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Research Paper

Social Capital and Family Planning Indicators in Indonesia: Evidence from IFLS Wave 4 (2007) and Wave 5 (2014-2015) Using Fixed Effects Analysis

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Abstract

Using panel data from the Indonesia Family Life Survey (IFLS) Waves 4 (2007) and 5 (2014–2015), this study examines how women's community participation, as a proxy for social capital, influences modern contraceptive use among married women aged 15–49 in Indonesia. Employing individual fixed-effects regression, the analysis identifies within-individual changes in contraceptive behavior associated with participation in community activities. The results indicate that participation in health-related community groups increases the probability of modern contraceptive use by approximately 11.5 percentage points, while participation in non-health-related groups shows no significant effect. No statistically significant rural–urban differences are observed. These findings suggest that health-oriented social capital plays a meaningful role in shaping contraceptive behavior. Applying policies like the integration of grassroots networks into national frameworks to accelerate behavior change. Utilizing local social capital addresses information gaps and stagnating contraceptive prevalence, transforming community groups into hubs for reproductive health education and peer support.

Keywords: Community Participation; Indonesia Family Life Survey (IFLS); Modern Contraceptive Use; Social Capital.

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1. Introduction

Fulfilling reproductive health rights and providing equitable and affordable health services are the goals of the Government of Indonesia. According to the Family Planning and Population Agency (BKKBN), these efforts aim to achieve three key outcomes: zero unmet need for family planning, zero preventable maternal death, and zero gender-based violence (BKKBN, 2020). This aligns with the Sustainable Development Goals (SDGs) target that aims to provide everyone with access to sexual and reproductive health care services by 2030 (WHO,2023). Two key indicators used to measure progress toward these goals are the Total Fertility Rate (TFR) and the Modern Contraceptive Prevalence Rate (mCPR). The TFR represents the average number of children that would be born by a woman during her childbearing age. Meanwhile, the mCPR refers to the proportion of women aged 15-49 years who are using contraception per 100 women of reproductive age (Haupt & Kane, 2000).

The use of modern contraception is one way to attain these goals regardless of their economic, social, gender status, etc. However, BKKBN's 2023 report shows the target for reducing unmet need for modern contraception had not been achieved in 2022, with the rate remaining at 14.7%. This indicates that around 14 to 15 out of every 100 women aged 15–49 wanted to use modern contraception but were unable to access it (BKKBN, 2023). In the same year, the modern contraceptive prevalence rate (mCPR) stood at 59.4%, still below national targets and showing a significant gap across provinces (BKKBN, 2023). This shortfall is influenced by various factors, including the limited access to health service facilities that provide family planning services in remote areas, widespread myths and misinformation about the side effects of contraceptive use, and cultural barriers that prevent potential acceptors from participating in the family planning program (Mahmud et al., 2021). These challenges indicate that beyond access to health facilities, the social factor also plays a critical role for people to make the decision about contraception.

Andersen and Newman's model in 2005 provides a conceptual framework that explains how and why individuals use healthcare services (Andersen & Newman, 2005). This widely used framework identifies key factors influencing healthcare utilization, including predisposing, enabling, and need factors. Community is one of the enabling factors that could encourage people to use the health facility (Andersen & Newman, 2005). For example, Valente et al. (1997) study in Cameroon found that a woman's contraceptive use is influenced not only by her own personal traits but also by the behaviors and characteristics of the people in her social network (Valente et al., 1997).

One such factor is social capital, including the networks, relationships, and norms that enable group action and information exchange. Social capital has been shown to influence various development outcomes, including education, poverty reduction, and health. Coleman (1988) found that the lack of social capital, both within families and communities, contributed to increased school dropout rates (Coleman, 1988). In terms of welfare, some findings illustrate the positive impact of social capital on it. Grootaert (1999) argued that higher social capital of households will lead to an increase in assets, savings, and access to credit (Grootaert, 1999). Similarly, Nasution et al.'s 2015 study found that social capital plays the most significant role in reducing households' poverty probability compared to other socioeconomic factors in Indonesia (Nasution et al., 2015).

Recent studies confirm that social capital includes bonding in social capital and social participation ((Islamy & Nasrudin, 2025; Prastyo et al., 2024). Prastyo et al. (2024) reveals that rural communities in Indonesia maintain a distinct advantage in bonding social capital compared to urban areas, characterized by high levels of informal networking and communal trust (Prastyo et al., 2024). And the other study found that while tolerance is higher in multicultural urban regions, social participation is significantly higher in rural areas (Islamy & Nasrudin, 2025).

In Indonesia, scholars have conducted research that directly explore health indicators in relation to social capital. For instance, Sujarwoto and Maharani (2022) found that community-based healthcare intervention participation is linked with higher engagement in preventative care services (Sujarwoto & Maharani, 2022). In another study by Rosalin (2017), no consistent association was found between trust-based capital and general health outcomes. This study highlights that participation-based (structural) capital, particularly in health-relevant networks, can significantly affect specific health behaviors such as contraceptive use. However, the myths and misinformation surrounding the unwanted effects linked to modern contraceptive methods still exist in Indonesia.

Several studies suggest that social capital influences health outcomes by facilitating informal social learning and reducing the informational costs of adopting new medical practices (Cao & Rammohan, 2025; Sulistiawan, D et al., 2025). Furthermore, Carrignon et al. (2022) demonstrated that observing peers during a health crisis encourages the adoption of preventative measures (Carrignon et al., 2022).

Some challenges of modern contraceptive use in Indonesia are increasingly defined by the persistence of health misperceptions and the influential role of social trust. Common myths, such as the belief that contraception leads to permanent infertility or that a large number of children ensures future economic security, remain significant barriers to adoption (Kusuma et al., 2025; Tiyas et al., 2025). While the BKKBN (National Population and Family Planning Board) is responsible for countering this misinformation, the effectiveness of formal interventions is heavily moderated by the existing level of cognitive social capital, including neighborhood trust and spousal approval (Lubis et al., 2025; Tiyas et al., 2025). Recent evidence suggests that women are more likely to adopt modern methods when they receive social reinforcement from key influencers within their networks, such as mothers, peers, or trusted health cadres, who can bridge the gap between institutional services and marginalized communities (Sulistiawan et al., 2025; Lubis et al., 2025). Consequently, leveraging structural social capital and community-based health groups is essential for transforming these trusted social circles into conduits for accurate reproductive health information.

This study aims to see if the women's community participation, as a proxy of social capital, influences modern contraceptive use among married women aged 15–49 in Indonesia. Social capital encompasses the structures, relationships, and norms that shape the quality and frequency of social interactions. In empirical research, social capital is often measured through participation in voluntary organizations and generalized social trust (Fukuyama, 2000; Putnam, 1993). This study notes that some studies have revealed that health outcomes can be significantly influenced by social capital. For instance, based on research by Sujarwoto & Maharani (2022). This research measures modern contraceptive use through participation in community activities in rural and urban areas of Indonesia.

2. Methods

2.1 Study Design

This study employs a quantitative longitudinal research design using individual-level panel data to examine the relationship between women's community participation and modern contraceptive use in Indonesia. By exploiting repeated observations of the same individuals over time, the study identifies within-individual changes in contraceptive behavior associated with changes in community participation, thereby reducing bias from unobserved time-invariant characteristics.

2.2 Data Source and Sampling Method

The data are drawn from the Indonesia Family Life Survey (IFLS), a nationally representative longitudinal household survey jointly managed by RAND Corporation and SurveyMETER. IFLS applies a multistage stratified sampling design, covering approximately 83 percent of the Indonesian population and following households and individuals across survey waves.

The IFLS employs a multistage stratified sampling design. In the first stage, provinces were purposively selected to represent Indonesia's major geographic and socioeconomic regions. Within selected provinces, enumeration areas were randomly chosen, followed by random selection of households within each enumeration area. All eligible individuals within sampled households were interviewed and subsequently followed across survey waves. This design ensures representativeness of approximately 83 percent of the Indonesian population and supports longitudinal analysis (Strauss et al., 2016).

This study utilizes data from IFLS Wave 4 (2007) and IFLS Wave 5 (2014–2015), the two most recent waves that contain comparable and detailed information on women's community participation and contraceptive use. The survey covers 13 provinces, including North Sumatra, West Sumatra, South Sumatra, Lampung, West Java, DKI Jakarta, Central Java, DI Yogyakarta, East Java, Bali, West Nusa Tenggara, South Kalimantan, and South Sulawesi (Strauss et al., 2016).

Despite the longitudinal strengths of the IFLS, certain limitations must be acknowledged. First, the data relies on self-reported participation in community groups, which may introduce recall bias or social desirability bias. Second, the 2014–2015 wave (IFLS 5) remains the most comprehensive panel data for Indonesia. It happens before the rapid expansion of digital social capital, such as health-focused WhatsApp groups and social media communities, which have become increasingly influential in the last decade. Furthermore, while the fixed-effects model controls for time-invariant unobserved heterogeneity, it cannot fully account for time-varying factors, such as sudden changes in local government health policies, the sudden proximity of new health clinics during the inter-wave period, or the current post-pandemic condition.

2.3 Study Population and Sample

In this study, the unit of analysis is married women of reproductive age (15–49 years), as this group represents women who are biologically and socially exposed to pregnancy risk and contraceptive decision-making. Women were included if they were observed in both IFLS Wave 4 and Wave 5, allowing for longitudinal analysis. The final analytical sample consists of 8,776 women, of whom 4,070 reside in rural areas and 4,706 in urban areas. This balanced panel structure enables comparisons across time and place while controlling for individual-specific unobserved heterogeneity.

2.4 Variable Measurement

The dependent variable is modern contraceptive use, defined as a binary indicator equal to 1 if the respondent or her spouse reported using any modern contraceptive method at the time of the survey, and 0 otherwise. Modern methods include pills, injections (1-, 2-, or 3-month), intrauterine devices (IUD/AKDR), implants (Norplant), condoms, female condoms, female sterilization (tubectomy), and male sterilization (vasectomy).

While the independent variable, as shown in Table 1, is women's participation in community/activities. There are 15 types of communities/activities in the questionnaire, and this study divides them into two types to examine the impact of a specific type of community. First, non-health-related communities consist of community meetings, arisan, cooperatives/community-based financial institutions, village voluntary labor (kerja bakti), community patrols (ronda), village improvement program, youth group, religious group, village library, village savings and loans, and political party. Second, the health-related community includes integrated health service posts by community (Posyandu), women's association (PKK), and health fund. However, to capture the exquisite effect of community participation, the interaction variable is also included, which was constructed by multiplying the two dummies. This interaction variable captures the combined or interactive effect of participating in both types of community, over and above the additive effects of each alone.

Control variables in this study are the highest level of education attainment, work status, information about contraceptive, ownership of health insurance, age, religion, gender of household's head, household income, household decision maker about contraceptive, and the island where they lived.

The control variables were selected based on their established significance in the Indonesian context. Age, parity, and education were included as they represent the primary sociodemographic determinants of contraceptive behavior and fertility preferences (Gayatri & Utomo, 2019; Mulyanto et al., 2019). Specifically, controlling for education accounts for varying levels of susceptibility to health-related myths, which remain a barrier to contraceptive uptake in Indonesia (Gayatri, 2019). Additionally, household wealth and women's autonomy were included to control for economic access and intra-household bargaining power, ensuring that the measured effect of community participation is not confounded by individual socio-economic advantages (Sujarwoto & Maharani, 2022).

Table 1: Variable description

Variable	Description
Modern contraceptive use	Dummy variable of contraceptive use among married women of childbearing age between 15 and 49 years old or her spouse. 1=using modern contraception (Pill, 1 Month Injection, 2 Month Injection, 3 Month Injection, Condom, Female Condom/Femidom, and Intravag, IUD/AKDR/Spiral, Norplant/Implant, Female Sterilization/Tubectomy, and Male Sterilization), 0=otherwise
Participation in health-related community	It is a dummy variable, which has value 1 if woman at least participate in one of the health-related community such as Women's association, *Posyandu*, and health fund.

Variable	Description
Participation in non-health-related community	Participation of women in the community during the last 12 months. It is dummy variable, which has value 1=if a woman participates in non-health-related community (community meeting, *arisan*, cooperatives/community-based financial institution, village voluntary labor (*kerja bakti*), community patrols (*ronda*), village improvement program, youth group, religious group, village library, village savings and loans, and political party).
Interaction health-related community and non-health-related community	The interaction variable between health-related and non-health-related community participation is coded as 1 if a woman participates in both types of communities.
Interaction health-related community and rural	The interaction variable between health-related community participation and rural residence is coded as 1 if a woman lives in a rural area and participates in a health-related community.
Education level	The highest educational attainment of the respondents at the time of the survey. 0 = not schooling, 1 = primary school 2= junior and senior high school, and 3 = college.
Employment status	Dummy variable of respondent's working status. 1 = working, 0 = otherwise.
Information about contraceptives	The knowledge of women about modern contraceptives. 0 = if woman does not know/hear at all, 1 = know 1-5 of modern method of contraceptive, and 2 = know more than 5 of modern contraceptive method.
Ownership of health insurance	Dummy variable of woman's ownership of health insurance. 1 = Own the health insurance, 0 = does not have.
Age	The respondent's age at the time of the survey.
Religion	The religion of woman at the time of the survey.
Gender of household head	Dummy variable of gender household head, that has value equal to 1 = if woman is the household head. 0 = if the household head is man.
Household's income	Income that is earned in the household level in the last 12 months and converted using log.
Decision maker about contraceptive household	The respondent's autonomy in making decisions about contraceptive use, either independently or with input from their spouse or family. A value of 0 indicates the decision was made by others, value of 1 indicates the decision was made by the women alone. Value of 2 indicates the decision was made by the couple.
Husband participation in community	It is a categorical variable that represent of husband participation in community. The value is 0 if he doesn't participate in any community, 1 if he participates in non-health related, 2 if he participates in health-related community, and 3 if he participates in both type of community.
Island where they lived	Dummy variable of island where the sample lives. A value of 1 if the respondent lives in Sumatera, Java, and Bali, while 0 if they live outside of Sumatera, Java, and Bali.
Rural and urban	The area where the respondents live. 1 = rural area, 0 = urban.

Source: IFLS 4 and 5

2.5 Data Analysis

Descriptive statistics were used to describe the characteristics of the sample, such as age, employment status, household income, health insurance ownership, etc. Then, to examine the relationship between social capital and contraception usage, this study uses two estimation models of Fixed-Effect analysis.

First model:

$$mcpr_{it} = \beta_0 + \beta_1 Health\_Participation_{it} + \beta_2 Nonhealth\_Participation_{it} + \beta_3 Health\_Participation * Nonhealth\_Participation_{it} + \beta_4 Z_{it} + \theta_t + \delta_i + \varepsilon_{it} \quad (1)$$

Where I, and t index the individual and wave period, respectively. The dependent variable is mcpr, which represents modern contraceptive usage defined by whether one person of the couple (15-49 years old) uses a contraceptive, including an intrauterine device, implant, injection, tubal ligation, pills, condoms, and vasectomy.

The independent variable is reflected three dummy variables: Health_Participation, Nonhealth_Participation, and Health_Participation*Nonhealth_Participation. The coefficient of β_1 shows the estimated effect within-individual of participating in a health-related community over time, while β_2 shows the effect for women who participate in non-health-related communities. And β_3 shows the additional effect of participating in both types of communities, using the interaction of variable participation in health-related and non-health-related communities. The covariate (Z_{it}) in the equation includes age, gender, education, occupation, etc. Then this study add analysis in the sub-sample of people who live in urban and rural areas

This study will also differentiate the population who lives in rural and urban areas, using this second model:

$$mcpr_{it} = \beta_0 + \beta_1 Health\_Participation_{it} + \beta_2 rural_{it} + \beta_3 Health\_Participation * rural_{it} + \beta_4 Z_{it} + \theta_t + \delta_i + \varepsilon_{it} \quad (2)$$

In the second model, by adding the interaction of Health_Participation and rural, the coefficient β_3 could reflect whether the women's participation in health-related communities in rural areas has a greater impact on the use of modern contraceptives than in urban areas. A fixed effects model is used on the two models to address unobserved heterogeneity at the individual level and overcome the endogeneity issue. This model efficiently separates out the time-invariant characteristics by controlling for unobservable variables that remain constant over time and concentrating on variations within individuals. The use of fixed factors in the model allows for a more accurate estimation of the association between social capital and modern contraceptive use by accounting for baseline variations between individuals. And ensuring to minimize the endogeneity, this study uses the Hausman test that could also specify whether fixed effect or random effect should be used.

3. Results and Discussions

3.1 Results

This section presents the descriptive statistics and regression results based exclusively on data from IFLS Waves 4 (2007) and 5 (2014–2015). Table 2 shows the socio-economic characteristics in the study, covering a total of 8,776 observations. The mean value of modern contraceptive use is 0.63, indicating that approximately 63% of women in the sample reported using modern contraception. Participation in non-health-related community activities is relatively common, while participation in health-related community activities is substantially lower. These statistics describe the distribution of contraceptive use and community participation within the IFLS sample and serve as background for the regression analysis.

Table 2: Descriptive Statistics

Variable	Type	Categories/ unit	Mean/%	Std. Dev.	Min.	Max
Modern contraceptive use	Dummy	1 = Yes	63.4%	0.4818	0	1
Key Independent variable						
Women's participation in health-related community	Dummy	1 = Yes	22.61%	0.4183	0	1
Women's participation in non-health-related community	Dummy	1 = Yes	80.15%	0.3986	0	1
Women's participation in both type of community	Dummy	1 = Yes	20.64%	0.4047	0	1
Demographic and socio-economics characteristics						
Age	Continuous	Years	34.35	7.2548	15	49
Household income (log)	Continuous	Log value	15.81	3.6468	0	21.34
Employment status	Dummy	1=Employed	58.6%	0.4926	0	1
Gender of household head	Dummy	1=Female	1.61%	0.1257	0	1
Health insurance ownership	Dummy	1 = Yes	38.7%	0.4871	0	1
Sumatera/Java/Bali	Dummy	1 = Yes	83.8%	0.3690	0	1
Urban or rural	Dummy	1 = Yes	46.4%	0.3690	0	1
Religion	Categorical	Islam	91.20%			
		Protestant	3.00%			
		Catholic	1.12%			
		Hinduism	4.68%			
Education level	Categorical	Below than Primary	2.48%			
		Primary school	36.83%			
		Highschool	51.32%			
		Diploma and above	9.37%			

Source: Constructed by author based on IFLS 4 and 5

The participation of women in only health-related communities can be calculated as the difference between health-related participation and both types of community participation, which result is 1.97%. Meanwhile, about 59.5% of women participated only in non-health-related community, and 17.9% did not participate in any community group. It indicates that participation in health-related community whether exclusively or not is lower than non-health-related community. Thus, potentially to missed opportunities for reproductive health engagement through social capital. Socioeconomic characteristics indicate that the average age of respondents is 34 years, suggesting a higher likelihood of becoming pregnant and having children in prime condition. Approximately 58.6% of the women are employed, and

most have completed at least primary or secondary education. This result shows that the majority of women have their own income and have at least completed primary or high school.

Table 3: The impact of social capital on modern contraceptive use

Dependent variable: Modern contraceptive use						
	All Sample		**Rural Subsample**		**Urban Subsample**	
	(1)	(2)	(3)	(4)	(5)	(6)
Health-related community/activity	0.1381 (0.04895)***	0.1153 (0.0450)**	0.1567 (0.0691)**	0.1491 (0.0644)**	0.1491 (0.0762)*	0.0989 (0.0685)
Non-health related community/activity	0.0334 (0.0182)*	0.0171 (0.0173)	0.0277 (0.0300)	0.0138 (0.0289)	0.0355 (0.0253)	0.0157 (0.0237)
Interaction both type of community	-0.0812 (0.0513)	-0.0532 (0.0472)	-0.1004 (0.0731)	-0.0885 (0.0682)	-0.1000 (0.0797)	-0.0470 (0.0713)
Control Variable	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
Constant	0.6174 (0.014)***	-0.3789 (0.380)	0.6276 (0.024)***	0.2252 (0.585)	0 .6143 (0.019)***	-1.1312 (0.613)*
Observation	8,776	8,776	4,070	4,070	4,706	4,706
R-squared (within)	0.0071	0.1151	0.0057	0.1128	0.0103	0.1263

Note: (1) Robust standard error in brackets; (2)***p<0.01,**p<0.05,*p<0.1
Source: Constructed by author based on IFLS 4 and 5

Table 3 presents the results of individual fixed-effects regression models estimating the association between women's community participation and modern contraceptive use. The models are estimated for the full sample as well as separately for rural and urban subsamples, with and without control variables. The results show that women's participation in health-related community activities has a consistently positive and statistically significant association with the use of modern contraception. Without controls, women who participated in health-related activities were 13.8 percentage points more likely to use modern contraceptives ($p < 0.01$), and it remains significant after including various controls, although the coefficient decreases slightly to 0.115 ($p < 0.05$). In rural areas, women involved in health-related activities had a significantly associated with 14.9 percentage points higher probability of using modern contraception compared to those who did not participate in any community ($p < 0.05$).

Meanwhile the participation in non-health-related community activities shows a weaker and less consistent association with modern contraceptive use. While the coefficient is positive in some specifications, it becomes statistically insignificant after the inclusion of control variables. The interaction term capturing participation in both health-related and non-health-related communities is negative but not statistically significant across all models.

Table 4: The regression result of health-related community participation on modern contraceptive use

Dependent variable: Modern contraceptive use		
	No control variable	**With control variable**
	(1)	(2)
Health-related community/activity	0.0575 (0 .0205)***	0.0580 (0.0193)***
Rural	-0.0632** (0.0267)	-0.0595 (0.0254)**
Health*Rural	0.0214 (0.0282)	0.0234 (0.0264)
Control Variable	**No**	**Yes**
Constant	0.6744 (0.0142)***	-0.3578 (0.3792)
Observation	8,776	8,776
R-squared (within)	0.0073	0.1149

Note: (1) Robust standard error in brackets; (2)***p<0.01,**p<0.05,*p<0.1
Source: Constructed by author based on IFLS 4 and 5

Table 4 reports the results of fixed effects regression models that estimate the impact of women's participation in health-related community activities on modern contraceptive use with and without control variables. Participation in health-related communities remains positively and significantly associated with contraceptive use. The rural residence variable is negatively associated with modern contraceptive use, indicating lower baseline use in rural areas within the IFLS sample. However, the interaction between health-related participation and rural residence is not statistically significant ($p > 0.1$). The interaction variable between health participation and rural reflects the different effect of participating in health-related communities on contraceptive use in rural and urban settings, suggesting

the effect of participating in health-related communities on contraceptive use does not differ significantly between urban and rural women.

3.2 Discussions

This study examines the role of women's community participation as a form of structural social capital in influencing modern contraceptive use in Indonesia. The findings indicate that participation in health-related community activities is consistently associated with a higher likelihood of modern contraceptive use, whereas participation in non-health-related community activities shows no robust association once individual and household characteristics are taken into account. This lack of significance in non-health groups aligns with the idea that social capital must be domain-specific to yield health-related benefits; generic social participation does not automatically translate into reproductive health outcomes unless the network facilitates health-relevant information sharing (Lubis et al., 2025)

This suggests that while social participation is generally valuable, involvement in health-focused communities has a direct influence on reproductive health behaviors. This supports the idea that the type of social capital, particularly its relevance to health, is crucial in predicting outcomes, echoing Kim et al. (2015) who emphasize the complementary role of social capital and health literacy (Kim et al., 2015). The interaction between health-related and non-health-related community participation shows a negative but statistically insignificant association with modern contraceptive use. This result suggests a potential 'crowding-out' effect or time-constraint hypothesis. As individuals allocate more time and social energy to non-health social activities (such as "Arisan" or religious circles), the marginal utility of health-group participation for contraceptive uptake may diminish due to competing social norms or simply a lack of time to attend clinical sessions (Sambodo et al., 2023). This indicates that dual participation does not provide an added benefit and may even dilute the impact of targeted health engagement, which is possibly due to divided attention, conflicting norms, or overlapping information. However, because the result is not statistically significant, we cannot draw firm conclusions, and the effect might be weak or not generalizable beyond this sample.

The result in Table 3 in the rural area subsample supports the hypothesis that health-related community engagement, such as "Posyandu" or women's reproductive health groups, plays a meaningful role in shaping contraceptive behavior. These groups act as vital social networks where "key influencers" such as health cadres and trusted peers shape reproductive health knowledge (Sulistiawan, D et al., 2025). Rather than just service channels, these groups are environments for social learning, where women observe the preventative health measures of their peers and gain the confidence to adopt similar behaviors (Kusuma et al., 2025). In rural Indonesia, where formal infrastructure may be limited, these community-based groups bridge the gap to service institutions, acting as a trusted source of information that counters local misperceptions (Kusuma et al., 2025; Lubis et al., 2025).

When women participate in these groups, they experience social reinforcement. This is consistent with the findings of Tiyas et al. (2025), who noted that while sociodemographic factors like age and parity are strong predictors of contraceptive uptake, psychosocial factors such as the husband's support and peer-driven knowledge serve as critical facilitators that bridge the gap between intent and actual use. This study adds to the literature by highlighting that participation-based (structural) capital in health-relevant networks significantly affects contraceptive use, even when general trust-based (cognitive) capital might show inconsistent effects on overall health. Consequently, our results provide empirical evidence that in the Indonesian context, the structural dimension of social capital is the more potent driver for specialized health decisions like family planning.

In rural Indonesia, where infrastructure and access to formal health care may be limited, community-based health groups like 'Posyandu' are often one of the few accessible and trusted sources of reproductive health information (Kementerian Kesehatan RI, 2023). It also aligns with Nazri et al. (2016), who found that participation in 'Posyandu' was largely driven by trust, social relationships, and the perceived credibility of community health cadres (Nazri et al., 2016). When women join these health-related groups, they are not only exposed to accurate information but also experience social reinforcement from peers, which may increase their confidence and motivation to use modern contraceptives. These results also add to the mixed literature on social capital and health. While Rosalin (2017) found no consistent association between trust-based capital and general health outcomes, this study highlights that participation-based (structural) capital, particularly in health-relevant networks, can significantly affect specific health behaviors such as contraceptive use (Rosalin, 2017).

Surprisingly, education level is not a statistically significant factor in this model, unlike Laksono's 2020 study (Laksono et al., 2020). Similar to the study by Gayatri & Utomo (2019), which found that women with higher education levels were more likely to use traditional contraceptive methods and did not statistically significant differ in modern contraceptive methods (Gayatri & Utomo, 2019). One possible explanation is that information about modern contraceptive methods in Indonesia is fairly widespread, allowing even lower-educated women to obtain them through Posyandu, the Public health center, or community health workers.

The interaction variable between health participation and rural on the Table 4 reflects the different effect of participating in health-related communities on contraceptive use in rural and urban setting. Although the sign of this interaction variable is positive, the result is not statistically significant ($p > 0.1$). Suggesting that the effect of participating in health-related communities on contraceptive use does not differ significantly between urban and rural women. Further research with larger samples or more precise data may be needed to determine if the relationship truly exists.

This may be due to the greater availability of alternative information sources in urban settings, such as clinics, schools, media, and digital platforms, which reduce reliance on community structures. Basuki et al. (2015) and Putra et al. (2022) highlight that urban women increasingly engage in online communities to access health information. These digital spaces serve as extensions of social capital, allowing women to discuss reproductive topics, share experiences, and receive peer support virtually. However, they also note that online interactions may lack the emotional closeness, and the members still need to meet in person strongly, which could explain the weaker predictive power of community participation in urban areas (Basuki et al., 2015; Mega Putra et al., 2022).

Conclusion

This study demonstrates that women's participation in health-related community activities, which is a form of structural social capital is positively associated with modern contraceptive use in Indonesia. Using individual fixed-effects analysis of IFLS 2007 and 2014–2015 data, the findings indicate that engagement in health-oriented community groups increases the likelihood of contraceptive use, while participation in non-health-related groups shows no consistent effect. However, there is no difference in impact in rural and urban areas when joining the health-related community through the interaction variable of health participation and rural areas.

In summary, joining health-related participation in the community increase the probability of modern contraceptive use, but there is no difference in results between rural and urban settings in Indonesia. These findings highlight the importance of strengthening health-oriented community participation as a complementary approach to family planning programs in both rural and urban settings.

Limitations

Despite its robust findings, this study's generalizability is limited by its geographic and temporal scope. The IFLS sample primarily represents 83% of the population across 13 provinces, potentially overlooking the distinct socio-cultural and geographical barriers to contraceptive access in Eastern Indonesia (Strauss et al., 2016; Mulyanto et al., 2019). Furthermore, the 2007–2015 data does not capture the recent surge in digital social capital and 'virtual' support groups, which now complement physical community participation (Sulistiawan et al., 2025). Future research should address these gaps by incorporating post-pandemic digital behaviors and collecting more granular data on the frequency and quality of participation to better measure the intensity of social exposure.

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