



Strategy to Improve Understanding of Prospective Brides Through Empowering Health Cadres (Smart Katin)

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Abstract

According to a 2023 report by the National Population and Family Planning Agency (BKKBN), approximately 1.7 million couples marry each year, and more than 40% of them lack a basic understanding of premarital health, such as nutrition, reproductive health, mental health, and family planning. Conventional one-way education methods are often ineffective, necessitating a community-based approach. The Health Cadre Intervention is offered as an alternative strategy that leverages the cadre's social proximity to the prospective bride and groom to increase understanding. This study used a pre-experimental design with a pretest- posttest model without a control group. The sample consisted of 30 respondents, the majority of whom were aged 20–35 (93.3%), female (86.7%), and had secondary education (63.3%). A knowledge questionnaire was administered before and after the intervention. The data were analyzed using the Wilcoxon test to assess differences in understanding scores. The results showed an increase in the average score from 90.17 (SD = 7.87) in the pretest to 96.70 (SD = 5.24) in the posttest. The Wilcoxon test yielded a Z-value of -4.29 with $p < 0.001$, indicating a significant difference. Eighty percent of respondents experienced an increase in their scores, 20% remained in the good category, and none experienced a decrease. The KATIN CERDAS intervention has proven effective in improving prospective brides and grooms' understanding of reproductive health. This cadre-based strategy can be integrated into premarital counseling programs in primary care to support the formation of healthy families and prevent reproductive health problems early on.

Introduction

Readiness candidate bride is factor important in create a healthy and quality family, but literacy health reproduction in groups this is still in Indonesia classified as low. Low understanding the can trigger various problems, starting from pregnancy risky, lack of readiness psychosocial, up to height potential problem health families in the future (Purnamasari et al., 2021; Fatimah & Hidayah, 2023). Educational programs prenuptial agreement that has been walk during This tend depend on method conventional in the form of lecture short or distribution pamphlet. Method the nature One direction, so that participation participant low and internalization knowledge not optimal (Coulter et al., 2020; White-Gosselin et al., 2023; Elkhidir et al., 2022). As a result, many candidate bride difficulty connect information obtained with need real in life family (Viswanathan et al., 2010).

In global context, research show that intervention based community facilitated by cadres health more effective in increase literacy and behavior health society. O'Mara-Eves et al. (2015) found

that approach This capable increase behavior health ($d = 0.33$) and efficacy self ($d = 0.41$). In addition that, Sultan et al. (2025) confirms that training based competence in cadres health can strengthen ability they in transfer knowledge to in practice everyday. Although thus, until now Not yet Lots research that is special highlight role cadre health in education candidate brides in Indonesia. In fact, the group This own need high education For prepare wedding in a way healthy, good in a way physique and psychic. With Thus, research This designed For fill in gap the through strategy development (*SMART KATIN*) as an intervention model innovative that utilizes proximity social cadre with candidate bride and groom, so that can increase understanding they about health reproduction and readiness have a family.

Research by Coulter et al. (2020) shows that cadre health own position strategic in intervention health Because his closeness with community, so that more trusted and capable bridge service health with society. Viswanathan et al. (2010) found that interventions provided by cadres health contribute significant to improvement knowledge and change behavior health through contextual interpersonal approach. O'Mara-Eves et al. (2015) in a meta- analysis confirm that intervention based community can increase behavior health ($d = 0.33$), efficacy self ($d = 0.41$), and support social ($d = 0.41$), all of which support success education health based cadres.

Research by Sultan et al. (2025) further carry on underline that training based competency in *community health workers* effective enhance knowledge transfer become practice real, so that strengthen role cadre in empowerment society. Purnamasari et al. (2021) emphasized that Woman with education medium – high more responsive to intervention based community, because role social those who are dominant in family and health. Putri et al. (2023) found that group age productive more fast internalize education health compared to group age continue, because factor Power capture and motivation learn more tall. Khan et al. (2022) added that Woman more responsive to intervention health based community, especially related health family, because role they as taker decision in House stairs. Besides that, Zhou et al. (2023) stated that level education is predictor important success education health, where individuals with education medium – high more easy understand draft new, though method interactive can also increase understanding in groups educated low.

Study about education premarital has develop from various corner Viewpoint. Rahmah & Kurniawati (2021) find that readiness Marry relate significant with planning pregnancy, where the prospective bride with good preparation tend own plan pregnancy more ripe. Findings This show importance readiness premarital as foundation health reproduction family. Next, Rahmanda et al. (2023) confirm that counseling premarital capable increase attitude candidate bride to preparation pregnancy healthy. Counseling interactive proven change attitude from Enough become positive, affirmative effectiveness method face formal face in form mental readiness of candidates bride and groom. Focus study Then shift in role cadre health as agent education community. Tarsikah et al. (2022) report improvement knowledge cadre by 13.3% after training related screening candidate bride and groom, meanwhile Yorita et al. (2023) find that Family Development cadres Youth (BKR) increase knowledge and attitudes teenager related maturity age marriage.

Zulaizeh et al. (2023) strengthen proof that booklet media is effective increase knowledge candidate bride with The Wilcoxon test results are significant. Aisyah et al. (2025) through the *SMART Stunting* program show that cadre trained No only increase knowledge, but also skills technical >80% in detection nutrition and stunting. In harmony with that , Yusriani et al. (2024) confirm with *structural equation modeling* that knowledge and attitudes cadre relate significant with skills they in promotion health Mother pregnant. In a global context, Dilli et al. (2024) through meta- analysis find that the average screening uptake genotype premarital sex in Africa is only 47.82%. Study This show existence correlation positive moderate ($r = 0.6934$) between knowledge about sickle cell disease with practice screening premarital, affirm that improvement knowledge is key success of premarital programs preventive.

Although a number of study previously has highlight connection readiness Marry with planning pregnancy (Rahmah & Kurniawati, 2021; Lo-oh, 2023; Welshman et al., 2023), effectiveness counseling premarital to attitude candidate bride and groom (Rahmanda et al., 2023), as well as role cadre in increase knowledge adolescents, nutrition, and health mother (Tarsikah, 2022; Yorita, 2023; Aisyah, 2025; Yusriani, 2024), not yet There is research that is specific testing educational models premarital based cadre health For candidate brides in Indonesia. Some studies Still focus on educational media such as booklets (Zulaizeh, 2023) or in the global context of screening genetics premarital (Dilli et al., 2024), while need interpersonal and contextual education for candidate bride Not yet answered. Therefore that, research This through empowerment cadre health intended For fill in gap the with develop method proven education capable increase understanding candidate bride about health reproduction in a way significant, at the same time give recommendation practical for strengthening the coaching program premarital care in primary care.

Therefore that's what it is objective study This that is capable increase knowledge candidate bride about health premarital, which includes aspect health reproduction, nutrition, mental health, and planning family as well as test effectiveness intervention through comparison score understanding candidate bride before and after given education by cadres health.

Methods

This study used a pre-experimental design with a one-group pretest-posttest approach. This design was chosen to assess changes in respondents before and after the intervention, without involving a control group. Through this approach, researchers were able to directly observe the effects of the intervention on the variables studied within the same group. The study was conducted at the Limboto Community Health Center in Gorontalo Regency. This location was chosen because it has a relatively stable number of prospective brides and grooms and an active premarital health service program. The study lasted one month, from July 10 to August 10, 2025, covering the entire series of activities, from initial data collection to post-intervention evaluation.

The population in this study was all prospective brides and grooms registered at the Limboto Community Health Center during the study period, totaling 63 individuals. The sample size was determined using the Slovin formula with a five percent margin of error, resulting in a sample size of 30 respondents. The sampling technique was purposive, considering the inclusion and exclusion criteria established by the researchers.

Data collection was carried out in several stages. Respondent data was obtained from the prospective bride and groom register at the community health center (Puskesmas). This was then supplemented with interviews with the coordinating and implementing midwives to obtain supporting information regarding respondent characteristics. Furthermore, respondents were given a pre-test questionnaire before the intervention and a post-test questionnaire after the intervention to measure changes. The instruments and materials used in this study included a health cadre training module, a research permit letter, and pre-test and post-test questionnaires as the primary measurement tools. Supporting equipment included a laptop, stationery, and a voice or video recorder. The collected data were analyzed using the Wilcoxon test to test for differences between paired data before and after the intervention. All data analysis was conducted using SPSS version 21 software to ensure the accuracy and reliability of the research results.

Result and Discussion

Research Data

Respondent Characteristics Data (N=30)

Table 1. Respondent characteristics

Characteristics Respondents	Frequency (n)	Presentation (%)
Age		
<20 years	1	3.3%
20-35 years	28	93.3%
>35 years	1	3.3%
Total	30	100%
Type Sex		
Man	4	13.3%
Woman	26	86.7%
Total	30	100%
Education		
School Senior High School (SMA)	19	63.3%
Education Institutions (HEIs)	11	36.7%
Total	30	100%
Work		
No Work	16	53.3%
Students	2	6.7%
Employee Private	4	13.3%
Honorary / contract	5	16.7%
Police / Lecturer / Teacher	3	10.0%
Total	30	100%

Source: Primary data 2025

A total of 30 respondents participated in this study. The majority of respondents were in the 20–35 age group (93.3%), while the <20 and >35 age groups each accounted for only 3.3%. Based on gender, the respondents were predominantly female (86.7%), while only 13.3% were male. In terms of education, the majority of respondents had secondary education (high school) at 63.3%, while those with higher education (university) were 36.7%. Respondents' occupations were predominantly unemployed (53.3%), followed by honorary/contract workers (16.7%), private sector (13.3%), police/lecturers/teachers (10%), and students (6.7%).

Univariate Analysis Data

Table 2. Distribution of frequency of education provided by health cadres

Variables	N	Mean	Standard Deviation	Minimum	Maximum
Before being given education by health cadres	30	90.17	7,874	78	100
After being given education by health cadres	30	96.70	5,240	83	100

Source: Primary data 2025

Based on the results of descriptive statistical analysis, it is known that the average (mean) value of respondents' knowledge before being given education by health cadres was 90.17 with a standard deviation of 7.874. The minimum value obtained by respondents in the pretest stage was 78, while the maximum value reached 100. After respondents were given education by health cadres, there was a significant increase in knowledge scores. The average posttest value increased to 96.70 with a standard deviation of 5.240. The minimum value obtained by respondents at this stage was 83, while the maximum value remained at 100. These results

indicate an increase in respondents' knowledge after the educational intervention. The difference in the mean between the pretest and posttest illustrates the effectiveness of the role of health cadres in delivering educational materials that are relevant and easy to understand for prospective brides and grooms.

Analysis Results

Wilcoxon Test Analysis

Table 3. Wilcoxon Test

Category	N	Percentage (%)	Z Value	Asympt. Sig (2-tailed)
Negative Ranks (Decreasing)	0	0%	-4.29	<0.001
Positive Ranks (Increased)	24	80%		
Ties (Fixed)	6	20%		

Source: Primary data 2025

The Wilcoxon test results showed a significant difference between the pretest and posttest scores with a Z value of -4.290, with $p < 0.001$, where 24 respondents experienced an increase in their scores, 6 respondents remained in the good category, and no respondents experienced a decrease. This indicates that the educational intervention had a significant impact on increasing respondents' knowledge. In other words, all respondents experienced positive changes after participating in the educational program, and this strengthens the evidence that the role of health cadres as educational facilitators is able to significantly improve the quality of community knowledge.

Improving the Understanding of Prospective Brides and Grooms Through Health Cadre Interventions

The results of the study showed that the intervention in the form of education by health cadres succeeded in significantly increasing knowledge scores ($Z = -4.29$; $p < 0.001$). This is in line with research by Coulter et al. (2020) which stated that interventions by health cadres showed effectiveness in increasing participant knowledge compared to alternative methods such as pamphlets or no intervention at all, and health cadres have a strategic position as "*trusted members of and/or with unusually close understanding of the community served*," which allows them to bridge health services and the community effectively (Berthold & Somsanith, 2024). The results of this study are in line with research by Viswanathan et al. (2010), which found that interventions provided by health cadres were able to improve public health knowledge and behavior through an interpersonal and contextual approach. In addition, research by O'Mara-Eves et al. (2015) showed that community-based interventions can improve health behavior ($d = 0.33$), self-efficacy ($d = 0.41$), and social support ($d = 0.41$), all of which support the success of cadre-based education.

This is consistent with the findings of Sultan et al. (2025) that competency-based training for *Community Health Workers* effectively increases the transfer of knowledge to practice. This means that success is influenced not only by the educational material but also by the cadre's competence in delivering health messages contextually and easily understood by respondents (Rahmayanti et al., 2022). This principle is reflected in the implementation of KATIN CERDAS, where cadres, as community members, have a social closeness with prospective brides and grooms, thus bridging knowledge of reproductive and marital health with the community's real needs (Idriss-Wheeler et al., 2024). This strengthens the argument that cadre-based educational strategies can foster trust while increasing the effectiveness of interventions (Iseghem et al., 2023).

The dominant factor in this study was the characteristics of the respondents, who were predominantly women, of productive age, and had secondary education. This aligns with the study by Purnamasari et al. (2021), which reported that women with secondary to higher education were more responsive to community-based health interventions. According to Liu et al. (2024), the learning process occurs through observation, imitation, and reinforcement. Health education interventions provided by health cadres allow respondents to observe and imitate correct practices, while also receiving social reinforcement from the cadres as role models (Crawford et al., 2025). This was evidenced by the increase in 24 respondents, illustrating the successful application of the principles of social learning, diffusion of innovation, and constructivism in cadre education. The stability of scores in 6 respondents indicates the presence of individual factors (motivation, readiness, or personal barriers) that influence acceptance of the material. The absence of a decrease in scores indicates that the cadre intervention is safe and does not cause cognitive resistance or negative effects (Friska et al., 2022).

Relationship of Research Results with Age, Gender, Education and Occupation

The majority of respondents were aged 20–35 years (93.3%), which is the productive age group. Productive age groups have optimal cognitive capacity, openness to new information, and the ability to relate knowledge to everyday experiences. This supports the research finding that 24 respondents experienced an increase in post-test scores. The average knowledge score after education showed a high trend across all age groups, with the highest achievement at ages 18–22 years (≈ 100) and a slight decline at ages >25 years (average 95–97). This finding supports the literature that productive age groups absorb health education more quickly, because cognitive capacity and learning motivation are still optimal. According to Putri et al. (2023), productive age respondents internalized health education more quickly than older age groups, due to factors such as higher comprehension and learning motivation.

Respondents were predominantly female (86.7%), with only 13.3% male. This female predominance contributed to the increased scores, as women often play an active role in family and community health activities. Research shows that women tend to have higher levels of health awareness and are more consistent in attending educational programs. The average score women (96.6) slightly more tall compared to male (96.5). Although difference numeric small, dominant amount women (86.7%) in study This give influence significant in distribution achievements knowledge. Women tend to more consistent in follow an educational program health Because role social they in Family and community. Research by Khan et al. (2022) confirms that women are more responsive to community-based interventions, especially those concerning family health, due to their social roles as decision-makers in the household.

Most respondents had secondary education (high school, 63.3%), while 36.7% were college graduates. Education level influences the speed of comprehension of educational materials. Respondents with higher education have a better knowledge base, allowing them to absorb information more quickly. However, an increase in scores was also seen in the high school group, indicating that the educational materials provided by the cadres were relatively easy to understand. Respondents with high school education obtained an average score of 96.89, slightly higher than those with college graduates (96.36). This indicates that the educational methods used by the cadres were simple and applicable, making them understandable even for those with secondary education. Zhou et al. (2023) in *the International Journal of Environmental Research and Public Health* found that education level is an important predictor of the success of health education. Individuals with secondary to higher education have an easier time grasping new concepts, but with interactive methods, even participants with lower education can show significant improvement.

Of the 30 respondents, the distribution of occupations and the average knowledge score after education were in the unemployed category ($n = 16$; mean score = 95.94), the largest group in this study. Despite not having formal work activities, they showed a significant increase in scores (Agustina et.al 2023). More flexible free time likely contributed to more intensive engagement in educational activities (Mikulec, & Marko 2024). Contract workers ($n = 4$; mean score = 94.25) despite having work ties, this group still showed a good increase in scores. This is in line with research by Setiawan & Nugroho (2022) that workers with contract status can still improve health knowledge if education is delivered concisely and applicable. Private sector ($n = 2$; mean score = 100) and Contract Workers ($n = 1$; score = 100) Respondents in the formal sector achieved the maximum score.

Work discipline and professional experience likely support their ability to grasp the material (Rivaldo & Nabella 2023). Lecturers ($n = 1$; score = 100) and the Indonesian National Police ($n = 1$; score = 100), groups with formal educational and training backgrounds, tended to achieve perfect scores, in line with their high academic capacity and work discipline. Teachers ($n = 1$; score = 91), despite coming from the educational profession, scored relatively lower than other categories. This could be due to work fatigue or differences in learning styles. Students ($n = 2$; average score = 99), as a group still active in the world of education, showed almost perfect scores. This is consistent with their academic habits in receiving new information. Entrepreneurs ($n = 1$; score = 100) also showed perfect scores. This may be related to their high adaptability skills and personal motivation. Shop employees ($n = 1$; score = 100), although classified as non-formal work, achieved maximum scores indicating that education is well accessible to all socio-economic levels.

Conclusion

Study This aim For formulate effective strategies in increase understanding candidate bride through empowerment cadre health . Research results show that KATIN CERDAS (Active Cadre) program intervention For Catin Smart and Healthy) successful increase knowledge candidate bride in a way significant, with The average score increased from 90.17 on the pretest to 96.70 on the posttest. The Wilcoxon test analysis produced Z value = -4.29 with $p < 0.001$, which confirms that role cadre health as facilitator education capable give impact positive to readiness candidate bride in aspect health premarital.

With Thus, the goal study achieved , namely increase capacity cadre health at a time increase understanding candidate bride about health reproduction, nutrition, mental health, and planning family. *SMART KATIN Program* proven become an innovative and contextual strategy that is in line with policy national in strengthening service health based community. Recommendations study furthermore is expand coverage intervention with amount more respondents large and diverse, integrating digital media to support education cadres, as well as do evaluation term long For evaluate impact of the program on health family post wedding.

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