routine body weight monitoring. This increased understanding may have contributed to the development of more consistent healthy behaviors throughout the study period (Rosenstock, 1974).

The findings also support the Theory of Planned Behavior (TPB) proposed by Icek Ajzen. According to this theory, an individual's behavior is influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. Complementary counseling not only enhanced participants' knowledge but also strengthened their motivation and confidence to regulate dietary habits and increase physical activity. The researchers suggest that the combination of structured education and continuous support was an important factor enabling participants to maintain healthy behaviors while using hormonal contraceptives, thereby facilitating more effective weight management (Ajzen, 1991).

The multiple linear regression analysis identified complementary counseling as the strongest predictor of body weight change ($\beta = -0.61$; $p < 0.001$), even after adjustment for age, baseline body mass index, and type of hormonal contraceptive used. These findings indicate that changes in body weight are influenced not only by biological factors but also by educational interventions capable of modifying health-related behaviors. The researchers consider that the success of this intervention highlights the importance of a holistic approach to family planning services, integrating health education, nutritional counseling, physical activity promotion, and regular health monitoring into routine care for hormonal contraceptive users.

The present findings are consistent with previous studies reporting that health education and lifestyle modification interventions contribute to effective weight management among women of reproductive age. Several studies have also demonstrated that repeated counseling is more effective than a single educational session because it provides participants with opportunities to evaluate behavioral changes and receive continuous feedback. However, most previous studies have focused on either nutritional education or physical activity as

separate interventions. The present study extends the existing evidence by demonstrating that a complementary counseling approach integrating multiple intervention components into a single educational package produces a more comprehensive effect on weight management (Polit & Beck, 2021).

A study conducted by Retno Dewi Prisusanti similarly reported that systematically designed health education interventions significantly improved knowledge, attitudes, and health-related behaviors among maternal healthcare target groups. These findings indicate that behavioral change is influenced not only by the provision of information but also by the quality of communication between healthcare professionals and participants, the educational methods employed, and the continuity of supportive guidance. The findings of the present study reinforce this perspective by demonstrating that structured complementary counseling can effectively promote behavioral changes that contribute to weight management during hormonal contraceptive use.

Although the findings demonstrated favorable effectiveness, several additional factors that may influence body weight changes were not comprehensively evaluated in this study. These factors include daily dietary intake, levels of physical activity outside the counseling program, psychological conditions, sleep quality, individual hormonal profiles, and genetic predisposition. The variation in individual responses observed among participants suggests that weight management is a complex process influenced by interactions among biological, behavioral, and environmental determinants. Therefore, the researchers suggest that individualized counseling approaches should be considered to tailor interventions according to the specific needs of each hormonal contraceptive user.

Overall, the findings suggest that complementary counseling should be considered as an integral component of standard family planning services in primary healthcare settings. Integrating education on hormonal contraception, balanced nutrition, physical activity, body weight monitoring, and motivational enhancement has the potential to improve service quality, reduce complaints related to contraceptive side effects, and promote the continued use of hormonal contraceptive methods. Nevertheless, these findings should be interpreted with caution because the study employed a quasi-experimental design, included a relatively small sample size, and was conducted at a single primary healthcare center, thereby limiting the generalizability of the results. Future studies are recommended to employ randomized controlled trial designs with larger sample sizes, involve multiple healthcare facilities, and evaluate the long-term effects of complementary counseling on nutritional status, quality of life, and the continuation of hormonal contraceptive use (Creswell & Creswell, 2018; Polit & Beck, 2021).

5. CONCLUSION, RECOMMENDATIONS, AND ACKNOWLEDGMENTS

Conclusion and Recommendations

The findings of this study demonstrate that complementary counseling is effective in controlling weight gain among hormonal contraceptive users. Participants who received the intervention exhibited more favorable body weight changes than those who received routine counseling alone, and the statistical analysis confirmed that this difference was significant. Furthermore, multivariable analysis identified complementary counseling as the strongest predictor of body weight change after adjusting for age, baseline body mass index, and type of hormonal contraceptive. Therefore, the objective of this study—to evaluate the effectiveness of complementary counseling in controlling weight gain among hormonal contraceptive users—was successfully achieved, and the study hypothesis was supported by the empirical evidence.

Nevertheless, these findings should be interpreted with appropriate caution. Body weight changes among hormonal contraceptive users are influenced by a complex interaction of biological, behavioral, and environmental factors that could not be fully controlled throughout the study. Variables such as daily dietary intake, physical activity performed outside the intervention program, sleep quality, stress levels, individual hormonal profiles, and genetic predisposition may also contribute to body weight changes. Consequently, the findings should not be generalized to all hormonal contraceptive users without considering individual characteristics and differences in healthcare settings.

Based on the study findings, complementary counseling should be considered as an integral component of family planning services in primary healthcare facilities. Healthcare providers are encouraged to integrate education on the side effects of hormonal contraceptives with nutritional counseling, physical activity recommendations, regular body weight monitoring, and motivational enhancement strategies during each counseling session. This comprehensive approach is expected to assist hormonal contraceptive users in managing body weight more effectively, improve satisfaction with family planning services, and reduce discontinuation of hormonal contraceptive use due to concerns regarding weight gain.

This study has several limitations that should be considered when interpreting the findings. The relatively small sample size and the inclusion of participants from only a single primary healthcare center limit the generalizability of the results. In addition, the eight-week intervention period may not adequately reflect the long-term effectiveness of complementary counseling. Furthermore, this study did not objectively assess participants' adherence to dietary recommendations and physical activity or evaluate psychosocial factors that may influence body weight changes. These limitations should be carefully considered when interpreting the study findings.

Future studies are recommended to employ randomized controlled trial designs with larger sample sizes, include multiple healthcare facilities, and extend both the intervention and follow-up periods. In addition to evaluating changes in body weight, future research should assess body composition, waist circumference, adherence to dietary and physical activity recommendations, quality of life, acceptor satisfaction with family planning services, and the continuation of hormonal contraceptive use. Such studies would provide stronger scientific evidence for developing an effective, practical, and sustainable complementary counseling model to support improvements in the quality of family planning services in Indonesia.

Acknowledgments

The authors would like to express their sincere gratitude to all individuals and institutions whose support, collaboration, and contributions made this study possible throughout the planning, implementation, data analysis, and manuscript preparation stages. The academic guidance, technical assistance, administrative support, and provision of research facilities were invaluable in ensuring the successful completion of this study.

The authors gratefully acknowledge their affiliated institution for providing academic support, research opportunities, and the facilities necessary to conduct this study. The authors also extend their appreciation to the Pohuwato District Health Office, the Head of Wanggarasi Primary Health Center, and all healthcare professionals, particularly the Family Planning (FP) program staff, midwives, and reproductive health personnel, for granting research permission, facilitating the implementation of the intervention, assisting with participant coordination, and providing continuous support throughout the data collection process. Their collaboration contributed substantially to the successful completion of this research.

The authors sincerely thank all hormonal contraceptive acceptors who voluntarily participated in this study. Their willingness to attend all complementary counseling sessions, undergo regular body weight measurements, and provide accurate and complete information was essential for obtaining valid and reliable research data. Appreciation is also extended to community health volunteers, administrative personnel, and all individuals who assisted with participant identification, activity scheduling, research documentation, and data verification during the study.

The authors are deeply grateful to the supervisors, reviewers, experts in midwifery, nutrition specialists, and colleagues who provided valuable scientific input, constructive criticism, and thoughtful recommendations throughout the proposal development, study implementation, data analysis, and manuscript revision processes. Their contributions significantly improved the methodological quality, analytical rigor, and scientific presentation of this study.

If this study received financial support from governmental agencies, universities, or other funding institutions, the authors gratefully acknowledge their trust and support, which enabled the implementation of all stages of the research, including instrument procurement,

intervention delivery, data collection, statistical analysis, and manuscript preparation. The findings, interpretations, discussions, and conclusions presented in this article are solely the responsibility of the authors and do not necessarily reflect the views or policies of the funding organizations.

This article is an output of the research entitled "The Effectiveness of Complementary Counseling in Controlling Weight Gain among Hormonal Contraceptive Users." If this manuscript is submitted as part of a bachelor's thesis, master's thesis, doctoral dissertation, conference proceeding, or research grant output, it constitutes an integral component of that academic work. The authors hope that the findings will contribute to the advancement of midwifery, reproductive health, and family planning services, and serve as a valuable reference for healthcare professionals, researchers, and policymakers in developing more comprehensive counseling models to improve the quality of family planning services, promote the continuation of hormonal contraceptive use, and enhance the health of women of reproductive age in Indonesia.

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