



Relationship between Demographic Factors, Knowledge, and Injection Contraceptive Acceptors' Visit Compliance

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Abstract

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BACKGROUND: The population of Indonesia continues to increase every year. Family planning is an effort to create a guaranteed or qualified family by regulating the number of children, birth spacing, and the age of delivered women, allowing pregnancy to occur to create a healthy and prosperous Indonesia. The total fertility rate (TFR) in 2017 was 2.4, but to create a qualified family and a balanced population, the TFR must be based on a decrease in 2020–2021.

AIM: The aim of the study was to analyze the relationship between ages, education, knowledge, work status, and support from husbands with injection contraceptive acceptors.

METHOD: This study used the analytical observational cross-sectional design. The sampling technique was non-random purposive sampling, with a sample size of 96 people; a questionnaire was used to collect data and data were analyzed using the Chi-squared test with IBM SPSS Statistics 21.

RESULTS: The percentage of respondents who were injection contraceptive acceptors was 57.3%. The results showed that the variables associated with injection visit compliance were age ($p = 0.022$), knowledge ($p = 0.005$), and work status ($p = 0.017$). Meanwhile, the variables not related to compliance with injection visits were education ($p = 0.172$), husband's support ($p = 0.833$), number of children ($p = 0.167$), and house distance ($p = 0.054$).

CONCLUSION: The factor that most influenced acceptors' compliance with injection visits was knowledge of contraception.

Introduction

The population of Indonesia continues to increase every year. Family planning is an effort to create a guaranteed or qualified family by regulating the number of children, birth spacing, and the age of delivered women, allowing pregnancy to occur to create a healthy and prosperous Indonesia [1]. The total fertility rate (TFR) in 2017 was 2.4, but to create a qualified family and a balanced population, the TFR must be based on a decrease in 2020–2.1. It can be concluded that Indonesia needs an effective family planning program to reduce its population growth rate [2].

Contraception is one way to prevent pregnancy and to reduce live births [1]. Indonesian Demographic and Health Survey on contraceptives usage data showed that injection had the highest drop-out rate (31.9%), followed by Pills (11.9%), coitus interruptus (4%), and implant (2.4%) [3]. Mane's study on injection contraceptive in India had a high dropout rate as well, on the second visit, 39.2% [4]. The data of Indonesian Demographic and Health Survey in 2017 showed that the rate of contraceptive dropouts is still high, at

34%. In 2019, the dropout rate of contraceptive users in the Laren subdistrict, Lamongan district, East Java, Indonesia had increased in January by 1.9%, further increasing in December by 12.4%. In 2017, BKKBN had a target rate of dropping out of contraceptives of 25.3%, but the realization is a decrease of 22.3% [5].

Behavior is created by what is in a person's mind, which is activated by two factors: Factors from without (external), such as encouragement provided to others, and factors from within (internal), such as perception or experiencing something that influences one's actions as a result of external encouragement [6]. Compliance may be explained as a person's behavior that does not violate or is still proportional to existing regulations, applying to both individuals and the system [6]. The compliance of acceptors to visit injection contraceptives is extremely important, so that the effectiveness of contraception is high; therefore, the purpose of using contraception, which is to prevent unwanted pregnancies, can be achieved. However, the community does not always comply with injection contraceptives; this noncompliance is triggered by several factors, such as the acceptors' knowledge of contraception itself or sufficient knowledge to enable acceptors to comply with reinjection visits [7].

Depot medroxyprogesterone acetate (DMPA) is one of the most widely chosen types of long-term contraception, such as the Female Operation Method, Intrauterine Device, and Injection reversibility ease of administration, and duration of contraception use [8]. Between the two types of injection contraceptives, DMPA and Norethisterone, DMPA has fewer side effects with relatively the same duration of protection [9].

Research on the relationship between demographic factors and knowledge, and injection contraceptive compliance has not yet been conducted at the Laren Public Health Center (PHC), Lamongan. This research needs to be conducted because of the high rate of injectable contraceptive dropouts in this area. The purpose of this study was to determine and analyze the relationship between age, education, knowledge about contraception, work status, husband's support, number of children, and house distance and compliance with injection contraceptive acceptors and with reinjection visits among women of reproductive age, at the Laren PHC. Therefore, knowing the characteristics of injection contraceptive acceptors can be used as the basis for health workers in carrying out targeted education about injection contraceptives, so that people are motivated to comply with reinjection visits. We hope that the awareness of injection contraceptive acceptors will increase for reinjection visits.

Materials and Methods

Study design

This was an analytical observational study with a cross-sectional study design. This study was conducted from November–December 2020 with a population of sexually active women of reproductive age who use injectable contraceptives at the Laren PHC, Lamongan. Participants were selected based on the following inclusion criteria: Married women of reproductive age who were sexually active, the use of injectable contraceptive acceptors, and willing to become respondents; and the exclusion criteria: Married women of reproductive age who were sexually active and use of not-injectable contraceptive acceptors. The sample was selected using the purposive sampling method, with 96 respondents. This research received permission from the Laren PHC and is registered in the health research ethics committee of the University Muhammadiyah of Surabaya with license number 026/KET/II.3/AU/F/2020.

Research procedure

This study used a questionnaire as a data collection tool. The questionnaire consisted of

descriptive questions to determine the demographics of the respondents and questions to measure respondents' knowledge, which was modified from Dewi's questionnaire [10]. The questions to measure knowledge were tested for validity and reliability to determine the validity of the questionnaire in measuring knowledge. Validity testing was carried out using the Pearson correlation test, whereas the reliability test was carried out using Cronbach's alpha.

Data analysis

The data were analyzed using univariate, bivariate, and multivariate tests. The bivariate analysis used the Chi-squared test, and the multivariate analysis was conducted using a logistic regression test with IBM SPSS Statistics 21 and the significant value used in this research is 0.05.

Results and Discussion

Validity and reliability of instrument

The results of the validity test, shown in Table 1, indicate that the ten questions used in the questionnaire to measure the respondents' knowledge are valid, as indicated by the Pearson correlation value (r) more than 0.2. The reliability test results showed that the ten questions were reliable in measuring the respondents' knowledge, as indicated by Cronbach's alpha value of 0.693 (or >0.6).

Table 1: Validity and reliability test of knowledge questionnaires

Item	Validity			Reliability
	Pearson's correlation	Sig. (2-tailed)	N	Cronbach's alpha
Question 1	0.250*	0.014	96	0.693
Question 2	0.492**	0.000	96	0.693
Question 3	0.489**	0.000	96	0.693
Question 4	0.452**	0.000	96	0.693
Question 5	0.274**	0.007	96	0.693
Question 6	0.452**	0.000	96	0.693
Question 7	0.520**	0.000	96	0.693
Question 8	0.496**	0.000	96	0.693
Question 9	0.262**	0.010	96	0.693
Question 10	0.573**	0.000	96	0.693

*Correlation is significant at the 0.05 level (two-tailed). **Correlation is significant at the 0.01 level (two-tailed).

The distribution of respondents' answers to the question about injection family planning is shown in Table 2. Table 2 shows that many injection contraceptive acceptors still give the wrong answer to question 5. Many respondents think that injection contraception causes menstruation to stop, and that blood is stored in the uterus. Injectable contraceptives do not cause this. In addition, many respondents also answered question 3 incorrectly. Respondents thought that the 1-month injection contraception could be used by breastfeeding mothers, but this cannot be used by breastfeeding mothers.

Table 2: Distribution of respondents' knowledge about contraception

No.	Question	True		False	
		Sum	%	Sum	%
1	There are 3-month and 1-month contraceptive injections	92	95.8	4	4.2
2	Injectable birth control does not guarantee protection against the transmission of sexually transmitted infections	61	63.5	35	36.5
3	1-month contraceptive injection cannot be used by breastfeeding mothers	47	49.0	49	51.0
4	Injectable contraceptives cause fertility delays after discontinuation of use	71	74.0	25	26.0
5	Injectable birth control causes menstruation to stop and blood is collected in the uterus	44	45.8	52	54.2
6	3-month contraceptive injection cannot be used by breastfeeding mothers	71	74.0	25	26.0
7	3-month contraceptive injection is a suitable contraceptive tool for breastfeeding mothers	83	86.5	13	13.5
8	Injectable birth control causes weight gain	82	85.4	14	14.6
9	The benefit of injection contraceptives is to prevent pregnancy	94	97.9	2	2.1
10	The side effect of injection contraceptives is irregular menstruation	77	80.2	19	19.8

After collecting the answers of each respondent, respondents were divided into two groups: Those with sufficient knowledge and those with insufficient knowledge. Respondents who answered more than five questions correctly had sufficient knowledge about injection contraceptives, as shown in Tables 3 and 4.

Table 3: Characteristics of injection contraceptive acceptors at the Laren PHC, Lamongan

Variables	Total	%
Age		
≤35 year's old (y.o)	41	42.7
>35 y.o	55	57.3
Education		
Basic	81	84.4
Advanced	15	15.6
Knowledge		
Insufficient	18	18.8
Sufficient	78	81.2
Work status		
Non-worker	51	53.0
Worker	45	46.9
Husband's support		
No	2	2.1
Yes	94	97.9
Number of children		
≤ 2	68	70.8
> 2	28	29.2
House distance to Laren PHC		
≤2 km	53	55.2
>2 km	43	44.8
Visit compliance		
Non-compliant	41	42.7
Compliant	55	57.3

Univariate analysis

Participants of this study were 96 women who accepted injectable contraceptives at the Laren PHC, Lamongan. The participants' background characteristics were identified based on age, education (it is divided into two categories: Basic (elementary school to senior high school) and advanced (college or university)), knowledge, work status, husband's support, number of children, house distance to Laren PHC, and compliance with injection contraceptive visits (Table 3).

Bivariate analysis

The Chi-squared test results of the relationship between age and compliance with injection family planning acceptors' visits to the Laren PHC showed a significant value of 0.022 ($p < 0.05$; Table 4). The odds

Table 4: Relationship between age, education, knowledge, work status, husband's support, number of children, and house distance, and acceptors' injection contraceptive visit compliance

Variable	Visit obedience		p-value	OR		
	Disobey	Obeey				
Age						
≤35 y.o	23	56.1	18	32.7%	0.022	2.627
>35 y.o	18	43.9	37	67.3%		
Total	41	100.0	55	100.0%		
Education					0.172	2.313
Basic	37	90.2	44	80.0%		
Advanced	4	9.8	11	20.0%		
Total	41	100.0	55	100.0%		
Knowledge					0.005	4.643
Insufficient	13	31.7	5	9.1%		
Sufficient	28	68.3	50	90.9%		
Total	41	100.0	55	100.0%		
Work status					0.017	0.366
Non-worker	16	39.0	35	63.6%		
Worker	25	61.0	20	36.4%		
Total	41	100.0	55	100.0%		
Husband's support					0.833	1.350
No	1	2.4	1	1.8%		
Yes	40	97.6	54	98.2%		
Total	41	100.0	55	100.0%		
Number of children					0.167	0.537
≤2	26	38.2	42	61.8%		
>2	15	53.6	13	46.4%		
Total	41	100.0	55	100.0%		
House distance to Laren PHC					0.054	2.236
>2 km	23	56.1	20	36.4%		
2 km	18	43.9	35	63.6%		
Total	41	100.0	55	100.0%		

ratio (OR) value denotes that acceptor of high-risk ages tended to comply with visits 2.627 times greater than acceptors of low-risk ages. There was no relationship between education and visit compliance of injection contraceptive acceptors, as shown by the chi-squared test results, exhibiting a significant value of 0.172 ($p > 0.05$; Table 4). However, the OR results revealed that respondents with higher education tended to be more compliant to visit, which was 2.313 times greater than respondents with primary education. Moreover, the Chi-squared test displayed a significant value of 0.005 ($p < 0.05$; Table 4), with the relationship between knowledge and injection contraceptive visit compliance. The OR demonstrated that respondents with sufficient knowledge tended to visit the center 4.643 times more than respondents with less knowledge.

Furthermore, there was a relationship between work status and injection visit compliance. The Chi-squared test results present a significant value of 0.017 ($p < 0.05$; Table 4). The OR showed that respondents who have no work tend to comply with visits, 0.366 times more than respondents who work. The Chi-squared result yielded a significant score of 0.833 ($p > 0.05$; Table 4), showing no connection between the husband's support and the compliance visit for the injectable contraceptive at the Laren PHC. There was also no relationship between the number of children and the compliance visit for the injectable contraceptives; the Chi-squared test result gave a significant value of 0.167 ($p > 0.05$; Table 4). The OR value showed that respondents with enough children (≤ 2) tend to comply with visits 1.862 times more than respondents with many children (> 2). The Chi-squared result showed a significant value of 0.054 ($p > 0.05$; Table 4). There was no connection between the house distance and the compliance visit for

the injectable contraceptives. However, the OR showed that respondents who live at a distance ≤ 2 km from the center comply with the visitation schedule 2.236 times more than respondents with a house distance > 2 km.

Multivariate analysis

The results of logistic regression analyses (Table 5) indicated that variables of age, education, knowledge, and work status significantly affected the compliance visit for the injectable contraceptives routinely at the Laren PHC; all $p < 0.05$. The enormous OR is 6.734 in the knowledge variable, and it could be concluded that the respondent who has enough knowledge about contraception tended to obey 6.734 times more toward the compliance visit for the injectable contraceptives. The Nagelkerke R^2 score in this analysis was 0.311. This result shows that four factors represent the variation of impact factors toward the compliance visit for the injectable contraceptives amount 31.1% bigger, whereas other factors have not been investigated (amount 68.9%).

Table 5: Logistic regression analysis

Variable	B	P	OR	95% CI	
Age	1.173	0.017	3.232	1.236	8.452
Education	1.477	0.046	4.381	1.026	18.712
Knowledge	1.907	0.003	6.734	1.889	24.008
Work status	-1.562	0.003	0.210	0.075	0.586
Constant	-4.356	0.011	0.013		

Nagelkerke $R^2 = 0.311$, Hosmer and Lemeshow test = 0.860.

The regression equation obtained from the multivariate analysis was as follows:

$$y = \text{constant} + (a1 \cdot x1 + a2 \cdot x2 + a3 \cdot x3 + a4 \cdot x4)$$

$$y = -4.356 + 1.173(\text{age}) + 1.477(\text{education}) + 1.907(\text{knowledge}) + (-1.562)(\text{work status})$$

$$y = -4.356 + 1.173(1) + 1.477(1) + 0.439(1) + 1.907(1) + (-1.562)(1) = -1.361$$

The probability obtained was as follows:

$$p = \frac{1}{(1 + 2,7^{(1,361)})} = 20.56\%$$

Thus, the probability of acceptors who complied with the visit was 20.56%; in other words, the acceptors of contraceptive injections who are of high-risk age, have higher education, sufficient knowledge, and work status (do not work) have a 20.56% chance of complying with their visits.

Discussion

Validity and reliability tests of knowledge questionnaire

The validity and reliability tests were carried out from November to December 2020, with 96 sexually active women of reproductive age who use injectable

contraceptives in the Laren PHC, Lamongan. The results obtained in the knowledge questionnaire had a Pearson correlation value > 0.250 ($r > 0.2$), $p < 0.05$, and Cronbach alpha value > 0.6 . Thus, it can be concluded that the questionnaire used in this study was valid and reliable, which is in line with Dewi *et al.* study [10]. The validity and reliability test results in Kusuma's study were good, with a Pearson correlation value of > 0.2706 ($r > 0.2$), a p -value of 0.05, and a Cronbach alpha value of > 0.894 . Unlike Kusuma's study, which employed 51 out of 162 (31.5%) samples to examine validity and reliability, this study used all of the sample data [11].

Characteristics of injection contraceptive acceptors

The acceptors of contraceptive injections at the Laren PHC were 96 respondents. The characteristics of these respondents were identified based on age, reasons for using contraceptive injection, education, knowledge, work status, husband's support, number of children, and compliance with injection contraceptive visits. Of the 96 respondents, 55 (57.3%) were aged over 35 years, similar to study conducted by Mulyaningrum was 40%, not much different [12]; and different from the Mane and Rokade and Mason's *et al.* studies, where the age of the respondent is in the range of 25 years [4], [13]. Twenty-six respondents stated that they used the contraceptive injection because they wanted to stop having children, two respondents had health reasons that did not allow them to become pregnant, and the other respondents wanted to have pregnancy spacing. Most of the respondents, 84.4%, had primary education, and most, 81.2% also had sufficient knowledge about contraception, not much different from the study conducted by Mulyaningrum [12]. There are 51 (53.1%) more contraceptive injection acceptors who do not work than those who do, while the study conducted by Mason support from partners amounted to 71.0% [13]. Most respondents received support from their husbands, and only two women did not receive support from their husbands regarding the contraception, while the study conducted by Mason support from partners amounted to 61.2% [13].

Injectable contraceptive acceptor in the working area of Laren PHC, which has several children > 2 only 28 (29.1%) respondents, can be interpreted those respondents are obedient on the BKKBN program two children are enough [14]. As many as 57.3% of injectable contraceptive acceptors who were respondents complied with reinjection visits; most other respondents did not attend the reinjection visits at the health service because they were still menstruating [12], while others are due to amenorrhea or irregular menstruation [4], and changes in body weight [12], [15]. In line with the previous research, the inaccuracy of birth control injectable visits is influenced by the belief in the community that menstruation is an obstacle to receive injectable contraceptives [4].

Relationship between age and acceptors' visit compliance

Age had a relationship with the compliance visit of injectable contraceptive acceptors at the Laren PHC. Respondents aged <35 years had lower compliance than those over 35 years. Age influences a person's mindset; older adults' mindset and method of capturing information are different; adults aged 20–35 years tend to be less compliant because greater self-belief makes it difficult for them to receive information from outside [16].

The results of this research are in line with the previous studies stating that persons aged over 35 years are more compliant with making injectable visits owing to increasing age, so the chances of limiting births are also higher [16]. In contrast, some studies mention that other factors, such as existing health services, education level, and an individual's level of knowledge, can affect their acceptance of injectable contraceptives [17].

Relationship between education and acceptors' visit compliance

Education was not associated with the compliance of injectable contraceptive acceptors' visits to the Laren PHC. Respondents with higher education tended to be 2.313 times more compliant to visit the center than respondents with primary education. This study revealed that respondents with higher education tend to have a job, so it is difficult for them to visit the center on time. Highly educated acceptors tended to have jobs that affect their noncompliance to reinjection visits [18].

Research mentions that persons with higher education possessed more knowledge, making it easier for them to receive current information and be more compliant with injection visits [19]. Moreover, the level of education influences people's choice of contraception and their adherence to continuing contraception. The more educated a person is, the easier it is to process existing information from health workers to determine the use of contraceptives. Educated people are also health conscious, which can reduce morbidity and prolong life [20].

Another study mentions that the higher education level, the more compliant a person tends to be because they can seek information individually for their health and have a high awareness of complying with birth control visits. That study mentions a link between education and compliance with reinjection visits of contraceptive acceptors [16].

Relationship between knowledge and acceptors' visit compliance

Knowledge was connected to acceptors' compliance with injectable contraceptives at the Laren

PHC. Respondents with sufficient knowledge tended to be compliant to contraceptive injection visits. Knowledge is an essential factor in forming one's behavior. In this case, knowledge is compliance to make birth control injection visits [21], [22].

Acceptors who are knowledgeable can understand and accept health-related concepts more clearly, so such people have a higher level of awareness to change their behaviors to be better than people with less knowledge. Knowledge of injectable contraceptives may influence acceptors to comply with visits for reinjection [23]. High knowledge can influence a person to comply because they know the contraindications, side effects, disadvantages, and benefits of injectable contraceptives [15], [16], [22]. Acceptors with low knowledge levels can be influenced by health workers, especially midwives who educate acceptors about the benefits and side effects of injectable contraceptives [24], [25].

Several research studies mentioned that knowledge does not guarantee compliance because of myths among society, for example, birth control injection is forbidden during the menstruation period [12]. A study conducted by Umami *et al.* [26] examined women's knowledge in an effort to carry out health screening influenced by their level of knowledge. Women with low levels of knowledge related to health problems and diseases were reluctant to seek treatment because of low awareness of screening and visiting health facilities [26].

Relationship between work status and acceptors' visit compliance

Work status was correlated with attendance compliance of birth control injection acceptors at the Laren PHC. Unemployed respondents tend to follow reinjection instructions. The noncompliance of employed respondents is caused by the difficulty of scheduling an injection time around their work timings. Unemployed people have more free time to gain more information from their surroundings [27].

Our finding is in line with the previous research that working people have less time for their family and other commitments, affecting their compliance with birth control injection programs. This is different from unemployed people, who have more time for their family and can attend birth control injection programs anytime they want [18]. However, it contradicts research mentioning that unemployed women still possibly neglect the program as their frequency of sexual intercourse is not as high as general fertile women [16]. Unemployed people comply with the birth control injection program because they assume that having a new child is not a good option while their current children have not received the maximum attention [16].

Relationship between husband's support and acceptors' visit compliance

Husband's support did not affect respondents' compliance with the birth control injection program at the Laren PHC. The role and responsibility of men to reproductive health affect the health and life continuity of women and children and the health and safety of their sexual activities [28]. The previous research found that the husband's support did not affect injection visit compliance because the husband did not follow the contraception continuity used by the wife. However, the most influential factor was the knowledge level of injectable contraceptive acceptors [17].

Other previous studies stated that husband's support is essential, as well as communication between spouses, a sound family environment, the sense of security that affects contraception, and the role of health workers in influencing reinjection visit compliance [22], [29]. The husband's support can also affect women's health choices, and partnership is important in providing women with information on reproductive health. The role of the family in healthcare is to provide guidelines, advice, and information that can be used to identify health problems [30].

Relationship between number of children and acceptors' visit compliance

There was no relationship between the number of children and injectable contraceptive acceptors' compliance. Respondents with enough children (≤ 2) tend to attend the reinjection visit. In this research, respondents with many children are busy with their work, which affects their behavior to attend the reinjection visit.

The previous research mentioned that the leisure time of employed people is less than that of unemployed people, so if someone is busy, it impacts their reinjection visit compliance [18]. Jayaraman *et al.* conducted a study in India, Nepal, and Bangladesh, which showed that the number of children influences a person's decision to have contraception. In parts of India, women with boys are less likely to want more children than women who have girls [31].

On the other hand, the results of this study state that in Indonesia, especially in the Laren region, the number of children was not related to the compliance of injection contraceptive acceptors. This is because a woman is busy taking care of children and work. After all, almost half of the respondents were employed (46.9%).

Relationship between house distance and acceptors' visit compliance

There was no relationship between the house distance and the injectable contraceptive acceptors' visit

compliance at the Laren PHC. Respondents who had a house near the PHC or < 2 km away were 2.236 times more compliant in visiting than respondents who had a house more than 2 km away. Respondents' house distance was one of the supporting factors of their behavior. The use of health facilities, the convenience of facilities and infrastructure, and the distance between the house and the health facility can trigger people's behavior. Other factors that affect behavior are unsatisfactory service and inappropriate cost [32].

A short distance between the home and the health facility promotes good behavior [32]. In line with that study, the closer the home was to the health facility, the more motivated a person was to comply with the contraceptive injection visit.

Factors influencing acceptors' compliance with contraceptive injection visits

The factors that significantly impacted reinjection visits were age, education, contraception knowledge, and work status. Meanwhile, the support of the acceptors' husbands and the number of children did not significantly impact the adherence to reinjection visits. Contraceptive knowledge was the most influential factor on the adherence to reinjection visits.

Compliance is a person's action formed from obedience behavior, where a person's behavior comes from within and from outside oneself, the environment. Thus, behavior is formed by a stimulus–organism–reaction process. Behavior is an act that could be formed by information that someone has received and how they understand it [32]. Information about injectable contraceptives includes their benefits, disadvantages, contraindications, and side effects. Thus, the acceptors have their conscience to behave accordingly and apply what they already know [15], [16], [33].

Conclusion

The researcher found a correlation between age, knowledge, work status, and compliance with injection contraceptive acceptors' visits to the Laren PHC, Lamongan. Meanwhile, there was no correlation between education, husband's support, and the number of children accepting injection contraceptive visits at the Laren PHC. The researcher provides recommendations for health workers to increase counseling on injectable contraceptives. Thereby, the community will enhance their understanding of injectable contraceptives and increase their awareness to comply with injection visits.

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