

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

Mithun Mog¹, Nasim Ahamed Mondal^{2*}

¹Senior Research Officer, International Institute for Population Sciences, Mumbai, Maharashtra, India

^{2*}Project Officer, International Institute for Population Sciences, Mumbai, Maharashtra, India

**nasimamu32@gmail.com*

Abstract

Introduction: From 1965 to 2009, contraceptive usage has tripled from 13 per cent to 56 per cent, and the fertility rates (TFR) decreased from 5.7 to 2.7. Objectives: To understand the trends in contraceptive use and to study the differentials in traditional and modern contraceptive use in northeast India in the past three decades.

Data Source and Methodology: The present study is based on all four rounds of the National Family Health Survey (NFHS) reports and data as well.

Findings: The overall Contraceptive use among married women improved by 8.0 per cent in Tripura and 9.7 per cent in Assam from 1992 to 2016. Additionally, Arunachal Pradesh, Nagaland, and Manipur had significantly low use of any contraceptive methods. Few states in the northeast (Tripura, and Assam) India, the traditional contraceptive users increased from 1992 to 2005, but after that, it decreased substantially. The modern contraceptive method is the most popular method in northeast India; it has risen 11.4 per cent in the last two decades. The contraceptive prevalence rate is not similar in all the northeastern states. Among the modern methods of contraception, the terminal method is the most prominently accepted in northeast India.

Conclusion: As northeast India is mostly dominated by tribal population, so the way of improving the contraceptive prevalence rate may differ. Therefore, more research is needed to frame proper policies on family planning.

Keywords: Contraceptive use, India, Modern methods, North-East, Traditional method.

INTRODUCTION

According to the United Nations, the world population grew at the rate of 1.23 per cent per year during 2001-2010 whereas India's population grew at 1.64 per cent per year during the same year (Ministry of Home Affairs, 2011). India contains around 1.2 billion populations, representing 17.8 per cent of the world's population, of which 26 per cent (328 million) are women of 15 - 49 years' age group (United Nations, 2012). The Contraceptive use can prevent unintended pregnancies, abortions and deaths related to pregnancy and childbirth. As per the United Nations estimation in 2006, 80 million unplanned pregnancies occur annually worldwide, resulting in 34 million unintended births and 42 million induced abortions (Guttmacher Institute, 1999). As said by Davis and Black, Contraception is the most significant contributing factor in fertility transition and one of the proximate determinants of fertility (Davis and Blake, 1956; Bongaarts, 1978). Demographic, cultural, economic, and social factors influence the choice of the contraceptive method (Chaurasia, 2014). Through contraceptive use, couples can decide at will when and how many children they desire to have. Maternal and infant mortality reduced as a

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

result of the growing use of contraceptive methods (Ahmed et al., 2012; Bhutta et al., 2014; Rutstein and Winter, 2015), and also improvements took place mainly in girls schooling and women economic outcomes (Canning and Schultz, 2012; Schultz and Joshi, 2013). The perception of contraceptive preference and promotion, knowledge of contraceptive use has changed entirely. Further, the proportion of modern contraceptive users also had increased with time (Seiber et al., 2007). Though family planning started in India in 1952, but attention had given on population stabilization only after 1971 population census (Chaurasia and Gulati, 2009). This approach increases the percentage of couples effectively safe from 12.4 per cent in 1971-72 to 46.5 per cent in 1995-96 but stayed stagnant from 1995-96 to 2003-04 and declined to 40.4 per cent in 2010-11. According to the recent National Family Health Survey-4 (2015-16) report, the contraceptive prevalence rate is 54 per cent decreased from 56 per cent in 2005-06 (NFHS4).

Nevertheless, the norm of a small family is still a long dream in India (Chaurasia, 2014). The contraceptive prevalence rate was 54 per cent during 2007- 08 (International Institute for Population Sciences, 2010) and the contraceptive prevalence rate stagnated after 2004 (United Nations, 2012). In India, contraception is practised for birth limitation more willingly than birth planning (Chaurasia, 2014). Study found that the demand for family planning is highly diverse across and within the states and union territories in India, Uttar Pradesh, Manipur, and Meghalaya are required much attention to meet United Nation's targets (New et al., 2017). National level policy may not be fit for some regions. So, access to family planning research at the national level might not identify the local diversity (Narzary and Ao, 2017). Similarly, studies relating to trend and pattern of contraceptive method at national level may not be able to capture the regional diversities. Northeast India, is the land of hundreds of different tribal communities, is quite different from rest of the country and that is why northeast India does not follow overall Indian pattern (Narzary and Ao, 2017). The prevalence of contraceptive rate found lower among the Muslim and Hindu (lower caste women) (Bora et al., 1998; Gulati, 1996). In North East India, the acceptance of family planning method is meagre, and it varies across the states and within the states (Dey and Goswami, 2009). There has been hardly any study carried out relating to contraceptive use in northeast India (Narzary and Ao, 2017). Hence, knowing the trend and pattern of contraceptive use in northeast India is essential, so that the policy makers as well as advocates can have appropriate strategies to make any scheme or policy.

MATERIALS & METHODS

The present study adopted all four rounds of the National Family planning and Health Survey annual published report which were obtained from appropriate sources (International Institute for Population Sciences). The data sets were compared with each other (NFHS-1, NFHS-2, NFHS-3 and NFHS-4) to show the trend and pattern in contraceptive use in the northeast India. percentage distribution tables were plotted for the purpose of comparative analysis.

OBJECTIVES

The study's overall objectives are:

- To know the trends in contraceptive use in the past three decades in north-east India.
- To study the differentials in Traditional and Modern contraceptive use in the past three decades in north-east India.

RESULTS

Figure 1 shows that overall trend of contraceptive method among currently married women in northeast India from 1992 to 2016. Contraceptive use among married women increased by 8 per cent in Tripura and 9.7 per cent in Assam during the period (from 56.1 per cent in 1992 to 64.1 per cent in 2016; 42.7 per cent in 1992 to 52.4 per cent in 2016). Whereas, at the national level, the use of contraceptive, substantially been increasing

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

from 40.6 per cent to 53.6 per cent (1992-2016). Nevertheless, Arunachal Pradesh, Nagaland and Manipur signify low use of any contraceptive methods, if we compare with neighborhood states of northeast India.

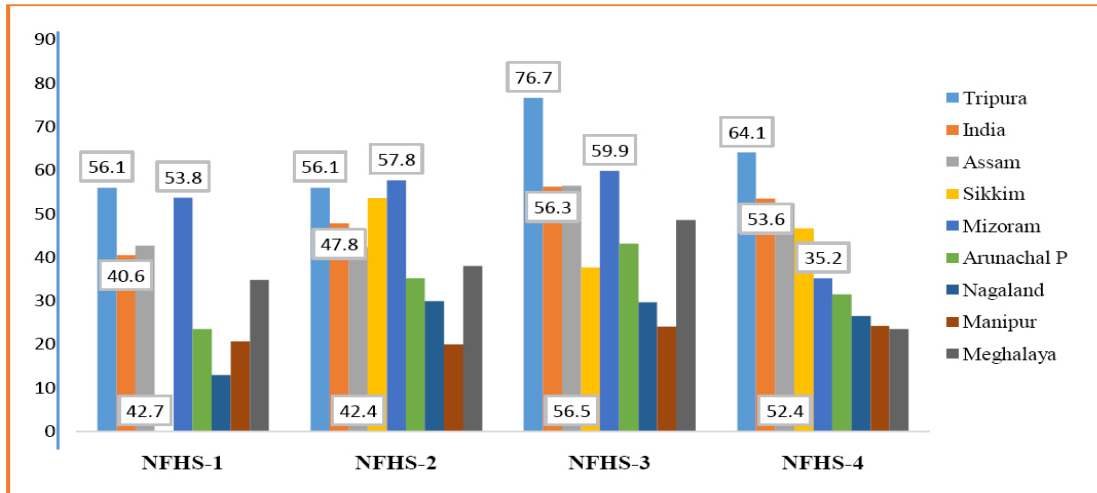


Fig1. Trends of any contraceptive methods among married women in North-East India, during 1992-2016 (NFHS 1 - NFHS 4)

Sources: National Family and Health Survey reports on 1992-2016, India (North-East)

Figure 2 shows the trend of traditional contraceptive use, among married women in northeast India in 1992 to 2016. Traditional contraceptive use among married women in Tripura increased (5.4%) significantly up to 2005 but gradually decreased (10.5 per cent) in the last decade. However, the National Family and Health survey 2015-2016, exposed 21.3 per cent use traditional methods in Tripura, which is the highest percentage (users) among northeast states. Likewise, Assam gives approximately the same picture regarding traditional method, it has increased (6.6 per cent) up to 2005, and it decreased till 2016.

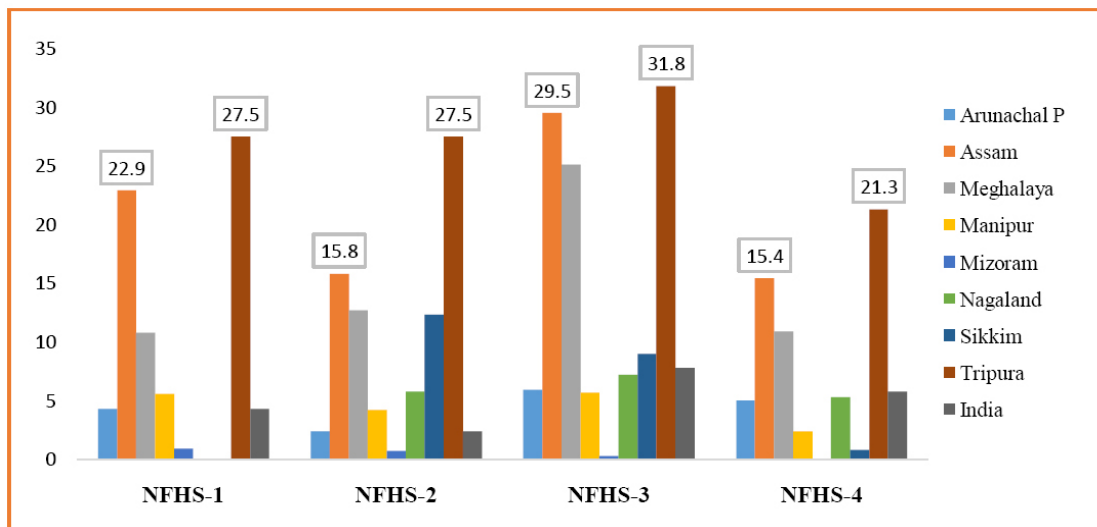


Fig2. Trends in use of Traditional methods among married women in North-East India, during 1992-2016 (NFHS 1 - NFHS 4)

Sources: National Family and Health Survey reports on 1992-2016, India (North-East)

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

Figure 3 shows the trends of Modern contraceptive use, among the currently married women in northeast India from 1992 to 2016. Modern contraceptive method found the most popular method; it has increased 11.4 per cent in the last two decades. Moreover, figure 3 has shown in some states still substantial gaps have occurred regarding modern methods use among eligible couples who want to prevent pregnancy (like Arunachal P, Meghalaya and Nagaland). In the case of Manipur state, the use of modern contraceptive methods substantially decreasing from 1998-1999. On the other hand, Meghalaya state still struggling to improvise methods of modern.

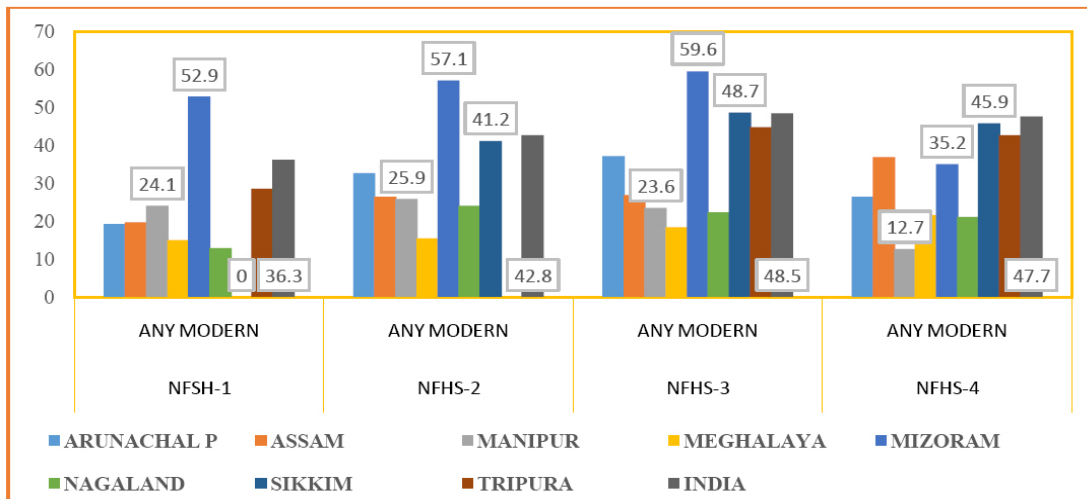


Fig3. Trends in use of Modern methods among married women in northeast India, during 1992-2016 (NFHS 1 – NFHS 4)

Sources: National Family and Health Survey reports on 1992-2016, India (North-East)

Table 1 shows the pattern of method-specific traditional contraceptive use in North-East India in 1992 to 2016 among currently married women. Among tradition methods, we have selected for two significant methods like Rhythm Method and Withdrawal Method. In Tradition methods of contraception, the Rhythm Method has always been a most likely used method in India. In the most recent survey, 2015-2016 Tripura (7.7 per cent) and Assam (7.4 per cent) followed by Arunachal Pradesh (3.4 per cent) and Meghalaya (2.9 per cent).

Table1. The pattern of Methods specific to Traditional contraceptive use among married women in North-East India, 1992-2016 (NFHS 1-NFHS 4)

State	NFHS-1		NFHS-2		NFHS-3		NFHS-4	
	RM	WM	RM	WM	RM	WM	RM	WM
Arunachal P	3.8	0.5	3.8	0.5	2.4	3.2	3.4	1.6
Assam	15.7	6.3	15.7	6.3	17.2	11.7	7.4	8
Manipur	10	0.8	10	0.8	8.1	16.6	1.6	9.3
Nagaland	1.2	0.6	1.2	0.6	2.4	3.2	0.7	1.7
Mizoram	0.7	0.2	0.7	0.2	0.1	0.3	0	0
Meghalaya	0	0	0	0	5.2	2	2.9	2.4
Sikkim	0	0	0	0	5.8	3.1	0.2	0.6
Tripura	16.7	10.5	0	0	14	6.7	7.7	13.6
India	2.6	1.4	2	0.4	4.9	2.5	2.5	2.3

Note: RM-Rhythm Method WM-Withdrawal Method, NFHS, report on 1992-2016.

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

Table 2 shows the pattern of method-specific Modern contraceptive use in North-East, India in 1992 to 2016 among married women. The Modern methods have merged into two categories like Modern Methods (pill, IUD, condom) and Terminal Methods (Male and Female Sterilization). Among Modern methods of contraception, Terminal Methods have always been a most constituted used method in India. In the most recent survey, 2015-2016 Tripura has the highest prevalence (17.6 per cent) and Mizoram (17.4 per cent) followed by Arunachal Pradesh (11.2 per cent) and Assam (9.6 per cent). Among Modern methods of contraception, Terminal Methods have always been a most constituted used method in India. In the most recent survey, 2015-2016 Tripura has the highest prevalence (17.6 per cent) and Mizoram (17.4 per cent) followed by Arunachal Pradesh (11.2 per cent) and Assam (9.6 per cent).

Table2. The pattern of Methods specific to Modern contraceptive use among married women in North-East India, 1992-2016 (NFHS 1-NFHS 4)

State	NFHS-1		NFHS-2		NFHS-3		NFHS-4	
	MM	TM	MM	TM	MM	TM	MM	TM
Arunachal P	8.6	10.7	12.2	21	14.7	23	15.3	11.2
Assam	5.4	14.4	10	17	13.9	13	27.2	9.6
Manipur	10.3	13.8	10.3	16	14.8	8.7	9.3	3.2
Nagaland	5.1	10	9.1	6.5	9.1	9.6	15.6	6.2
Mizoram	16.6	44.6	11.7	45	16.7	42	17.8	17.4
Meghalaya	0	0	12	12	12.5	9.9	12.1	9.1
Sikkim	6.4	6.4	16.6	25	22.8	26	24.9	17.6
Tripura	9.5	19.1	0	0	26.8	18	28.9	21
India	5.5	30.7	6.9	36	38.3	10	5.9	36.6

Note: MM-Modern Methods, TM-Terminal Methods, NFHS, report on 1992-2016.

Figure 4 demonstrates the proportion of Modern methods contraceptive users in North-East India. As observed for married women modern methods users, a substantially higher proportion of women had used modern family planning methods in Mizoram, while Moderate lower (Nagaland) and remarkably lower (Arunachal Pradesh) proportion had used in North-East, India.

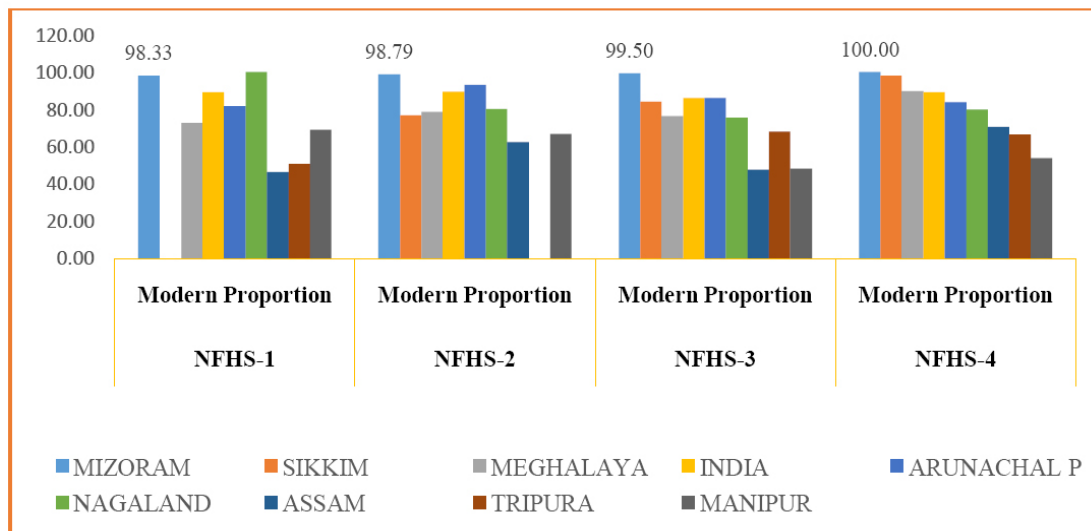


Fig4. The proportion of Modern contraceptive methods users among the married women in North-East India, 1992-2016 (NFHS 1-NFHS 4)

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

Figure 5 depicts that proportion of traditional contraceptive users in North-East, India. As observed for married women modern methods users, a substantially higher proportion of women in Tripura and Assam had use Traditional family planning methods in recent reports of India's National Family and Health Survey, while Moderate lower (Meghalaya) and remarkably lower (Mizoram) proportion had used in North-East, India.

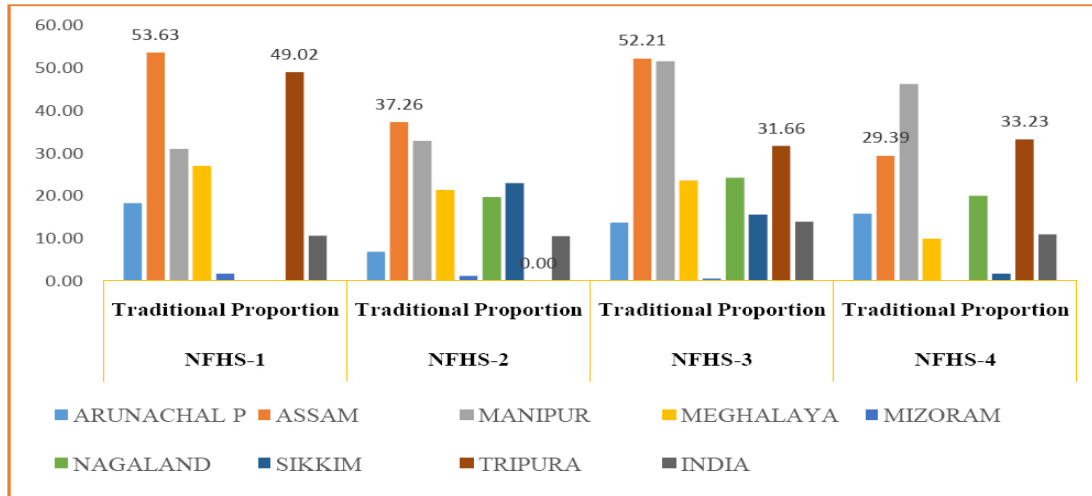


Fig5. The proportion of Traditional contraceptive users among the married women in North-East India, 1992-2016 (NFHS 1-NFHS 4)

DISCUSSION AND CONCLUSION

Despite all over the world contraceptive prevalence had been increasing from 54.8 per cent in 1990 to 63.3 per cent in 2010, and also falling unmet need for contraception from 15.4 per cent in 1990, to 12.3 per cent in 2010, there were not only still about 146 million (130–166 million) women of reproductive age with unmet need for family planning in 2010 (Alkema et al., 2013) but also the absolute number of wedded women who either have an unmet need for family planning or use contraception has grown from 900 million (876–922 million) in 2010 to 962 million (927–992 million) in 2015, and most probably will keep on growing in most developing countries of the world (Alkema et al., 2013). The consistent result came out from the present study where contraceptive use among married women increased by 8 per cent in Tripura and 9.7 per cent in Assam Whereas, at the national level, the use of contraceptive, substantially been rising from 40.6 per cent to 53.6 per cent during 1992 to 2016. In a few states in the northeast (Tripura and Assam) India, the contraceptive users increased from 1992 to 2005, but after that again it decreased substantially. Because of limited study in northeast India on contraception, authors did not get any clear idea about the suddenly substantial decrease in traditional contraceptive use, though it's a matter of concern. But as per the existing literature some most cited determinants of discontinuation of contraceptive methods are, family size, the prior use of a method, age at the time of interruption, fertility preferences, contraceptive method chosen, and previous experience with the method (Ali & Cleland, 1999; Mitra and Al-Sabir, 1996, Arifin, 2003; Bradley et al., 2009; Curtis and Blanc, 1997; Fathonah, 1996; Perez and Tabije, 1996; Steele et al., 1996; Zhang et al., 1999). Contraceptive failure (accidental pregnancy) is the most common reason to discontinue a traditional method (Ali & Cleland, 1995; Mitra & Al-Sabir, 1996; Singh et al., 2010). Contraceptive discontinuation (stopping use of contraception within one year of starting by couples) with high rates and method failure (when contraceptives are imperfectly used or flop to work) could cause to lose the progress made in increasing contraceptive use (ICDDR, 2014). Contraceptive discontinuation and method failure are a matter of concern because they often create an unintended pregnancy, which can bring various health problems for the mother and baby, financial pressure for the family, and every

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

so often unsafe or illegal abortions (ICDDR, 2014). A perfect contraceptive method should be easy to use, easily distributed, affordable, highly effective, safe with no side effects, rapidly reversible, acceptable, widely available, independent of intercourse, and requiring minimal monitoring during use (Thompson, 2013; Hatcher and Nelson, 2007). Nevertheless, not a single method of contraception exist which can meet all the ultimate characteristics (Maina, 2016).

It had found from the present study that modern contraceptive method is the most popular method in northeast India; it has increased 11.4 per cent in the last two decades and this finding very much similar with existing literature. About 88 per cent have faith in modern methods, and the remaining 12 per cent reported using some traditional methods out of all current users in India (Stillman et al., 2014). Permanent methods were much common than spacing methods, especially among women who were 35 years or older, out of that tubectomy accounted for two-thirds of total contraceptive use (Stillman et al., 2014). It is crystal clear from the present study that the contraceptive prevalence rate is not similar in all the northeast states, it is varying states to states, and it is very much consistent finding with another study. It was found with the help of Annual Health Survey on contraceptive prevalence rate that contraceptive use varies across the states, ranging from 41 per cent in Bihar to 70 per cent in Rajasthan in 2013-13 (Stillman et al., 2014).

Informed decision making in contraceptive use is necessary on the ground of human rights in accessing contraceptive so that couple can make choices according to their own needs and demand. The cultural factor may also lead to underreporting of the contraceptive use (Narzary and Ao, 2017). There has been hardly any study carried out related to contraceptive use in northeast India (Narzary and Ao, 2017) and this is why authors of the present study could not be able to compare the findings between the present study and others study which were conducted in northeast India. As Northeast India is mostly dominated by tribal population, so the way of improving the contraceptive prevalence rate may differ. Therefore, more research is needed to frame proper reproductive health policies or scheme to provide a perfect contraceptive method which will be easy to use, affordable, highly effective, safe with no side effects, rapidly reversible, acceptable, widely available, independent of intercourse, and requiring minimal monitoring during use.

REFERENCES

1. Ahmed, S., Li, Q., Liu, L., & Tsui, A. O. (2012). Maternal deaths averted by contraceptive use: an analysis of 172 countries. *The Lancet*, 380(9837), 111-125.
2. Alan Guttmacher Institute. (1999). *Sharing responsibility: Women, society and abortion worldwide* New York, NY: Alan Guttmacher Institute. <https://www.guttmacher.org/sites/default/files/pdfs/pubs/sharing.pdf>, Accessed September 12, 2018.
3. Ali, M., & Cleland, J. (1995). Contraceptive discontinuation in six developing countries: a cause-specific analysis. *International family planning perspectives*, 92-97.
4. Ali, M., & Cleland, J. (1999). Determinants of contraceptive discontinuation in six developing countries. *Journal of Biosocial Science*, 31(3), 343-360.
5. Alkema, L., Kantorova, V., Menozzi, C., & Biddlecom, A. (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *The Lancet*, 381(9878), 1642-1652.
6. Arifin, E. N. (2003). Factors associated with contraceptive discontinuation in Bali, Indonesia: a multilevel discrete-time competing risks hazard model. *Asian MetaCentre for Population and Sustainable Development Analysis*.

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

7. Bhutta, Z. A., Das, J. K., Bahl, R., Lawn, J. E., Salam, R. A., Paul, V. K., ... & Walker, N. (2014). Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost?. *The Lancet*, 384(9940), 347-370.
8. Bongaarts, J. (1978). A framework for analyzing the proximate determinants of fertility. *Population and development review*, 105-132.
9. Bora, R. S., Malik, P., & Kulkarni, V. (1998). Operation research on spacing methods: A comparative study for rural Delhi. Report submitted to the Ministry of Health and Family Welfare, GOI.
10. Bradley, S. E., Schwandt, H., & Khan, S. (2009). Levels, trends, and reasons for contraceptive discontinuation. *DHS analytical studies*, 20.
11. Canning, D., & Schultz, T. P. (2012). The economic consequences of reproductive health and family planning. *The Lancet*, 380(9837), 165-171.
12. Chaurasia, A. R. (2014). Contraceptive use in India: a data mining approach. *International Journal of Population Research*, 2014.
13. Chaurasia, A. R., & Gulati, S. C. (2009). *India: The state of population 2007*. Government of India, National Population Commission and Oxford University Press, New Delhi, India, 2008.
14. Curtis, S. L., & Blanc, A. K. (1997). Determinants of contraceptive failure, switching, and discontinuation: an analysis of DHS contraceptive histories.
15. Davis, K., & Blake, J. (1956). Social structure and fertility: An analytic framework. *Economic development and cultural change*, 4(3), 211-235.
16. Dey, S., & Goswami, S. (2009). Fertility pattern and its correlates in North East India. *Journal of Human Ecology*, 26(2), 145-152.
17. Fathonah, S. (1996). *Contraceptive use dynamics in Indonesia (DHS Working Paper No. 20)*. Calverton, MD: Macro International.
18. Gulati, S. C. (1996). Contraceptive methods use and choice in Kerala and Uttar Pradesh: multinomial logit analysis of NFHS data. *Demography India*, 25(2), 205-20.
19. Hatcher, R. A., & Nelson, A. L. (2007). *Contraceptive technology*. 20th ed. Ardent Media; P 941.
20. ICDDR. (2014). Reduce contraception discontinuation in Bangladesh by improving counselling on side effects. https://www.popcouncil.org/uploads/pdfs/2014STEPUP_ContraceptionDiscontinuation.pdf (Last access: 10 October, 2018).
21. International Institute for Population Sciences (2010). *District Level Household and Facility Survey (DLHS-3), 2007-08*, IIPS, Mumbai, India.
22. International Institute for Population Sciences. *National Family Health Survey. National Report: India*. Mumbai: IIPS. Retrieved from: <http://iipsindia.org/>.
23. Joshi, S., & Schultz, T. P. (2013). Family planning and women's and children's health: Long-term consequences of an outreach program in Matlab, Bangladesh. *Demography*, 50(1), 149-180.
24. Maina, b. S. W. (2016). *Determinants of discontinuation of contraceptive methods among women at kenyatta national hospital (Doctoral dissertation, University of Nairobi)*.
25. Ministry of Home Affairs. (2011). *Provisional population totals paper 1 of 2011 India, series 1*. New Delhi: Office of Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India: 188.

Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey

26. Mitra, S. N., & Al-Sabir, A. (1996). Contraceptive use dynamics in Bangladesh (DHS Working Paper No. 21). Calverton, MD: Macro International.
27. Narzary, P. K., & Ao, M. (2017). Assessment on determinants of contraceptive morbidity in Northeast India. *Clinical Epidemiology and Global Health*.
28. National Family Health Survey-4 2015-16, India report. <http://rchiips.org/nfhs/NFHS-4Reports/India.pdf> (Last access 5 October, 2018).
29. New, J. R., Cahill, N., Stover, J., Gupta, Y. P., & Alkema, L. (2017). Levels and trends in contraceptive prevalence, unmet need, and demand for family planning for 29 states and union territories in India: a modelling study using the Family Planning Estimation Tool. *The Lancet Global Health*, 5(3), e350-e358.
30. Perez, A. E., & Tabije, T. L. (1996). Contraceptive discontinuation failure and switching behavior in the Philippines (DHS Working Papers No. 18). Calverton, MD: Macro International.
31. Rutstein, S. O., & Winter, R. (2015). Contraception needed to avoid high-fertility-risk births, and maternal and child deaths that would be averted. ICF International.
32. Seiber, E. E., Bertrand, J. T., & Sullivan, T. M. (2007). Changes in contraceptive method mix in developing countries. *International family planning perspectives*, 117-123.
33. Singh, K. K., Roy, T. K., & Singh, B. P. (2010). Contraceptive discontinuation and switching patterns in Bangladesh. *Genus*, 66(1), 63-88.
34. Steele, F., Diamond, I., & Wang, D. (1996). The determinants of the duration of contraceptive use in China: A multilevel multinomial discrete-hazards modeling approach. *Demography*, 33(1), 12-23.
35. Stillman, M., Frost, J. J., Singh, S., Moore, A. M., & Kalyanwala, S. (2014). *Abortion in India: a literature review*. New York: Guttmacher Institute, 12-14.
36. Thompson, K. M. (2013). *A Brief History of Birth Control in the US. Our Bodies Ourselves*, 14.
37. United Nations (2012). *Update for the MDG Database: Contraceptive Prevalence*, Department of Economic and Social Affairs, Population Division, New York, NY, USA.
38. United Nations. (2012). Department of Social Affairs, Population Division,). "World Population Prospects: The 2012 Revision, Volume II: Demographic Profiles", New York: UN.
39. Zhang, F., Tsui, A. O., & Suchindran, C. M. (1999). The determinants of contraceptive discontinuation in Northern India: A multilevel analysis of calendar data. Chapel Hill: MEASURE Evaluation, Carolina Population Center, University of North Carolina at Chapel Hill.

Citation: Mithun Mog, Nasim Ahamed Mondal. "Trends and Patterns of Contraceptive Use among Currently Married Women in Northeast India: An Evidence from a National Survey" *American Research Journal of Humanities and Social Sciences*, vol 4, no. 1, 2018, pp. 1-9.

Copyright © 2018 Mithun Mog, Nasim Ahamed Mondal, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.