The Effect of Couple-Based Intervention on Sexual Risky Behavior Among Prospective Brides and Grooms in Bandung, Indonesia

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Abstract
Objective: This study evaluates the effect of a couple-based intervention (CBI) on self-efficacy, behavioral intention, and perceived benefits related to sexual risk behaviors among prospective brides and grooms in Bandung, Indonesia
Method: A quasi-experimental study design was implemented from May to June 2023, involving 44 participants recruited via convenience sampling. Participants were divided into intervention and control groups. The CBI included psychoeducation, communication skill-building, and practical risk reduction strategies delivered through interactive sessions. Data were collected using the Sexual Behavioural Abstinence and Avoidance of High-Risk Situation Questionnaire (SBAHAQ). Pre- and post-intervention assessments were analyzed using ANCOVA to determine the effectiveness of the intervention.
Results: The intervention group exhibited significant improvements in self-efficacy (mean difference = 2.28, $p < 0.001$), behavioral intention (mean difference = 1.96, $p < 0.001$), and perceived benefits (mean difference = 3.55, $p < 0.001$), alongside a notable increase in total scores (mean difference = 7.77, $p < 0.001$). In contrast, the control group showed minimal or non-significant changes across these variables ($p > 0.05$).
Conclusion: The findings underscore the effectiveness of CBIs in reducing risky sexual behaviors by enhancing self-efficacy, behavioral intention, and perceived benefits among prospective marital couples. Culturally adapted CBIs should be integrated into prenuptial programs to improve sexual and reproductive health outcomes in Indonesia.

Keywords: couple-based intervention, risky sexual behavior, self-efficacy, behavioral intention, perceived benefits

INTRODUCTION

Human Immunodeficiency Virus (HIV) and sexually transmitted infections (STIs) remain pressing global health concerns, marked by significant transmission rates. By the end of 2021, approximately 38.4 million individuals worldwide were living with HIV, with an estimated global prevalence of 0.7% among adults aged 15–49 (UNAIDS, 2022). In Indonesia, HIV cases have steadily increased, with a cumulative total of 329,581 reported by March 2022. West Java, a province with a large population, ranks third nationally with 52,970 cases (Ministry of Health, 2022). Similarly, STI cases are prevalent, with over 10,000 laboratory-confirmed cases reported in 2022 (Ministry of Health, 2022).

Sexual behavior is a critical determinant of reproductive health outcomes. Risky sexual behaviors, ranging from physical intimacy to

unprotected intercourse, can lead to STIs, unintended pregnancies, and HIV/AIDS (Smoak et al., 2020). Prospective brides and grooms represent a unique demographic with significant potential to influence the trajectory of HIV/STI prevention. However, prenuptial health screenings, including HIV testing and reproductive health counseling, are often undervalued in Indonesian society, posing risks for unrecognized HIV transmission (Ministry of Health, 2022).

HIV transmission within households is particularly alarming, with housewives constituting the second-largest occupational group affected by HIV, totaling 19,581 cases (Ministry of Health, 2022). A major contributing factor is the lack of awareness among couples regarding their HIV status prior to marriage, underscoring the necessity of early screening and targeted interventions to prevent mother-to-child transmission through programs such as the Prevention of Mother-to-Child Transmission (PMTCT) initiative (World Health Organization, 2021).

Behavioral and biomedical interventions have emerged as pivotal strategies to mitigate risky sexual behaviors. Studies such as those by Starks et al. (2019) have demonstrated the efficacy of motivational interviewing and assertive communication training in reducing risky behaviors, achieving a 56% reduction in unprotected sexual activity among participants. Similarly, counseling and testing-based interventions, like those implemented by Goddard-Eckrich et al. (2022), have shown significant reductions in unprotected sexual encounters among couples, highlighting the potential of couple-based approaches. Biomedical interventions, such as pre-exposure prophylaxis (PrEP), have also proven effective in preventing HIV transmission, as evidenced by Gamarel et al. (2020) in San Francisco. However, the applicability of such interventions in Indonesia is limited due to cultural and contextual differences. Moreover, existing interventions often target specific populations, such as individuals with substance use disorders or serodiscordant couples, rather than prospective brides and grooms.

Couple-based interventions (CBIs) offer a promising approach by emphasizing mutual communication, joint decision-making, and shared responsibility for reproductive health. These interventions have demonstrated success in improving condom use, reducing intimate partner violence, and enhancing reproductive health outcomes (El-Bassel et al., 2019; Belus et al., 2019). Despite their effectiveness, CBIs remain underexplored in the Indonesian context, particularly among prospective marital couples.

While global studies have highlighted the effectiveness of CBIs in reducing risky sexual behaviors, limitations such as participant age restrictions, a focus on specific high-risk groups (e.g., drug users), and contextual differences reduce their generalizability to Indonesia. Existing interventions predominantly target populations in Western contexts, neglecting the unique cultural, social, and behavioral dynamics of Indonesian couples preparing for marriage. Additionally, research evaluating CBIs in Indonesia remains scarce, creating a gap in understanding their potential impact on reducing risky sexual behaviors in this population. This study aims to address these gaps by examining the effect of couple-based interventions on risky sexual behaviors among prospective brides and grooms in Bandung, Indonesia. By focusing on this demographic, the study seeks to provide culturally relevant insights and evidence to inform public health strategies for HIV and STI prevention in Indonesia.

METHODS

Study Design

This study employed a quantitative research methodology with a quasi-experimental design. A quasi-experiment considers programs or policies as "interventions" to evaluate their impact on specific variables. The study was conducted in the operational area of the Religious Affairs Office in Bandung City, Indonesia, from May to June 2023.

Intervention procedure

The intervention protocol for a study on the impact of a couple-based approach to reducing sexual risky behavior among prospective brides and grooms in Bandung, Indonesia, was carefully designed to address relational dynamics and promote healthier decision-making within intimate partnerships. The intervention consisted of a structured series of interactive sessions delivered over a defined timeframe, combining psychoeducation, communication training, and behavioral strategies for risk reduction. The initial session provided comprehensive, culturally tailored education on sexual health, including accurate information about sexually transmitted infections (STIs), HIV/AIDS, and the risks associated with unprotected sex. Emphasis was placed on contextualizing this information within the framework of committed relationships. Subsequent sessions focused on enhancing couple communication, enabling participants to engage in open discussions about sexual boundaries, expectations, and shared responsibility for sexual health. Techniques such as role-playing and guided dialogue were employed to strengthen trust and improve negotiation skills related to safer sex practices. Trained facilitators supported participants in applying these skills and provided constructive feedback in a supportive environment. Behavioral strategies introduced included consistent contraceptive use, proper application of barrier methods, and mutual decision-making. Scenario-based exercises enabled couples to navigate real-life challenges such as peer pressure and conflict resolution, ultimately fostering healthier, more informed sexual behaviors and relationship dynamics.The intervention also included modules on strengthening relationship dynamics, addressing power imbalances, and fostering mutual respect. These components were designed to enhance emotional intimacy and equip couples with tools to maintain healthy and equitable partnerships. The sessions utilized interactive media, group discussions, and individual reflection exercises to engage participants effectively. To reinforce learning and encourage adherence to safer practices, couples received supplemental materials, including brochures, videos, and access to a mobile application that provided reminders, additional educational content, and interactive quizzes. Follow-up support was offered through optional booster sessions to address ongoing challenges and celebrate successes in adopting safer behaviors. The protocol was evaluated through pre- and post-intervention assessments to measure changes in knowledge, attitudes, and reported behaviors. Ethical considerations were paramount, with informed consent obtained from all participants and confidentiality strictly maintained throughout the process. This couple-based intervention aimed to provide a comprehensive, supportive, and empowering approach to reducing sexual risky behavior among prospective brides and grooms, contributing to healthier relationships and communities.

Population and Sample

The target population consisted of engaged couples within the operational area of the Religious Affairs Office in Bandung City. Convenience sampling was used to recruit participants. The sample size was calculated using G*Power software version 3.1.9.2, employing an F-Test for ANCOVA with fixed effects, main effects, and interactions. An effect size of 0.5, an alpha error probability of 0.05, and a power of 0.80 yielded a minimum sample size of 34 participants. Accounting for a 10–15% attrition rate, the total sample size was set at 44 respondents.

Research Instrument

Two questionnaires were utilized in this study: first was a demographic questionnaire to collect participants' age, occupation, and education level.

The Sexual Behavioural Abstinence and Avoidance of High-Risk Situation Questionnaire (SBAHAQ), which comprises 14 items measuring: Self-Efficacy (SE): Four items evaluating personal control, avoidance of risky

situations, refusal of high-risk scenarios, and behavioral capability to say no. Behavioral Intention (BI): Four items assessing abstinence intentions and rejection of negative responses. Perceived Benefits (PB): Six items assessing individual and social benefits of abstinence, avoiding premarital sexual activity, rejecting risky behaviors, and avoiding high-risk situations. Responses were scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The validity of the SBAHAQ was confirmed using the Content Validity Ratio (CVR) with a score of 0.85. Reliability testing demonstrated satisfactory internal consistency, with Cronbach's alpha values of 0.85 for SE, 0.87 for PB, and 0.77 for BI, indicating acceptable reliability levels. Construct validity was assessed through factor analysis to ensure the questionnaire measured the intended constructs (Polit & Beck, 2021).

Data Analysis

Data analysis was performed in stages using a statistical software package (IBM SPSS version 26). Normality tests were conducted on the data before applying statistical tests. Frequency distributions were used to describe demographic characteristics and the participants' knowledge of sexual risk behavior prevention before and after the intervention. Measures such as mean, standard deviation, minimum, and maximum values were reported. The relationship between variables was assessed to evaluate the impact of the couple-based intervention on the prevention of risky sexual behaviors. Cross-tabulations were used for initial variable characterization. ANCOVA tests were employed to compare pre- and post-intervention outcomes between control and intervention groups. Significance was determined at a p-value < 0.05.

Ethical Considerations

Ethical approval was obtained from the relevant Institutional Review Board, and all participants provided informed consent before participation. Data confidentiality and anonymity were maintained throughout the study.

RESULTS

The mean age of respondents in the intervention group was 24.95 years (SD=0.575), while in the control group, it was 22.91 years (SD=0.322). Most respondents in both groups were employed, with Senior High School being the most common education level. Statistical analysis indicated no significant differences in demographic characteristics between groups (P > 0.05) (Table 1).

Table 1. Demographic characteristics of respondents (n=44)

Variable	Total (n=44)	Intervention (n=22)	Control (n=22)	P-value
Age (years)	23.93 ± 0.44	24.95 ± 0.575	22.91 ± 0.322	0.528[1]
Education				
Elementary School	1 (4.5%)	0 (0%)	1 (4.5%)	
Junior High School	12 (27.3%)	6 (27.3%)	6 (27.3%)	
Senior High School	9 (20.4%)	5 (22.7%)	4 (18.2%)	
Vocational School	10 (22.7%)	6 (27.3%)	4 (18.2%)	
Bachelor's Degree	6 (13.6%)	3 (13.6%)	3 (13.6%)	0.377[1]
Master's Degree	6 (13.6%)	1 (4.5%)	5 (22.7%)	
Employment				
Unemployed	7 (15.9%)	2 (9.1%)	5 (22.7%)	
Employed	37 (84.1%)	20 (90.9%)	17 (77.3%)	0.176[1]

Note: [1]Chi-square test for categorical variables; independent t-test for age.

The intervention group demonstrated statistically significant improvements in total score and all domain scores (P < 0.001). The control group did not exhibit significant changes (P > 0.05). This indicates the effectiveness of the couple-based intervention in improving targeted outcomes (Table 2).

Table 2. Bivariate analysis of pre- and post-intervention scores

Variable	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	t	Mean Difference	P-value
Total Score					
Intervention Group	57.59 ± 4.636	65.36 ± 3.032	-8.617	7.77	<0.001
Control Group	51.82 ± 3.554	53.59 ± 4.415	-1.646	1.77	0.115
Self-Efficacy					
Intervention Group	16.77 ± 1.798	19.05 ± 0.950	-6.507	2.28	<0.001
Control Group	16.50 ± 1.871	15.45 ± 2.241	1.920	-0.6	0.069
Behavioral Intention					
Intervention Group	16.36 ± 1.529	18.32 ± 1.129	-6.565	1.96	<0.001
Control Group	15.68 ± 1.585	14.82 ± 1.866	1.833	-0.86	0.081
Perceived Benefit					
Intervention Group	24.45 ± 2.385	28.00 ± 1.662	-6.548	3.55	<0.001
Control Group	23.00 ± 1.447	23.32 ± 2.124	-0.628	0.32	0.537

The analysis revealed significant improvements in the intervention group across all variables, while changes in the control group were minimal or not statistically significant. The total score for the intervention group increased significantly from 57.59 ± 4.636 to 65.36 ± 3.032 (mean difference = 7.77, p < 0.001), whereas the control group showed a slight and non-significant increase from 51.82 ± 3.554 to 53.59 ± 4.415 (mean difference = 1.77, p = 0.115). Self-efficacy in the intervention group improved from 16.77 ± 1.798 to 19.05 ± 0.950 (mean difference = 2.28, p < 0.001), while the control group saw a non-significant decrease from 16.50 ± 1.871 to 15.45 ± 2.241 (mean difference = -0.6, p = 0.069). Behavioral intention also increased significantly in the intervention group from 16.36 ± 1.529 to 18.32 ± 1.129 (mean difference = 1.96, p < 0.001), with the control group experiencing a non-significant decline from 15.68 ± 1.585 to 14.82 ± 1.866 (mean difference = -0.86, p = 0.081). Perceived benefit rose significantly in the intervention group from 24.45 ± 2.385 to 28.00 ± 1.662 (mean difference = 3.55, p < 0.001), while the control group showed a non-significant increase from 23.00 ± 1.447 to 23.32 ± 2.124 (mean difference = 0.32, p = 0.537). These results indicate that the intervention was effective in enhancing self-efficacy, behavioral intention, and perceived benefits, leading to an overall improvement in total scores (Table 3).

Table 3. ANCOVA results of pre- and post-intervention scores

Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Post-test total score	Corrected Model	906.853	3	302.284	17.498	0.001
	Intercept	359.236	1	359.236	20.794	0.001
	Pre-test	182.233	1	182.233	10.548	0.213
	Education Level	0.04	1	0.04	2	0.962
Post-test self-efficacy	Corrected Model	280.094	1	280.094	16.213	0.001

	Intercept	87.956	3	29.319	15.632	0.001
	Pre-test	43.703	1	43.703	23.302	0.001
	Education Level	30.665	1	30.665	16.35	0.001
	Group	**63.343**	**1**	**63.343**	**33.773**	**0.001**
Post-test behavioural intention	Corrected Model	100.804	3	33.601	17.193	0.001
	Intercept	43.657	1	43.657	22.338	0.001
	Pre-test	21.126	1	21.126	10.81	0.122
	Education Level	661	1	661	338	0.564
	Group	**61.028**	**1**	**61.028**	**31.227**	**0.001**
Post-test perceived benefit	Corrected Model	130.365	3	43.455	10.859	0.001
	Intercept	117.496	1	117.496	29.362	0.001
	PRE	15.778	1	15.778	3.943	0.541
	Education Level	307	1	307	77	0.783
	Group	**76.365**	**1**	**76.365**	**19.083**	**0.001**

DISCUSSION

The present study evaluated the effectiveness of a couple-based intervention on self-efficacy, behavioral intention, perceived benefits, and overall improvement in total scores among respondents. The findings indicate that the intervention group experienced statistically significant improvements in all measured outcomes compared to the control group, where changes were either minimal or non-significant. This discussion explores these results in relation to previous studies, theoretical implications, and practical applications.

Self-efficacy showed significant improvement in the intervention group. This finding aligns with Bandura's (1997) theory of self-efficacy, which posits that targeted interventions can enhance individuals' confidence in their ability to perform specific behaviors. Interventions that provide mastery experiences, social modeling, and verbal encouragement play a critical role in reinforcing self-belief and capability (Bandura, 1997). Previous studies have reported similar outcomes, where interventions that incorporate active engagement and feedback effectively bolster self-efficacy in health-related contexts (Shin et al., 2020; Wong et al., 2021). For example, a meta-analysis of self-efficacy-focused interventions found significant improvements in various health behaviors, emphasizing the pivotal role of structured support and practical skill development (Lopez et al., 2023).

Behavioral intention also significantly increased in the intervention group. Behavioral intention reflects the motivational factors influencing behavior, as described in the Theory of Planned Behavior (Ajzen, 1991). The intervention's structured approach likely provided clarity and motivation, fostering stronger intentions to adopt positive behaviors. Similar findings have been reported in studies using couple-based interventions, where mutual support enhances motivation and goal-setting behaviors (Hawkins et al., 2022). Moreover, the intervention's emphasis on goal-oriented activities and shared accountability is consistent with research showing that social and emotional factors significantly influence intentions and subsequent behavior (Fishbein & Cappella, 2021). Such increases in behavioral intention are crucial for bridging the gap between awareness

and action, as highlighted in public health frameworks (Michie et al., 2014).

The intervention group demonstrated a significant increase in perceived benefits. This suggests that participants recognized greater value in engaging with the intervention, which may contribute to sustained behavioral changes. Perceived benefit is a critical component of health behavior change models, such as the Health Belief Model, and has been shown to mediate the relationship between intention and action (Champion & Skinner, 2022). Interventions that clearly communicate potential gains and provide experiential evidence of benefits often achieve higher adherence and satisfaction (Zhang et al., 2020). Additionally, highlighting benefits through positive reinforcement and relatable examples has been shown to influence long-term behavior adoption, particularly in health promotion initiatives (Glanz & Bishop, 2021).

The total score improvements in the intervention group, reinforce the intervention's holistic effectiveness. Unlike the control group, where changes were negligible ($P > 0.05$), the intervention provided a comprehensive framework addressing multiple aspects of behavior change. These results are consistent with evidence suggesting that multifaceted interventions are more effective than singular approaches in achieving meaningful outcomes (Michie et al., 2021). The couple-based design likely contributed to the intervention's success. Research indicates that involving partners in health interventions fosters shared accountability, emotional support, and reinforcement, which are critical for sustained behavior change (Lewis et al., 2020). This aligns with findings from the current study, where significant improvements were observed in domains requiring motivation and collaboration. The study's findings highlight the potential of couple-based interventions in promoting self-efficacy, behavioral intention, and perceived benefits. Such interventions can be adapted for use in diverse populations and settings to address various health challenges. Healthcare providers and policymakers should consider integrating these approaches into existing programs to enhance engagement and outcomes.

This study has some limitations. First, the sample size was relatively small, which may limit the generalizability of the findings. Future studies should involve larger and more diverse populations to validate these results. Second, the intervention was assessed over a short duration, and long-term effects remain unknown. Longitudinal studies are needed to evaluate the sustainability of the observed benefits. Lastly, qualitative data on participants' experiences were not collected, which could have provided deeper insights into the intervention's impact.

CONCLUSION

This study demonstrates the effectiveness of a couple-based intervention in enhancing self-efficacy, behavioral intention, perceived benefits, and overall outcomes. These findings contribute to the growing evidence supporting the use of collaborative and structured approaches to improve health-related behaviors. Future research should address the identified limitations to further advance the field.

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Conflict of interest

All authors declare no conflict of interest.

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