Social Science Spectrum ISSN 2454-2806
Vol. 4, No. 3, September 2018, pp. 136-146

Migration and Maternal Health Care Services Utilisation in Uttar Pradesh, India

Imtiyaz Ali[1], C. P. Abdul Jaleel[2], Nilesh Maheshwari[3] & Hifuzur Rahman[4]

Abstract

This paper examines the utilisation of maternal health care services among women belonging to migrant and non-migrant households in Uttar Pradesh. Data from the second round of India Human Development Survey (IHDS-II) conducted in 2011-12 have been used for this study. IHDS-II collected information from nationally representative sample of 42,152 households, with 13,952 women aged 15-49. This data provides straight-forward information on out-migration, remittances and maternal health care utilisation. Binary logistic regression and propensity score matching have been applied to fulfil the objectives of the paper. The results show that a vast disparity exists in the utilisation of maternal health care services among women belong to migrants and non-migrant households. The logistic regression shows that full anti-natal care is almost two times higher for women from migrant households compared with women from non-migrant households. This paper further estimates the impact of migration on maternal health care service utilisation by estimating the difference in outcome between exposed (women belongs to migrant households) and non-exposed or the matched control (women from non-migrant households) with the help of propensity score matching analysis. The results show that women of migrant households in Uttar Pradesh have 2.9 per cent higher probability of getting full antenatal care than women in non-migrant households. Globally, the emancipatory potential of migration is a fact. The role of remittances (both internal and international) on development in the sending communities is also widely accepted. Migration helps in improving the quality of life by increasing the family's expenditure on education, business, housing and other necessities.

Keywords: Maternal health care**,** migration, Propensity Score Matching.

I. Introduction

Globally the emancipatory potential of migration is a fact. The role of remittances (both internal and international) on development in the sending communities is also widely accepted. Migration helps in improving the quality of life by increasing the family's expenditure on education, business, housing and other necessities (Banerjee et al., 2013; Sikder & Ballis, 2013; Vaidela & Machuca, 2014). Evidence from various parts of the world shows a distinction between migrants and non-migrants in many areas including health (Hong et al., 2006; Larrea & Kawachi, 2005; Lopez & Chi, 2012; Mohanty et al., 2014). Members of migrant households are more likely to make capital investment, access education and better health care (Azeez & Begum, 2009; Ali, 2013; Calero et al., 2009; Edwards & Ureata, 2003; Hadi, 2001; Prusty & Keshri, 2015; Ratha, 2007; Salas, 2014; Yang, 2008). However, migration as a determinant of health care utilisation is less explored in India mainy because of the non-availability of data. Along with economic backwardness and demographic

[1] Imtiyaz Ali, Public Health Consultant, IQVIA Consulting and Information Services India Pvt. Ltd., New Delhi. E-mail: aliimtiyaz09@gmail.com

[2] C. P. Jaleel, Consultant, National Centre of Excellence and Advanced Research on Diets (NCEARD), Dept. of Food and Nutrition, Lady Irwin College, Sikandra Road, Mandi House, New Delhi 110001. Email: cpjaleel@gmail.com.

[3] Nilesh Maheshwari, Principal Public Health Research and Consulting, IQVIA Consulting and Information Services India Pvt. Ltd., New Delhi. Email: M.Nilesh@in.imshealth.com

[4] Hifuzur Rahman, International Institute for Population Sciences, Mumbai 400088. Email: mhifzurrahman@gmail.com

Acknowledgement: The authors would like to thank Dr. R. B. Bhagat, Professor and Head, Department of Migration and Urban Studies, International Institute for Population Sciences, Mumbai for his encouragement. They also wish to thank the anonymous referees of the journal for useful comments on the first version of the manuscript.

disadvantages, Uttar Pradesh is a net-out migrating state in India. Both internal and international remittances are important sources of income for many households. According to National Sample Survey (2007-08) and Tumbe (2012), the three major areas where the remittance receiving families in the state spent a significant part of their remittances are food, household durables and health care. As a laggard state in maternal and child health care indicators, it is included in the list of specially focused states called Empowered Action Group (EAG) states by the Government of India. In the ongoing debate of demographic backwardness and its determinants in the state, in this paper we add one more variable, i.e., migration to explain how migrant and non-migrant households behave differently as far as maternal and child health care utilisation is concerned.

On the issue of migration, remittances and utilisation of maternal health care services, the literature is twofold. Most studies show that migration and remittances (both economic and social) have significant effect on higher utilisation of maternal health care services (Lindstorm & Elisa 2006), fertility decline (Lindstorm & Giorguli Saucedo, 2002), increased health seeking behaviour (Levy-Storms & Wallace, 2003), and safe sexual behaviour (Brockerhoff & Biddlecom, 1999; Roy & Nangia, 2013). Lindstorm and Elisa (2006) found a significant association between migration and utilisation of maternal health care services in rural Guatemala. Similarly, in a study of Mexico-US migration, Kanaiaupuni and Donato (1999) find evidence of lower infant mortality through the cumulative effects of remittance flows on household spending and community development. Lopez and Chi (2012), by using interaction models, found increased use of health care services among low-income Ecuadorian households which received remittances. Hildebrandt and McKenzie (2004) also found an overall improvement in health outcomes among migrant families of Mexico. In the same vein, Duryea, Lopez, and Olmedo (2005) noticed a decrease in infant mortality rates due to the acquisition of better infrastructure through monetary remittances. Zachariah, Mathew and Irudya Rajan (2012) found that the receipt of international and internal remittances has a significant impact on the greater use of private hospital facilities and health care services. They also found a three-fold increase in the use of private hospitals for anti-natal care and safe delivery among households which receive remittances in Kerala.

On the flip side, studies show that migrants often experience greater difficulty than local people in gaining access to appropriate health care. Findings of a study on low-income families in the United States of America have shown that those with more precarious immigration status show the poorest health outcomes and that a family with noncitizen members faces barriers, real or perceived, in using health-related programmes (Ziol-Guest & Kalil, 2012). A study by Singh, Rai and Singh (2012) found poor-migrant women as the most vulnerable category compared with non-poor and non-migrant women regarding the use of safe delivery care in urban India. Another study from Chhattisgarh in India by Shankar (2013) illustrates the burden of disease owing to the poor working as well as living conditions of migrants. Marked delays in treatment seeking, as well as adherence to treatment, are also found.

Studies which show negative effect of migration on health care utilization are mostly from the countries where racial discrimination exists. Hence, inferences from them are not generalizable. The study by Singh et al. (2012) shows that poor migrant women are the most vulnerable category for the utilization of safe delivery care. It might be because migration is not a binary kind of phenomenon (migrant/non-migrant), but is a process which has a latent period for showing its positive effect. Moreover, these studies compare migrants and non-migrants at the place of destination, if we compare the health situation of migrants at their places of origin and destination, a different picture will come out and they will show a significant improvement at their destination. They are comparatively low performers vis-a-vis their non-migrant counterpart because of the aforementioned reasons.

An overall retrospection of scientific literature on migration and health shows studies on migration and child survival (Brockerhoff ,1994; Kiros & White, 2004; Islam & Ajad, 2007; Schmeer, 2009), studies on migration and HIV/AIDS (Halli et al, 2007; Vearey et al, 2010) and studies on morbidity differentials among emigrants' and non-emigrants' wives (Ali, 2013). In our

literature review, we could find only one study exploring the effect of migration on maternal health services utilization (Lindstorm & Elisa 2006). This study is of a country in Sub-Saharan Africa. Furthermore, there is not a single study focusing on the issue of maternal health services utilization with the lens of migration in India. It is evident in the existing scholarship that maternal mortality and child mortality is still significantly high in India. Besides that, poor child health like the high prevalence of diarrhoea and prevalence of child mal-nutrition (stunting, wasting and underweight) are extremely high in India, particularly in Uttar Pradesh (the largest state of India and extremely lagging behind on the indicators of human development and health). Moreover, the existing discourse shows that utilization of maternal health services has a significant impact in lowering maternal mortality, child mortality and child malnutrition. Furthermore, according to the second round of India Human Development Survey, around one-fourth of the households in Uttar Pradesh have out-migrants who receive remittances. The out-migrant households have an advantage that they receive remittances which enhance their purchasing power and make them economically well off. But on the other hand, women of out-migrant households lack social support in the absence of male members as Indian society (particularly in Uttar Pradesh) is highly patriarchal. In the aforesaid background, it is important to study the pattern of utilization of maternal health services among women of migrant and non-migrant households. Therefore, this paper attempts to fill this gap by using a relatively new and large data set for Uttar Pradesh. By doing this, we aim to understand the likely impact of migration and remittances on maternal health care services.

II. **Data, methods and variables used**

Data Sources

A straight-forward data on out-migration, remittances and maternal health care utilisation in India was yielded by the India Human Development Survey (IHDS) (2004-05). Its second round (2011-12) has captured migration and maternal health care utilisation in a more comprehensive way. IHDS is a nationally representative survey covering a broad range of topics collected from 42,152 households in 1503 villages and 971 urban wards/blocks across India. The data for the second round are mostly re-interviews of households interviewed for IHDS-I with 85 per cent of 2004-05 households having been re-interviewed. The methods of data collection for IHDS included cognitive assessment test, face-to-face interview, and paper and pencil interview (PAPI). IHDS-II collected information from nationally representative sample of 42152 households with 13952 women aged 15-49 years. It provides cross-sectional survey data on women's last birth, maternal health care, etc., for India and states. A total of 1705 eligible women were interviewed in Uttar Pradesh. The second round provides information on migration, remittances received and maternal health care services.

Methods

In the first stage, descriptive statistics are used to show the prevalence of chronic and other diseases by different socio-economic characteristics. In the second stage, binary logistic regression models are used to examine the effects of selected background characteristics of reported population. For this, chronic, and other diseases are used as dependent variables. All these variables are made dichotomous. The results are presented in the form of odds ratios (ORs), which are the simplified linear form of probability coefficients, with corresponding significance levels. These ORs are used to interpret the expected likelihood of chronic and other diseases associated with a unit change in an explanatory variable, given that other correlates in the model are held constant (Cameron & Trivedi, 2005). In the third stage, this paper uses propensity score matching analysis to show the impact of migration on maternal health care services. The analysis is done using STATA 13.0 statistical package.

III. Result and discussion

Remittance receipts both from overseas and within India are an important supplement of income for many households in Uttar Pradesh. Figure 1 shows the percentage of remittance receiving

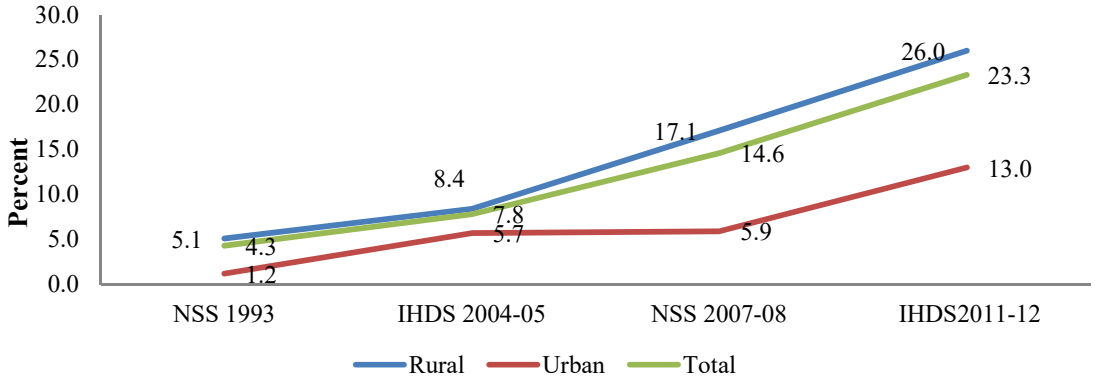
households in Uttar Pradesh. This is derived from two sources, i.e., National Sample Survey (NSS) of 1993 and 2007-08 and India Human Development Survey (IHDS) of 2004-05 and 2011-12. They are estimated in terms of the percentage of households which received remittances during the last one year. As Per NSS data, households receiving remittances increased from 4 per cent in 1993 to 23 per cent in 2007-08.

Definition of variables

Variables	Definition
Dependent variables	
Full antenatal care	At least three antenatal care visits, consumed more than 90 Iron Folic Acid (IFC) tablets and took two or more tetanus-toxoid injections.
Safe delivery	Either institutional delivery or home delivery assisted by a doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor or any other health personnel.
Postnatal care	Women received any check-ups of their health within 7 days after the delivery of the child.
Independent variables	
Migration status of household	Includes both internal and international out-migration.
Religion	-
Caste	-
Economic status of household	-
Age of mother	-
Education of mother	-

At the other reference period, IHDS data shows an increase from 8 per cent in 2004-05 to 23 per cent in 2011-12. Overall, 23 per cent of the total households in the state have received remittances during last one year as per IHDS 2011-12 and it assumes importance because receipt of remittances and the increase in remittances receiving households may have a positive impact on poverty reduction and investment in education and health care services including utilisation of maternal health care services. In this context, this paper looks at the effect of remittances on maternal health care service utilisation in Uttar Pradesh. As has been mentioned, the state is demographically laggard, but consistently progressing. We try to examine the role of migration and remittances on increased maternal care service utilisation. Further, it is one of the top out-migrating states in India with almost a quarter of the total households reporting that they have received remittances before one year preceding the survey of IHDS 2011-12. As evident from the existing literature, various factors determine and influence women to go for maternal health care and services. This as the

Figure1: Remittances receiving households in Uttar Pradesh, 1993-2012 (in per cent)



Source: Authors' calculation based on NSS, 1993 & 2007-08 and IHDS, 2004-05 & 2011-12.

context, there is a case to assume that migrant households may have a better utilisation of maternal health care services because of remittances as compared with non-migrant (non-remittance receiving) households.

Table 1 provides information regarding maternal health care services according to background characteristics such as place of residence, religion, migration status, social group, household size, poverty status, mother's education and age. Poor women (belonging to poor households) were found to have lower maternal health-care services utilization than the non-poor groups. Merely 2.3 per cent of the women from the poor group had full ANC compared with 8 per cent of the women from the non-poor groups. Safe delivery was higher among those women from the non-poor group (55.6 per cent), whereas only 47 per cent of the poor women had safe delivery. Education of women was linearly related to maternal health care services utilization. Higher proportions of educated women have used maternal health care services than women without any formal education. It is evident that among women with secondary and above years of schooling, 21 per cent had received full ANC, 78 per cent had a safe delivery and 44 per cent had PNC. The corresponding figures among the illiterate women were 4.2 per cent, 50.1 per cent and 36 per cent respectively. Utilization of full ANC and safe delivery maternal healthcare services was higher among the urban women compared with the rural women. Only 4.1 per cent women from the rural area had full ANC as compared with14.6 per cent of urban women. But only PNC visits were higher among rural areas compared with urban areas.

Table 1: Percentage of women who received MCH services in Uttar Pradesh, IHDS, 2011-12

	Full ANC	Safe delivery	PNC	N
Place of residence				
Rural	4.1	50.5	37.7	1274
Urban	14.6	64.5	33.9	431
Religion				
Hindu	5.8	54.4	38.0	1250
Muslim	6.7	47.2	32.7	450
Others	42.1	100.0	57.9	5
Migration status				
Migrant HH	8.3	52.2	37.5	518
Non -Migrant HH	5.0	53.5	36.7	1187
Social group				
STs/SCs	1.1	49.5	36.2	435
OBCs	6.3	51.9	34.6	900
Others	12.0	61.3	45.1	369
Household size				
<=5	5.6	53.0	36.0	613
More than 5	6.3	53.1	37.6	1092
Poverty status				
Poor HHs	2.3	47.3	38.4	437
Non-poor HHs	7.7	55.6	36.4	1268
Mother's education				
Illiterate	4.2	50.1	35.9	1434
Primary	18.0	64.8	42.5	118
Middle	11.5	72.2	43.8	76
Secondary and Above	20.6	78.3	44.1	76
Mother's age				
Less than 20 years	na	91.7	71.4	16
20-24 years	5.1	67.4	30.2	313
25-29 years	8.5	57.5	40.2	527
30 and above	5.0	43.2	36.0	849
Total	6.0	53.1	37.0	1705

Source: Authors' calculation based on IHDS 2011-12; na; sample size not appropriate

Among religious groups, Muslim women had higher utilization of full ANC health care services than the Hindu women. Around 6.7 per cent of Muslim women had full ANC against 5.8 per cent of Hindu women. A lower proportion of the scheduled tribe and scheduled caste women had full ANC compared with women from other social groups. A higher proportion of women belonging to migrant households has better used full ANC visits than women who belong to non-migrant households. The result shows positive relationship between mother's education and utilisation of maternal health care services.

Influence of migration on the utilisation of anti-natal care, safe delivery and post-natal care

In Table 2, an attempt has been made to find out the influence of migration on the utilisation of anti-natal care, safe delivery and post-natal care. The purpose of this table is to know whether migration at household and individual levels has any role in improving the maternal health care service (anti-natal care, safe delivery, and post-natal care) utilisation. This shows the utilisation of MCH services by women of migrant and non-migrant households differentiated by the socio-cultural and demographic characteristics.

Table 2: Percentage of women from migrant and non-migrant households who received MCH services in Uttar Pradesh, IHDS, 2011-12

	Full ANC		Safe delivery		PNC	
	Migrant HHs	Non-migrant HHs	Migrant HHs	Non-migrant HHs	Migrant HHs	Non-migrant HHs
Place of residence						
Rural	7.0	2.5	50.5	50.4	38.1	37.4
Urban	20.8	13.4	68.1	63.8	31.9	34.3
Religion						
Hindu	7.6	4.9	53.0	55.0	36.9	38.5
Muslim	11.0	4.5	49.0	46.3	39.9	28.9
Others	NA	42.1	NA	100.0	NA	57.9
Social groups						
STs/SCs	1.51	0.9	44.5	50.9	32.6	37.1
OBCs	8.58	4.9	52.3	51.7	37.1	33.1
Others	13.2	11.5	58.7	62.5	44.1	45.5
Household size						
<=5	5.6	5.6	51.3	53.6	31.9	37.5
More than 5	9.55	4.5	52.6	53.4	40.1	36.1
Poverty status						
Poor HHs	3.92	6.5	35.3	52.4	39.9	37.7
Non-poor HHs	10.01	1.6	58.7	54.0	36.6	36.2
Mother's education						
Illiterate	7.8	2.6	50.4	49.9	36.1	35.7
Primary	15.9	19.1	56.3	69.0	40.3	43.6
Middle	3.2	15.1	68.6	73.7	34.4	47.8
Secondary and above	12.9	25.5	64.4	87.1	62.7	32.4
Mother's age						
Less than 20 years	NA	NA	81.1	92.8	18.33	76.9
20-24 years	4.0	5.7	69.0	66.7	36.9	26.8
25-29 years	12.0	6.6	56.2	58.2	33.4	44.2
30 and above	7.3	4.0	41.5	43.9	41.4	33.7
Total	8.3	5.0	52.2	53.5	37.5	36.7
N	518	1187	518	1187	518	1187

Source: Authors' calculation based on IHDS 2011-12.
Notes: HHs: households; NA: sample size not appropriate.

A two-way analysis is possible from Table 2. The first way tells us the differentials in MCH service utilisation within the category of migrant and non-migrant women by their place of residence, religion, social group, household size, poverty status, maternal education and maternal age. A clear differential in the utilisation of MCH services can be seen by place of residence, religion, social groups, poverty status, etc. The second way tells us the migrant and non-migrant differentials in the utilisation of MCH services within each category of background characteristics such as rural, urban, Hindu, Muslim, poor households, non-poor households, etc. The result shows that prevalence of full anti-natal care is much higher for Muslim women who belong to migrant households compared with Muslim women who belong to non-migrant households. The result also shows more utilisation of maternal health care services by Muslim women compared with Hindu women belonging to migrant households. There are marginal differences among migrant and non-migrant households regarding safe delivery and post-natal care. Such differences are reflected in socio-economic and demographic characteristics. When educational status among both the groups are compared, women belonging to migrant households with no education have better utilisation of maternal health care services with a higher prevalence of full anti-natal care, safe delivery and post-natal care. This prima facia leads us to believe that migration has an effect on utilisation of maternal health care services. Similarly, women belonging to non-poor migrant households and urban area show a higher utilisation of full anti-natal care and safe delivery.

Table 3: Result of logistic regression showing the result of maternal health care services in Uttar Pradesh, IHDS, 2011-12

	Full ANC	Safe delivery	PNC
Place of residence			
Rural®	1.00	1.00	1.00
Urban	4.47†	1.81†	1.03
Religion			
Hindu®	1.00	1.00	1.00
Muslim	0.56	0.57	0.61
Others	6.44	NA	2.56
Migration status			
Migrant HHs®	1.00	1.00	1.00
Non -Migrant HHs	**0.57**††	0.98	1.04
Social group			
STs/SCs®	1.00	1.00	1.00
OBCs	5.04†	1.36††	1.05
Others	7.58†	1.60†	1.18
Household size			
<=5®	1.00	1.00	1.00
More than 5	0.94	0.86†	0.94
Poverty status			
Non-poor HHs®	1.00	1.00	1.00
Poor HHs	0.26††	0.88	1.21
Mother's education			
Illiterate®	1.00	1.00	1.00
Primary	3.03†	1.49€	1.36
Middle	1.88€	1.63€	1.02
Secondary and above	1.96€	2.84†	1.58
Log likelihood	-314.69326	-1128.5985	-1076.836
Pseudo R2	0.1906	0.0398	0.0112
N		1704	

Note: Significance level-†p<0.01, ††p<0.05, €p<0.1, ®Reference category.
Source: Authors' calculation based on IHDS 2011-12.

This paper mainly examines the impact of migration on the utilisation of maternal health care services in Uttar Pradesh. For this, we used regression analysis where we inserted migration status of the households as a new variable to the framework along with other background variables. The results are presented in Table 3.

It presents results of logistic regression analysis with dependent variables (full antenatal care, safe delivery and post-natal care. Adjusting the effects of other variables in the model, a positive association is observed between economic conditions of the households in the utilisation of maternal health care services by women. Women from non-poor households are more likely to utilise the maternal health care services than those from poor households. Women's education and utilisation of maternal healthcare services also show a linear association. That means that women having more years of education are increasingly utilising maternal health care services. Women from rural areas are less likely to use maternal health care services than those from urban areas. Urban women are 81 per cent more likely to have safe delivery than those from the rural areas. Odd ratio of full antenatal care for women belonging to migrant households is 43 per cent significantly more likely compared with those of women belonging to non-migrant households. This shows that even controlling rural-urban residence of women, economic conditions of the households, social status, religion, education of mother, and household size, full anti-natal care remains higher for women from migrant households compared with women from non-migrant households.

The average exposure effect of migration on MCH services

This paper further tried to estimate the impact of migration on maternal health care service utilisation by estimating the difference in outcome between exposed (women belonging to migrant households) and non-exposed or the matched control (women from non-migrant households). For estimating this difference, we used Propensity Score Matching (PSM) technique. The utility of this matching analysis is that one gets the actual impact of the exposed as it controls background variables, as well as the characteristics of women who could not be exposed. Otherwise, it tells if the non-exposed women (from non-migrant households) had been a part of the exposed (migrant households), what would be the effect on the outcome, i.e., utilisation of maternal health care services. The result of PSM is given in Table 4.

Table 4: Description of propensity score

Range of common support	[0.09 - 0.44]
Mean of propensity score	0.3
Standard deviation	0.11
Significance of balancing property	0.01

Source: Authors' calculation based on IHDS 2011-12.

Table presents a description of the estimated propensity score for all the cases. The mean propensity score was 0.3 with standard deviation 0.11 for overall. The region of common support between utilisation of maternal health care services between women of migrant and non-migrant households was high and ranged from 0.09 to 0.44 overall. Migrant and non–migrant households with propensity scores outside the common support were not considered for the analysis. The balancing property was satisfied at significance level 0.01. Here the balancing property is satisfied that we can estimate the effect of migration among those who received and those who did not receive maternal health care services. Satisfied balancing property score shows that there are no systematic differences in covariates between migrant and non-migrant households. It means that if both households have similar socio-demographic characteristics except for migration, then a difference in means in the utilisation of maternal health care services between women of exposed and of non-exposed groups can be attributed to migration.

After similar migration observations are matched to women belongs to migrant and non-migrant households, average exposure effect (AEE) is calculated. Table 5 shows the AEE for

antenatal care, safe delivery and post-natal care with the nearest neighbour matching technique. The result shows that the average exposure effect (AEE) on women of migrant households for utilisation of full-ANC care is given in terms of treatment coefficient in Table 5. The output shows a significant positive exposure effect of 0.029 for full ANC. It means that women of migrant households have 2.9 per cent higher probability of getting full antenatal care than that of women in non-migrant households. This finding supports the growing view that migration and remittances can increase utilisation of maternal health care services both at the individual and household levels.

Table 5: Average exposure effect (AEE) for MCH services of women who belong to migrant and non-migrant households, IHDS, 2011-12

	Average Exposure Effect (AEE)		
	Coef.	95% CI	
Full ANC	0.029††	-0.0020	0.0590
Safe delivery	0.004^{ns}	-0.0504	0.0577
PNC	-0.020^{ns}	-0.0717	0.0309

Significance level: †p<0.01, ††p<0.05, €p<0.1.
Notes: ns: non-significant.
Source: Authors' calculation based on IHDS 2011-12.

IV. Conclusion, discussion and policy suggestions

There are a bunch of studies on migration in the context of HIV (Halli et al, 2007; Vearey et al., 2010), migration and its impact on child nutrition and immunization (Prusty & Keshri, 2015), and migration and its impact on the health of left behind wives (Ali, 2013). If we leave out studies which focus on migration and HIV, all the indicators studied in the above mentioned literature can be improved if the utilization of maternal health services improve. But unfortunately, studies on out-migration, remittances and utilisation of maternal health care services are few in the developing countries, particulrly in India due to lack of data. The 2nd round of Indian Human Development Survey (IHDS) was perhaps the first survey in India to have collected data on migration, remittances and utilisation of maternal health care services during 2011–2012 at the household and individual levels. So this is first study of its kind in India, particularly for Uttar Pradesh. It is estimated that 23 per cent of the total households in the state have received remittances during the last one year which assumes importance because the receipt of remittances and the increase in remittances receiving households may have a positive impact on poverty reduction (Ali & Bhagat 2013), and investment in education and health care services including utilisation of maternal health care services.

This paper shows that vast disparity exists in the utilisation of maternal health care services among women between migrant and non- migrant households. The logistic regression shows that full anti-natal care remains higher for women from migrant households compared with women from non-migrant households. It further estimates the impact of migration on maternal health care service utilisation by estimating the difference in outcome between exposed (women belonging to migrant households) and non-exposed or the matched control (women from non-migrant households) with the help of score matching analysis. Results show that women of migrant households in Uttar Pradesh have 2.9 per cent higher probability of getting full antenatal care than those in non-migrant households. This finding supports the growing view that migration and remittances can increase utilisation of maternal health care services at the individual and household levels.

Our study has a few advantages. It is based on data from population-based nationally representative sample survey. Such scale sample surveys have advantage over small studies (which do not use probabilistic sampling technique) in terms of their representation of the population as a whole. Also, our study uses a comprehensive and holistic conceptualization of components of maternal health services as prescribed by the WHO. Further, we have generated evidence for an extremely demographically laggard state of India

Our study has a few limitations too. It shows that the utilization of maternal health services among migrant households is high as compared with non-migrant households and one possible explanation may be the remittances. But as mentioned earlier, the women of migrant households have lack of social support in the absence of male members. So our study couldn't highlight the process through which the utilization of maternal health services becomes higher in migrant households. This may be considered a limitation of our study and future studies can be taken to explore this process.

Coming to the social and health policy viewpoint, providing health care as well as social support for households whose male members are out-migrants, is not only a challenge for the society but also for the union and state governments. In addition to the existing social policies and health care initiatives, it is imperative to develop a plan of action to lessen the burden of women to ensure that the households whose male members are out-migrant are actively involved in social fabric of the society. Moreover, the distribution of services needs to be strengthened, especially among the socio-economically disadvantaged groups. Migration plays a significant role in the utilization of maternal health care services among socio-economically disadvantaged groups. Large scale healthcare awareness in addition to promoting female literacy and management of remittances are pertinent to enhance the maternal healthcare-seeking behaviour. The significance of using a social and economic remittance suggests that policymakers need to incorporate migration realities into their public health and development legislation agenda.

References

Ali, I. (2013). *Migration and health: A study of Kerala*. M. Phil Dissertation, International Institute for Population Sciences (IIPS), Mumbai, India.

Ali, I., & Bhagat, R. B. (2016). Emigration and impact of utilisation of remittances at household level in India: A propensity score matching approach. *Social Science Spectrum*, *2*(1), 8-19.

Brockerhoff, M., & Biddlecom, A. E. (1999). Migration, sexual behaviour and the risk of HIV in Kenya. *International Migration Review*, *33*(4), 833-856.

Brockerhoff, M. (1994). The impact of rural-urban migration on child survival. *Health Transition Review, 4*(2), 127-149.

Cameron, A. C., & Trivedi, P. K. (2005). Microeconometrics: Methods and applications. New York: Cambridge University Press.

Connell, J., Dasgupta, B., Laishley, R., & Lipton, M. (1976). Migration from rural areas: The evidence from village studies. New Delhi: Oxford University Press.

Calero, C., Bedi, A. S., & Sparrow, R. (2009). Remittances, liquidity constraints and human capital investments in Ecuador. *World Development, 37*(6), 1143-1154.

Duryea, S., Cordova, E. L., & Olmedo, A. (2005). *Migrant remittances and infant mortality: Evidence from Mexico*. Washington: Inter-American Development Bank. Mimeo.

Edwards, A. C., & Ureta, M. (2003). International migration, remittances, and schooling: evidence from El Salvador. *Journal of Development Economics, 72*(2), 429-461.

Halli, S. S. et al. (2007). Migration and HIV transmission in rural south India: A ethnographic study. *Culture, Health &Sexuality*, 9(1), 85-94.

Hildebrandt, N., McKenzie, D. J., Esquivel, G., & Schargrodsky, E. (2005). The effects of migration on child health in Mexico [with comments]. *Economia, 6*(1), 257-289.

Hadi, A. (2001). International migration and the change of women's position among the left-behind in rural Bangladesh. *International Journal of Population Geography*, *7*(1), 53-61.

Hong, Y., Li, X., Stanton, B., Lin, D., Fang, X., Rong, M., & Wang, J. (2006). Too costly to be ill: Health care access and health seeking behaviours among rural-to-urban migrants in China. *World Health & Population*, *8*(2), 22-00.

Islam, M. M., & Ajad, K. M. A. K. (2007). Rural-urban migration and child survival in urban Bangladesh: Are the urban migrants and poor disadvantaged? *Journal of Biosocial Sciences*, *40*, 83-96.

International Institute of Population Sciences (IIPS) & Macro International (2007). *National Family Health Survey 2005-06: India*: Volume I. Mumbai: IIPS.

Kiros, G. E., & White, M. J. (2004). Migration, community context and child immunization in Ethiopia. *Social Science & Medicine*, *59*(12), 2603-2616.

Abdul Azeez, K. M. & Begum, M. (2009). International remittances: A source of development finance, *International NGO Journal, 4*(5), 299-304.

Lindstorm, D. P., & Elisa, M. F. (2006). Migration and maternal health services utilisation in rural Guatemala. *Social Science & Medicine*, *63*(3*)*, 706-721.

Lu, Y. (2010). Rural-urban migration and health: Evidence from longitudinal data in Indonesia. *Social Science & Medicine*, *70*(3), 412-419.

Levy-Storms, L., & Wallace, S. P. (2003). Use of mammography screening among older Samoan women in Los Angeles county: a diffusion network approach. *Social Science & Medicine*, *57*(6), 987-1000.

Larrea, C., & Kawachi, I. (2005). Does economic inequality affect child malnutrition? The case of Ecuador. *Social Science & Medicine*, *60*(1), 165-178.

López-Cevallos, D. F., & Chi, C. (2012). Migration, remittances, and health care utilization in Ecuador. *Revista Panamericana de Salud Pública*, *31*(1), 9-16.

López-Videla, B., & Machuca, C. E. (2014). The effects of remittances on poverty at the household level in Bolivia: A propensity score matching approach. MPRA Paper 55201, University Library of Munich: Germany.

National Sample Survey Organisation (2008). *Migration in India*. Report No. 533(64/10.2/2), 2007-08, National Sample Survey Organization, New Delhi: Ministry of Statistics and Programme Implementation, Government of India.

Population Reports (1983). *Migration, population growth and development*. M245-87.

Prusty, R. K., & Keshri, K. (2015). Differentials in child nutrition and immunization among migrants and non-migrants in Urban India. *International Journal of Migration: Health and Social Care*, 11(3), 194-205.

Roy, A., & Nangia, P. (2005). Impact of male out-migration on health status of left behind wives: A study of Bihar, India. Paper presented at the XXV conference of the International Union for the Scientific Study of Population, July 18-23, Tours, France.

Ratha, Dilip (2007). Leveraging remittances for development. *Policy Brief*. Washington: Migration Policy Institute.

Sample Registration System (2011). *A special bulletin on maternal mortality in India 2007-09*. New Delhi: Vital Statistics Division, Office of Registrar General of India.

Singh, P. K., Rai, R. K., & Singh, L. (2012). Examining the effect of household wealth and migration status on safe delivery care in urban India, 1992–2006. PLoS ONE, 7(9), e44901. doi:10.1371/journal.pone.0044901.

Singh, A., Pallikadavath, S., Ram, F. & Ogollah, R. (2012b) Inequalities in advice provided by public health workers to women during antenatal sessions in rural India. *PLoS One, 7*(9), e44931. DOI: 10.1371/journal.pone.0044931

Schmeer, K. (2009). Father absence due to migration and child illness in rural Mexico. *Social Science & Medicine*, *69*, 1281-1286.

Sikder, M. J. U., & Ballis, P. H. (2013). Remittances and life chances: a study of migrant households in rural Bangladesh. *Migration and Development*, *2*(2), 261-281.

Shankar, G. (2013). *Health seeking behavior of migrants working in the informal sector of Durg township in Chhattisgarh, India*. MPH Dissertation. Mumbai: Tata institute of Social Sciences, India.

Salas, V. B. (2014). International remittances and human capital formation. *World Development, 59*, 224-237.

Tumbe, C. (2012). Migration persistence across twentieth century India. *Migration and Development*, *1*(1), 87–112.

Vearey, J., Palmary, I., Thomas, L., Nunez, L., & Drimie, S. (2010). Urban health in Johannesburg: the importance of place in understanding intra-urban inequalities in a context of migration and HIV. *Health & Place, 16*(4), 694-702.

Yang, D. (2008). International migration, remittances and household investment: Evidence from Philippine migrants' exchange rate shocks. *The Economic Journal*, *118*(528), 591-630.

Zachariah, K. C., Mathew, E. T. & Irudya Rajan, S. (1999). Impact of migration in Kerala's economy and society. *Working Paper #297*. Thiruvananthpuram: Centre for Development Studies.

Zachariah, K. C., & Irudya Rajan S. (2008). Kerala Migration Survey 2007. Thiruvananthpuram: Research Unit on International Migration, Centre for Development Studies.

Zachariah, K. C., & Irudya Rajan, S. (2012). *Kerala's Gulf connection 1998- 2011: Economic and social impact of migration*. New Delhi: Orient Blackswan.

Ziol-Guest, K. M., & Kalil, A. (2012). Health and medical care among the children of immigrants. *Child Development*, *83*(5), 1494-1500.