

Profile of Long Acting Reversible Contraceptive Users

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ABSTRACT

Background: Long acting reversible contraceptive methods are safe, effective and their uptake is integral to increasing modern contraceptive prevalence rate. Their utilization is influenced by women's reproductive health conditions and socio-economic background. This study aimed to explore the characteristics of women of reproductive age who chose these long-term contraceptive options.

Methods: A cross sectional study using a convenient sampling method was conducted among 74 women of reproductive age group (15-49 years) over a three-month period at Kathmandu Medical College, after obtaining ethical approval. Demographic and obstetric details of the participants were collected and analyzed using Statistical Package for the Social Sciences version (SPSS) version 21, with descriptive statistics employed to describe participants' characteristics.

Results: Among all women seeking contraceptive advice, 28 (37.33%) chose long-acting methods. The subdermal implant was most commonly preferred by women with prior spontaneous abortion and unintended pregnancies. The levonorgestrel intrauterine device was preferred by comparatively advanced aged women (mean age of 38 ± 6.2 years), compared to 33.67 ± 3.9 years for copper intrauterine device users and 32.49 ± 7.6 years for subdermal implant users. Most users 49 (66.21%) were from the Brahmin/Chhetri caste.

Conclusions: The subdermal implant emerged as the most preferred Long Acting Reversible Contraceptive method. Caste and education levels significantly influenced contraceptive choices, highlighting the influence of socio-demographic and reproductive health factors in shaping choices for long term birth control methods.

Keywords: Contraception; drug implant; intrauterine device; LARC.

INTRODUCTION

The modern contraceptive prevalence rate (mCPR) in Nepal has remained constant at 43% from 2011 to 2022 whereas the Sustainable Development Goal (SDG) 2030 targets a rate of 70%. To reach this target, focus on Long Acting Reversible Contraceptive (LARC) methods is necessary.¹ Reproductive aged women commonly used LARC methods include Levonorgestrel containing subdermal implants, Copper containing intrauterine device (Cu-IUD) and Levonorgestrel containing intrauterine device (LNG-IUD).² These methods are highly efficacious, safe and convenient for birth control.

Safety and efficacy may not always be the factors associated with utilization of family planning methods. Utilization is often influenced by women's sexual and

reproductive health characteristics and their social and economic characteristics.^{3,4} However, limited studies examine these factors among LARC users in Nepal. This study aimed to explore the characteristics of LARC users in women of reproductive age group (15-49 years) visiting Kathmandu Medical College.

METHODS

A cross sectional observational study was conducted from 15th November 2024 to 15th February 2025, at Kathmandu Medical College and Teaching Hospital, Sinamangal, Kathmandu, Nepal. Ethical clearance was taken from the Institutional Review Committee of the same institute (Ref: 16102024/02). Informed consent from each participant was taken and confidentiality was maintained.

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All women of the reproductive age group (15 to 49 years) who were current or new users of LARC were included in the study. Current users are participants who were already using LARC during the time of enrollment and new users are participants who have come for LARC utilization. The options of LARC given to new users were subdermal implant (Jadelle), Cu-IUD or LNG-IUD. Any non-consenting women or those not completing more than 10% of the questionnaire were excluded from the study. A convenient sampling technique was used.

Where n is the sample size, Z is the statistic corresponding to level of confidence 1.96 at 95% confidence interval (CI), e= margin of error, p=expected prevalence of 4.7% taken from a previous study by Bhandari R⁵.

Considering the 5% non-response rate, the final sample size was 74.

One to one interview was taken after informed consent from the participants. Data was collected on a pre-designed proforma. Pretesting of the questionnaire was done with the help of trained and experienced enumerators. Demographic and obstetric details of the participants like age, parity, education, relationship status, age at initiation of sexual intercourse, history of unintended pregnancy, and abortion were noted. Type and duration of LARC used, reason for use, type

of insertion (interval/post-partum/post abortion), contraceptive advice taken from, desire for future pregnancy and perceived side effects were also noted. Current users were asked on the duration of LARC use and the facility where they inserted it.

Data was entered and analyzed by Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics was used to calculate the variables of interest. Univariate analysis was done to obtain the frequency of sociodemographic characteristics and other discrete variables of the study population. Data was presented using tables.

RESULTS

A total of 74 patients consisting of 47 current users and 27 new users of LARC were included in the study based on the inclusion and exclusion criteria. Out of all new users, 18 (66.70%) opted for a subdermal implant. Among the current users, 29 (61.70%) were the users of the subdermal implant. Only three users selected the LNG-IUD method. A total of 46 LARC insertions were done at interval periods, with 30 (68.32%) among subdermal implant users, 14 (58.33%) among Cu-IUD users and 2 (66.66%) among LnG-IUD users.(Table 1).

Table 1. Type and timing of LARC use. (n=74)

	Subdermal implant (n=47)	Cu-IUD (n=24)	LnG-IUD (n=3)	Total
Type of user				
Current	29 (61.70%)	17 (70.83%)	1 (33.33%)	47
New	18 (38.29%)	7 (29.16%)	2 (66.66%)	27
Time of insertion				
-Interval	30 (63.82%)	14 (58.33%)	2 (66.66%)	46
-Postpartum	8 (17.02%)	8 (33.33%)	1 (33.33%)	17
-Postabortal	2 (4.25%)	9 (37.50%)	0	11

The mean age of participants using the Subdermal implant was 32.49 ± 7.6 years while that of Cu-IUD was 33.67 ± 3.9 years. Lng-IUD users' mean age was 38 ± 6.2 years and were comparatively older than the users of other methods. Among the total participants, 49 (66.2%) using LARC belonged to the Brahmin/Chhetri caste, among them majority 31(65.95%) used Subdermal implant. Among the participants, the majority had completed their secondary education, with 16 (34.04%) using subdermal implant , 9 (37.50%) using Cu-IUD. (Table 2).

Table 2. Demographic profile of LARC users. (n=74)

	Subdermal implant (n=47)	Cu-IUD (n=24)	LnG-IUD (n=3)
Mean age±SD (years)	32.49±7.6	33.67 ±3.9	38±6.2
Address			
-Kathmandu Valley	22 (46.80%)	12 (50%)	3 (100%)
-Outside Kathmandu Valley	25 (53.19%)	12 (50%)	0
Caste			
Brahmin/Chettri	31 (65.95%)	17 (70.83%)	1(33.33%)
Janajati	10 (21.27%)	5 (20.83%)	1(33.33%)
Others	6 (12.76%)	2 (8.33%)	1(33.33%)
Academic qualification			
-Illiterate	6 (12.76%)	3 (12.50%)	0
-Primary	13 (27.65%)	3 (12.50%)	1 (33.37%)
-Secondary	16 (34.04%)	9 (37.50%)	0
-Bachelors	8 (17.03%)	5 (20.83%)	2 (66.66%)
-Masters	4 (8.51%)	4 (16.66%)	0
Age at initiation at sexual intercourse (Mean±SD) (years)	20.5±3.2	22.92±3.7	18.6 ±1.1

Women using Cu-IUD had lower mean parity(1.7±0.69) as compared to other users. Women with a history of spontaneous abortion and unintended pregnancies tend to choose subdermal implants. Also more women 38(90.9%) who did not desire future pregnancy chose subdermal implants (Table 3).

Table 3. Obstetric profile of LARC users. (n=74)

	Subdermal implant (n=47) n (%)	Cu-IUD(n=24) n (%)	LnG-IUD(n=3) n (%)
Parity (Mean ± SD)	2.09 ± 0.85	1.7 ± 0.69	2.33 ± 0.57
History of Spontaneous Abortion	23 (48.93%)	4 (16.66%)	3 (100%)
History of unintended pregnancy	13 (27.65%)	8 (17.02%)	2 (66.66%)
Desire for future pregnancy			
Yes	7 (14.89%)	4 (16.66%)	0
No	38 (80.85%)	16 (66.66%)	3 (100%)
Maybe	2 (4.25%)	4 (16.66%)	0

Most participants 26 (35.13%) had self selection or advice from a friend 26 (35,13%) to use LARC. Participants choosing subdermal implants 19 (40.42%) felt that it was the most convenient and those using Cu-IUD 12 (50%) felt that it had the least side effects (Table 4).

Table 4. Sources of contraceptive advice and reason for choosing LARC. (n=74)

	Subdermal implant (47) n (%)	Cu-IUD (24) n (%)	LnG-IUD(3) n (%)
Sources of contraceptive advice			
-Self	14 (29.78%)	12 (50%)	0
-Partner	4 (8.51%)	3 (12.50%)	0
-Friend	20 (42.55%)	2 (8.33%)	2 (66.66%)
-Family	8 (17%)	2 (8.33%)	0
-HCP	1 (2.12%)	5(20.83%)	1 (33.33%)
Reason for choosing the method			
-Convenience	19 (40.42%)	3 (12.50%)	0
-Less side effects	10 (21.27%)	12 (50%)	3 (100%)
-Partner's approval	3 (6.38%)	2 (8.33%)	0
-HCP suggestion	6 (12.76%)	6 (25%)	0
-Previous Use	9 (19.14%)	1 (4.16%)	0

*HCP: Health care provider

Analysis of the site of insertion showed that 58 out of 74, (78.37%) participants had got it inserted at a tertiary care center. Among current users, 22 women (46.80%) had come for removal. Reasons given for removal were completion of the effectiveness period 21(28.41%), irregular or heavy bleeding 3 (4.14%), other side effects 3(4.11%) and planning to conceive 2 (0.42%). One participant came for removal because of menopause.

Among all users, 37(50%) had a history of contraceptive use in the past 10 years. LARC was the commonest type of contraceptive used in the past, used by 15(20.31%). Other contraceptives used in the past were injectables 10 (13.56%), OCPs and multiple contraceptives by 5(6.81%) each and barrier methods by 2(2.72%).The participants' experience with past contraceptives showed bleeding (13) and weight gain (3) as the most common side effects.

DISCUSSION

This study was conducted to explore the profile of Long-Acting Reversible Contraceptive (LARC) users attending Kathmandu Medical College. The findings revealed that most participants preferred the subdermal implant among the available LARC methods due to its convenience. Women with lower mean parity preferred using the Copper IUD (Cu-IUD), while those with a history of spontaneous or unintended pregnancies favored the subdermal implant.

LARC methods are among the most effective modern contraceptive options for preventing unintended pregnancies. They are long-acting, reliable, safe, cost-effective, and offer additional non-contraceptive benefits for a wide range of women seeking either spacing or limiting methods of contraception. LARC methods do not depend on user adherence and are also suitable for women with medical conditions. This study evaluates the factors influencing the use of LARC

methods.

Nepal is working to increase the use of LARC methods to meet its Sustainable Development Goals (SDGs). However, the use of LARC in Nepal is still relatively low, at 4%, compared to the global average of 18.9%.⁶ In this study, 38.3% of women attending contraceptive counseling used LARC. It is important to note that this study was conducted in a private-public tertiary care center, where women typically seek LARC services. A study by Meheta et al. found that the odds of choosing LARC were higher among those receiving services from the public health sector.⁷

LARC methods in high and low resource countries are used by 9% and 18% respectively. Globally, IUDs are used by 14% of women of reproductive age who are married or in union.⁸ Data from DHS Nepal shows the use of LARC in 2016 was 4.7%, in which the use of IUCD was 1.4% and implant was 3.4% (n = 329).⁵ In this study out of all new users, 38.3% favoured implant and 29.1%

chose IUD. The observed increase in numbers may be attributed to women seeking LARC primarily at tertiary care centers, where these women tend to have higher educational levels. Given the small sample size of our study, the percentages observed may be higher than those reported in national data and should therefore be interpreted carefully.

In this study, approximately one-third (31%) of participants held a bachelor's degree or higher. Furthermore, these women may possess greater awareness of the improved availability of contraceptive options and the presence of trained healthcare providers at these centers, which may have influenced their decision to seek services.

Social and economic factors are important determinants of family planning utilization. In this study, the mean age of LARC users was 33.08 years. Bhandari et al. reported that only 5.2% of LARC users were aged over 35 years.⁵ Additionally, women under 25 years had higher odds of using LARC compared to those aged over 35 years. However, the findings of the current study do not align with this pattern.

In a study where contraceptive acceptance among post-abortion young women was assessed, the odds of LARC acceptance were higher for women 24 years or below who belonged to Brahmin/Chhetri ethnic groups.⁷ In Nepal, women from religious groups such as Buddhist, Muslim, Kirat, and Christian were found to be 1.4 times more likely to use LARC compared to those from the Hindu religion.⁵ The findings of this study shows that women of Brahmin/chhetri ethnicity preferred LARC methods. The findings suggest that, in Nepal, women's religion and ethnicity may be important factors influencing LARC use.

In the same study of postabortion contraceptive use, the greatest proportion of LARC use was observed among women with primary education (12%).⁷ Conversely, the least use was seen among those with higher education (10%). The analysis from South East Asian region shows that higher education was associated with a 13% increase in the odds of modern contraceptive use among women compared to those with primary education or no education.⁹ Data from Nepal indicates that the proportion of LARC use was higher among women with no education (5.6%) compared to those with secondary education or higher (3.9%).⁵ However, the findings of this study show that women with higher education are more likely to use LARC. It is important to note that the women seeking services at the study site tend to have

higher educational levels.

National data from Nepali women shows that having two or less than two children and having desire for children in future had positive association with the use of LARC.⁵ The odds of LARC use was 3.4 times higher among women who wish to have a child in the future. In this study 80.9% women who did not desire to have a future pregnancy used implants compared to 66.6% of IUCD.

The study also observed that more women had interval insertion of LARC but many had postabortal and postpartum insertion. LARC appeared to be utilized in less than 15% of postpartum women in LMIC.¹⁰ In a study in Dhulikhel hospital in Nepal, implant was the most common choice in postpartum women.¹¹

Contraceptive services in Nepal are delivered at the primary, secondary and tertiary levels. This study showed that 78.3% of women inserted contraceptives at hospitals. The findings of this study shows that women got information about implants from a friend or by self. Whereas information of IUCD was shared by self or by health care providers. Keyal NK et al observed that the most common source of contraceptive information was school, television and health workers.¹² Only 1 (1.3%) of subjects had gained knowledge from a relative and even fewer nominated a doctor as their source.

Among the participants, 37 (50%) reported using contraception in the past 10 years. Of these, 15 (20.3%) had previously utilized LARC, indicating that women may exhibit a preference for LARC as a method of repeated use.

Nepal must enhance its family planning program to fulfill the country's commitments to global family planning goals. Therefore, it is essential to consider the profile of women utilizing LARC when aiming to increase its utilization.

While this study provides important insights into the profile of women using LARC attending a tertiary-level center, there are several limitations that must be acknowledged. The perspectives of service providers and potential biases were not included, which could have provided a more comprehensive understanding of the factors influencing LARC use. Furthermore, the results are specific to women seeking care at a tertiary-level center and cannot be generalized to the broader population.

Despite these limitations, the study contributes valuable

information about LARC utilization within this particular group of women. Future research should include the views of service providers to better understand LARC use. Studies should also reduce any biases in promoting LARC and include women from different healthcare settings to make the findings more applicable to a wider population

CONCLUSIONS

This study showed that the subdermal implant was the most preferred long-acting reversible contraception (LARC) method due to its convenience. Women with lower mean parity tended to favor the Cu containing intrauterine device (Cu-IUD), while those with a history of unintended pregnancies preferred the subdermal implant. LARC use was higher among women with higher education levels, and it was also favored for repeated use. These findings emphasize the importance of considering the profile of women using LARC to effectively increase its utilization.

REFERENCES

1. Ministry of Health and Population (MoHP) [Nepal], New ERA, and ICF. Nepal Demographic and Health Survey 2022. Kathmandu, Nepal: MoHP, New ERA, and ICF; 2022. [Full text]
2. From evidence to policy: expanding access to family planning - strategies to increase use of long-acting and permanent contraception. WHO Policy Brief, 2012.[Full Text]
3. Coombe J, Harris ML, Loxton D. Who uses long-acting reversible contraception? Profile of LARC users in the CUPID cohort. *Sex Reprod Healthc.* 2017 Mar;11:19-24. [PubMed | Full Text | DOI]
4. Moreau C, Bohet A, Hassoun D, Teboul M, Bajos N; FECOND Working Group. Trends and determinants of use of long-acting reversible contraception use among young women in France: results from three national surveys conducted between 2000 and 2010. *Fertil Steril.* 2013 Aug;100(2):451-8. [PubMed | Full Text | DOI]
5. Bhandari R, Pokhrel KN, Gabrielle N, Amatya A. Long acting reversible contraception use and associated factors among married women of reproductive age in Nepal. *PLoS ONE* 2019 Mar 28;14(3): e0214590. [PubMed | Full Text | DOI]
6. Bagade O, Pawar Vidya, Patel R, Patel B, Awasarkar Varsha DS. Increasing Use of Long Acting Reversible Contraception: Safe, Reliable and Cost-Effective. *World J. Pharm. Pharm. Sci.* 2014; 3(10):364-92 [Full Text]
7. Mehata S, Bhattarai, N, Menzel J et al. Prevalence and correlates of postabortion long-acting reversible contraceptive (LARC) use among young women (24 and below) in Nepal: Strategy in the search for improvements. *Reprod Health.* 2019 May 14;16(1):55. [PubMed | Full Text | DOI]
8. Joshi R, Khadilkar S, Patel M. Global trends in use of long-acting reversible and permanent methods of contraception: seeking a balance. *Int J Gynaecol Obstet.* (2015) 131:560-53. [PubMed | Full Text | DOI]
9. Biswas RK, Farzana M, Bhar S, Bhowmik J. Contraceptive use in South and South-East Asian region: assessment of sustainable development goal 3.7 through indicator 3.7.1. *J Public Health (Oxf).* 2023 Jun 14;45(2):450-461. [PubMed | Full Text | DOI]
10. Harrison MS, Goldenberg RL. Immediate postpartum use of long-acting reversible contraceptives in low- and middle-income countries. *Maternal health, neonatology and perinatology.*2017 Dec 22;3:24. [PubMed | Full Text | DOI]
11. Pradhan N, Dongol A, Bastakoti R, Karmacharya SB, Shrestha OH. Use of Postpartum Family Planning among Women Undergoing Deliveries in a Tertiary Care Hospital: A Descriptive Cross-sectional Study. *JNMA J Nepal Med Assoc.* 2021 Nov 15;59(243):1086-1089.[PubMed | Full Text | DOI]
12. Keyal N, Moore M. Contraception in Eastern Nepal: A Study of Knowledge and Use. *J Univ Coll Med Sci [Internet].* 2014 Sep. 27 [cited 2025 Nov. 4];2(2):15-20. Available from: <https://www.nepjol.info/index.php/JUCMS/article/view/1116>. [Full Text | DOI]