

# Social determinants of discontinuation of depo-provera among married women in Nepal

Manju Maharjan, Phattrawan Tongkumchum, Sampurna Kakchapati

## ABSTRACT

**Aims:** The aim of this study was to investigate the discontinuation of depo-provera and the social factors associated with discontinuation among married women of Nepal. **Methods:** This was retrospective analysis of 587 users of depo-provera. Data were obtained from the Nepal Demographic and Health Survey for the year 2011. The outcome was discontinuation of depo-provera within 12 months. The determinants were Social-demographic characteristics and reasons for discontinuation. Statistical analysis was done using chi-squared tests to assess statistically significant associations between determinants and outcome. Significant predictors in the univariate analysis were then included in a logistic regression to identify the most important determinants with the outcome. **Results:** A total of 199 women discontinued within 12 months its use in last five years (34%). The findings showed that the discontinuation of depo-provera was

higher among younger women, living in rural areas, Janajati ethnicity, formal education, working in agriculture or not employed and women reporting side effects than the overall mean percent. In multivariate analysis, age, area of residence, ethnicity, formal education, occupation and reasons for discontinuing were statistically associated with discontinuation of the depo-provera. **Conclusion:** Social factors are associated with discontinuation of depo-provera. Users should be motivated to continue in order to reduce early discontinuation and thus prevent unwanted pregnancies and abortions. Information regarding the contraceptive method and its side effects should be given to women before starting use.

**Keywords:** Discontinue, Depo-provera, Chi-square, Logistic regression model

### How to cite this article

Maharjan M, Tongkumchum P, Kakchapati S. Social determinants of discontinuation of depo-provera among married women in Nepal. *Edorium J Public Health* 2016;3:1–6.

Article ID: 100006P16MM2016

\*\*\*\*\*

doi:10.5348/P16-2016-6-OA-4

Manju Maharjan<sup>1</sup>, Phattrawan Tongkumchum<sup>2</sup>, Sampurna Kakchapati<sup>3</sup>

**Affiliations:** <sup>1</sup>Master Degree in Research Methodology, Research Officer, CREHPA, Kusunti, Kathmandu, Nepal; <sup>2</sup>Doctoral Degree in Statistics, Assistant Professor, Department of Mathematics and Computer Science, Prince of Songkla University, Muang, Pattani, Thailand; <sup>3</sup>Doctoral Degree in Research Methodology, Post Doctoral Fellowship, Department of Mathematics and Computer Science, Prince of Songkla University, Muang, Pattani, Thailand.

**Corresponding Author:** Sampurna Kakchapati, Post Doctoral Fellowship, Department of Mathematics and Computer Science, Prince of Songkla University, Muang, Pattani, Thailand; Email: kck\_sampurna@yahoo.com

Received: 04 February 2016

Accepted: 01 March 2016

Published: 29 March 2016

## INTRODUCTION

Depo-provera is a hormonal reversible contraceptive administered intramuscularly that prevents a woman from conceiving a baby for three months. Contraception helps to prevent unintended pregnancy. According to the

Nepal Demographic and Health Survey (NDHS) the total fertility rate in Nepal was 2.6 in 2011. The contraceptive prevalence rate was 43.7% in 2010 and was found to have decreased to 43.1% in 2011 which is far from the 2015 target of 67% [1]. A decrease in user rates of depo-provera from 8.2–7.9% has been reported [2]. About 49% of Nepalese women are in the reproductive age of 15–49 years [1]. With a high proportion of the female population belonging to the reproductive age group a decrease in the rate of contraceptive use can result in a large number of unintended pregnancies. Family planning programmes can minimize unintended pregnancies and maternal mortality and increase child survival [3]. In order to be successful, family planning programmes must motivate women to begin using contraceptives and must encourage women who are already using family planning not to discontinue contraceptive use [4]. Furthermore, improving convenience for users can aid in increasing continuation of contraceptive use [5]. However, results of the NDHS report have shown that modern contraceptive use has not increased in the last five years, and discontinuation rates of 51% were seen within 12 months of starting its use in Nepal [1]. Distrust in modern reversible methods and the absence of service facilities in remote rural as well as hilly areas of Nepal have been identified as the main barriers to the adoption of family planning [6].

Depo-provera is a highly effective, convenient non-daily hormonal contraceptive option that has been available worldwide for over 30 years [7]. Depo-provera has become an increasingly popular option for hormonal contraception, not only among women in developed countries, but also in developing countries. From 1995 to 2005 the estimated number of depo-provera users more than doubled to more than 32 million; by 2015, as many as 40 million women are expected to be using the method. An analysis conducted in thirteen countries (Bolivia, Egypt, Haiti, Indonesia, Kenya, Malawi, Namibia, Nepal, Nicaragua, Peru, Tanzania, Zambia and Zimbabwe) shows that depo-provera use has risen among 'spacers' as well as well as 'limiters' of all ages [8].

Contraceptive discontinuation results in unwanted pregnancies and induced abortions. Low use and high discontinuation of family planning is a public health concern [9]. One study reported that 12–47% of users discontinued within one year even although they do not want to become pregnant [10]. The proportion of women who are sexually active and do not want to become pregnant, but are not using family planning, remains high and is increasing in developing countries [11].

Only few medical conditions prohibit the use of depo-provera. Asian countries like Bangladesh, Sri Lanka, Pakistan and Nepal offer this contraceptive widely through the public health system. Depo-provera requires less user participation than daily options and has a lower rate of failure (0.3–3.0%). Moreover, it can be administered by any health professional and does

not require a pelvic examination unlike intrauterine contraceptive methods (IUCD). Studies have shown that the women using this method would have achieved other health benefits such as decreased risk of endometrial cancer, iron deficiency anemia, pelvic inflammatory disease, ectopic pregnancy, and uterine leiomyomas [7]. Nepal is a developing country where the prevalence of anemia is high [12]. Depo-provera could be better choice as family planning method. Additionally, the need for an injection only four times per year can be better option for users who have problems with daily or self-administered methods. For women who desire convenience and privacy depo-provera can be a better option for contraception.

When considering low levels of contraceptive prevalence many studies focus on the methods of contraception adopted, but pay less attention to what happens after a woman adopts a method. The study of discontinuation and its causes clearly remains important for programme planning and guidance [9]. Moreover, studies had revealed that discontinuation of depo-provera varied by Social demographic characteristics such as age, education, occupation and others [5, 6, 9]. Social determinants affecting the discontinuation are important and need to be assessed. In Nepal, limited studies of modern reversible contraceptives have been documented. This research aims to determine the status of discontinuation of depo-provera and various factors associated with discontinuation among married women in Nepal.

## MATERIALS AND METHODS

Data for this study were retrieved from the NDHS in 2011 which was implemented by New ERA under the leadership of the Ministry of Health and Population. The survey provides data related to female contraceptive use and has enabled this study to examine the determinants of depo-provera discontinuation at the household level among 15–49 year old women. The survey was conducted from January to May, 2011. The analysis used the calendar method of contraceptive use. The calendar records detailed information (i.e., month-by-month) about the timing of a number of events in the use of a contraceptive method and the reasons for discontinuation occurring in the five year calendar years preceding the survey. Although the retrospective method of measurement makes heavy demands on the memory of respondents, recall is aided by timing events in relation to one another [13]. The present study included data from couple records which comprised married women in the 15–49 years age group. The survey interviewed 10,826 households, in which 12,674 were females aged 15–49 years and 2,322 were couples. The study subjects were 587 users of depo-provera of whom 199 discontinued within 12 months of beginning of its use in last five years. The outcome was whether or not depo-provera discontinuation occurred

within 12 months. The determinants were age, residential area, ethnicity, education, occupation and reasons for discontinuation.

### Statistical Analysis

A preliminary statistical analysis involved examining the frequency distribution of the determinants, cross tabulation and their univariate association with the outcome. Pearson’s chi-squared test was used to assess the statistical significance of the association between the outcome and study determinants.

Logistic regression analysis [14, 15] was performed to identify the strength of association between determinants and outcome, using the additive model.

$$\ln\left(\frac{P_{ijklmn}}{1 - P_{ijklmn}}\right) = \mu + \alpha_i + \beta_j + \gamma_k + \delta_l + \varepsilon_m + \xi_n$$

This model formulated the logit of probabilities  $P_{ijklmn}$  of discontinuation of method as an additive linear function of the six determinants where  $P_{ijklmn}$  is probability of discontinuation of method in each i, j, k, l, m and n groups of predictor factors,  $\mu$  is a constant, and where  $\alpha_i$ ,  $\beta_j$ ,  $\gamma_k$ ,  $\delta_l$ ,  $\varepsilon_m$  and  $\xi_n$  refer to age group, area, ethnicity, female education, female occupation and reasons respectively.

Sum contrasts were used to obtain confidence intervals

for comparing each proportion with the overall proportion [16]. As it is necessary to construct specific contrasts for logistic regression, this can be accomplished by using weighted sum contrasts rather than treatment contrasts [16] where the first level is left out from the model to be the reference [17]. The advantage of using appropriately weighted sum contrasts is that each proportion can be compared with the overall proportion rather than with a specified reference group. The computed 95% confidence intervals provide a way of classifying the levels of each factor into three groups according to whether each corresponding confidence interval exceeds, crosses or is below the overall proportion [18]. The confidence intervals compare percent of depo-provera discontinuation in each category of a factor with the overall percent.

R program was used for statistical analysis and creating graphs [19].

### RESULTS

Table 1 gives differences in the characteristics of women who discontinued depo-provera within twelve months and those who did not. Discontinuation was highest in the 15–24 year age group (55.6%), residing in rural areas (38.3%) and Janajati ethnic groups (44.8%) than in

Table 1: Comparison of social determinants among depo-provera discontinuers and users

Characteristics	Discontinuation of Depo-Provera		p-value
	Yes (n=199)	No (n=388)	
Age			
15–24 years	69 (55.6)	55 (44.4)	< 0.001
25–34 years	93 (32.7)	191 (67.3)	
35–49 years	37 (20.7)	142 (79.3)	
Area			
Urban	38 (22.8)	129 (77.2)	< 0.001
Rural	161 (38.3)	259 (61.7)	
Ethnicity			
Brahmin	67 (30.9)	150 (69.1)	0.015
Janajati	56 (44.8)	69 (55.2)	
Dallit	76 (31.0)	169 (69.0)	
Female education			
Illiterate	71 (26.1)	201 (73.9)	< 0.001
Primary	51 (41.5)	72 (58.5)	
Secondary and Higher	77 (40.1)	115 (59.9)	

Table 1: (Continued)

Female occupation			
Agricultural	126 (36.4)	220 (63.6)	0.002
Services	27 (21.3)	100 (78.7)	
No work	46 (40.4)	68 (59.6)	
Reason			
No need i	85 (27.2)	227 (72.8)	0.001
Side effects	77 (40.7)	112 (59.3)	
Miscellaneous ii	37 (43.0)	49 (57.0)	

i. No need of family planning includes wanted to become pregnant and husband migrated to foreign country.

ii. Miscellaneous includes husband disapproved, access to methods, wanted more effective method, menopause and inconvenient to use.

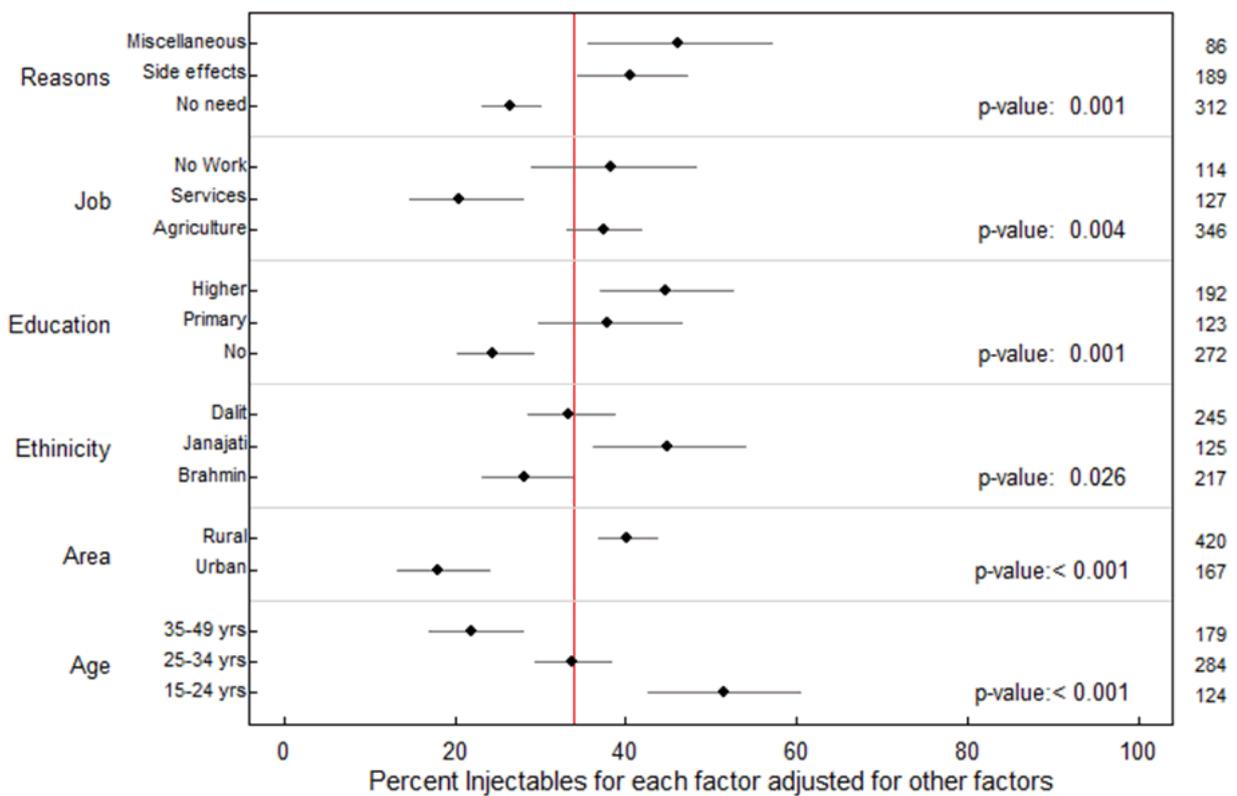


Figure 1: Adjusted percent of depo-provera discontinuer within 12 months.

those who belonged to the other ethnic groups. Similarly, discontinuation was higher among women with primary education or above than in those who were illiterate and, in terms of occupation, it was higher in those working in agriculture or not employed than in service workers. With respect to reasons for discontinuation, more women stopped using the contraceptive because of its side effects or for miscellaneous reasons than because contraception was no longer needed. Age, area of residence, ethnicity, education, occupation and reasons to discontinue were significantly associated with discontinuation ( $p < 0.005$ ).

In univariate analysis, all determinants for discontinued depo-provera were found to be statistically significant ( $p < 0.005$ ). Therefore, all determinants in the study were included for multivariate analysis. Figure 1 shows the percent of depo-provera discontinuers in last five years superimposed with adjusted percent and their corresponding 95% confidence intervals by age, residential area, ethnicity, education, occupation and reasons for stopping of the crude and adjusted percent for each determinant before and after adjusting for other

determinants. All six determinants that were statistically significant in chi-squared tests were also statistically significant in the logistic regression model based on sum contrasts. The vertical red line is the overall percent of discontinuation (34%). The adjusted percent of discontinuation in age groups 15–24 years, 25–34 years and 35–49 years were 51%, 34% and 22%, respectively, and the 15–24 years was higher than the overall percent. The adjusted percent of urban dwellers was 18% [95% CI: 15, 22] which is lower than the overall percent. Similarly, the adjusted percent among women working in services was 21% [95% CI: 15, 27] which lower than the overall percent. When compared with the overall percent, higher discontinuation rates occurred in women of the Janajati ethnic group, those who were literate and educated to at least primary school level, and those who stopped use because of side effects or for miscellaneous reasons: 45% [95% CI: 37, 53], 45% [95% CI: 37, 52], 41% [95% CI: 34, 47] and 46% [95% CI: 38, 55] respectively.

## DISCUSSION

Discontinuation of depo-provera is one of the family planning concern in Nepal. Consistent with previous studies, social determinants were associated with the discontinuation of depo-provera [5, 6, 9]. Discontinuation within 12 months was found to be higher among younger than older women. As reported in a previous study, younger women show stronger fertility desire than older women and therefore want to have babies at an earlier reproductive age [20]. Most of the rural areas of Nepal had high proportion of illiteracy and lack of proper health facilities. The women in these areas are therefore more likely to discontinue contraceptive use, and this is supported by a previous study [6, 21]. Women from the Janajati group were found more likely to discontinue than the other two groups. In the present study, educated women were found to discontinue a higher rate than illiterate women. This finding was not consistent with other studies as higher education level has been associated with higher contraceptive use [22]. The discontinuation was lower in women employed in services, and this supports previous studies showing that occupational status influences discontinuation [9]. As previous studies, depo-provera users are likely to report side effects as a reason for discontinuing use and that insufficient information regarding side effects was frequently the problem. In the present study, other reasons for discontinuation were investigated such as husband disapproval, access to the method, inconvenience, and the wish for a more effective method. A previous study supported the need for improvements in user convenience to decrease discontinuation [5]. Our study had some limitations. The study used secondary data and was limited by a lack of information about what women were told about side

effects or whether they received any counseling before starting use of the contraceptive.

## CONCLUSION

In conclusion, users should be motivated to continue in order to reduce early discontinuation and thus prevent unwanted pregnancies and abortions. Information regarding the contraceptive method and the well-known side effects of contraceptives should also be given to users. Before starting to use contraception they should also be provided with counseling to help them handle minor problems in their home-life.

\*\*\*\*\*

## Acknowledgements

We are grateful to Prof Don McNeil for his valuable suggestions.

## Author Contributions

Manju Maharjan – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Phattrawan Tongkumchum – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Sampurna Kakchapati – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

## Guarantor

The corresponding author is the guarantor of submission.

## Conflict of Interest

Authors declare no conflict of interest.

## Copyright

© 2016 Manju Maharjan et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

## REFERENCES

1. Ministry of Health and Population (MoHP) and New ERA. Nepal Demographic and Health Survey. Kathmandu: Ministry of Health and Population 2011. [Available at: <http://dhsprogram.com/pubs/pdf/FR257/FR257%5B13April2012%5D.pdf>]

2. Department of Health Services (DoHS). Annual Report (2070-2071). Kathmandu: Government of Nepal 2013. [Available at: [http://dohs.gov.np/wp-content/uploads/2014/04/Annual\\_Report\\_2070\\_71.pdf](http://dohs.gov.np/wp-content/uploads/2014/04/Annual_Report_2070_71.pdf)]
3. Smith R, Ashford L, Gribble J, Clifton D. Family Planning Saves Lives. 4ed. Washington DC: Population Reference Bureau; 2009. [Available at: <http://www.prb.org/pdf09/familyplanningsaveslives.pdf>]
4. Mishra KV, Retherford DR, Nair PS, Feeney G. Reasons for discontinuing and not intending to use contraception in India. National Family Health Survey 1999. [Available at: [http://www.eastwestcenter.org/sites/default/files/filemanager/Research\\_Program/NFHS\\_Subject\\_Reports/subj-13.pdf](http://www.eastwestcenter.org/sites/default/files/filemanager/Research_Program/NFHS_Subject_Reports/subj-13.pdf)]
5. Kaunitz AM, Peipert JF, Grimes DA. Injectable contraception: issues and opportunities. *Contraception* 2014 May;89(5):331–4.
6. Leone T, Matthews Z, Dalla Zuanna G. Impact and determinants of sex preference in Nepal. *Int Fam Plan Perspect* 2003 Jun;29(2):69–75.
7. Westhoff C. Depot-medroxyprogesterone acetate injection (Depo-Provera): a highly effective contraceptive option with proven long-term safety. *Contraception* 2003 Aug;68(2):75–87.
8. Sutherland EG, Otterness C, Janowitz B. What happens to contraceptive use after injectables are introduced? An analysis of 13 countries. *Int Perspect Sex Reprod Health* 2011 Dec;37(4):202–8.
9. Thapa S. Early discontinuation of intrauterine device in Nepal – a retrospective study. *WHO South East Asia J Public Health* 2012;1(3):309–19.
10. Bradley SEK, Schwandt HM, Khan S. Levels, Trends, and Reasons for Contraceptive Discontinuation; DHS Analytical. Studies 20. Calverton, Maryland, USA: ICF Macro; 2009.
11. Westoff CF. New estimates of unmet need and demand for family planning. DHS Comparative Reports No. 14. Calverton, Maryland, USA: Macro International Inc; 2006.
12. Sinha AK, Karki GM, Yadav S, Islam Md N. Prevalence of anemia during pregnancy in the women of eastern Nepal. *Int J Pharm Biol Arch* 2012;5:1051–53.
13. Leite IC, Gupta N. Assessing regional differences in contraceptive discontinuation, failure and switching in Brazil. *Reprod Health* 2007 Jul 10;4:6.
14. Hosmer W, Lemeshow S. *Applied logistic regression*. 2ed. New York: John Wiley & Sons, Inc; 2000.
15. Kleinbaum DG, Klein M. *Logistic regression: a self-learning text*. 2ed. New York: Springer; 2002.
16. Tongkumchum P, McNeil D. Confidence intervals using contrasts for regression model. *Songklanakarin J Sci Technol* 2009;31(2):151–6.
17. Chutinantakul A, Tongkumchum P, Bundhamcharoen K, Chongsuvivatwong V. Correcting and estimating HIV mortality in Thailand based on 2005 verbal autopsy data focusing on demographic factors, 1996-2009. *Population Health Metrics* 2014 Oct 3;12(1):1–8.
18. Kongchouy N, Sampantarak U. Confidence interval for adjusted proportions using logistic regression. *Mod App Sci* 2010;4:1–7.
19. R Development Core Team. *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. 2007. [Available at: <http://www.R-project.org>]
20. Asiimwe JB, Ndugga P, Mushomi J, Manyenye Ntozi JP. Factors associated with modern contraceptive use among young and older women in Uganda; a comparative analysis. *BMC Public Health* 2014 Sep 8;14:926.
21. Adhikari R. Demographic, socio-economic, and cultural factors affecting fertility differentials in Nepal. *BMC Pregnancy Childbirth* 2010 Apr 28;10:19.
22. Sarmad R, Akhtar S, Manzoor S. Relationship of female literacy to contraceptive use in urban slums of Khushab (Punjab). *Biomedica* 2007;23:21–3.

Access full text article on other devices



Access PDF of article on other devices

