Does Migration Improves Indian Women's Health and Knowledge of AIDS

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Abstract

The present paper explores the effect of patterns and duration of migration upon health and morbidity condition of women and knowledge and awareness of AIDS by analysing the data from India's National Family Health Survey-2, 1998-99. Women migrating towards rural area are more underweight than migrating towards urban area whereas reverse for obesity. However, women migrating from rural to rural area were more anaemic than women migrating from rural to urban area. Significant differences were found for morbidity conditions like Asthma, Tuberculosis, Jaundice, Malaria and some reproductive health problems according to streams of migration. Knowledge of AIDS also significantly differs according to the stream and duration of migration. Thus study finds out that stream of migration and duration of migration plays a key role in morbidity and health status of women.

***Key words**: migration, pattern, duration, health, morbidity, underweight, obesity, anaemia, asthma, tuberculosis, jaundice, malaria, reproductive health, AIDS*

Introduction

In the contemporary developing world population mobility in the form of rural to urban migration, has been increasing rapidly since the 1960s. During the past three decades migration in the developing world has not only increased in scale, but also in the diversity of the groups involved, and the moves themselves are becoming increasingly complex in the nature of their spatial patterning (Hugo, 1994). India has witnessed a threefold increase in population mobility levels, from 10.8 percent of the total population classified as migrants in 1950 to 30.6 percent in 1981 (Mehta, 1990). In 1981, 71 percent of all migrants had rural destinations (65 percent rural-rural and 6 percent urban-rural). This figure is a slight decline on that of 75 percent witnessed in 1971 (Smita and Chandna, 1991). At the intra-State level females dominate the rural to rural stream, accounting for more than two-thirds of all migrants (Gill, 1981). A majority of those participating in rural-rural migration are female, due to the prevalence of patrilocal marriages.

Migration in India has traditionally been dominated by short-term rural to rural movements, which accounts for more than sixty percent of all migration, and are comprised mainly of women moving between their natal and affinal homes upon

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marriage (Singh, 1992). The process of early marriage and the tradition of marriages between people from nearby villages and territorial endogamy has resulted in both early adult responsibilities and reduced the need to migrate long distances (Libbee and Sopher, 1975). Weiner (1978) suggest that the Indian marriage market has become much wider, with longer distances apparent in the marriage system. A product of this has been an increase in the distances involved in rural-rural migration, with an increase in the number of inter-state rural-bound migrations. The remaining combinations of rural and urban migration (urban-rural and urban-urban) continue to form only minor aspects of the migration system in India. Urban-urban migration has continued to account for approximately five percent of the total migration since the increase in urbanisation during the 1960's (Singh, 1992). A majority of urban-urban migration is in the form of an upward movement through the urban hierarchy (as suggested in Ravenstein's Laws of Migration 1885).

Brockerhoff (1995:1994:1990) has used the results of Demographic and Health Surveys to analyse the relationship between mortality and rural to urban migration in Sub-Saharan Africa. The results confirm those of earlier epidemiological studies, which suggested migrants had higher mortality than urban natives and lower mortality than rural sedantes. Brockerhoff and Eu (1993) demonstrates that rural to urban migration is selective of the younger, higher educated members of the rural population. Female migrants tend to be younger than their male counterparts due to the practice of patrilocal marriage migration (Singh, 1987). It has been shown that the propensity to migrate to an urban area is highest among educated people in rural areas (Greenwood, 1971). The rural areas may hold greater economic security for the unskilled and uneducated for whom employment is scarce in the cities (Epstein, 1973).

Medical literature traditionally believed that health differences observed between migrant and non-migrant populations were the result of heterosis or natural selection and that human types were genetically fixed and would not change when exposed to new environments (Livi, 1896; Ammon, 1899). Successful adaptation to the urban environment depends not only on the behaviour and social mobility of the migrant, but also on the receptivity of the urban society (Brockerhoff, 1994).

Although our knowledge of the relationship between migration and health of women is increasing, we still have a limited knowledge of migration and health of women in the reproductive age (Iglesias et. al., 2003). Also, there is a dearth of study, which tells about the health condition and knowledge of AIDS of migrant women according to the pattern of migration. In the present study large-scale survey data gives a scope to study about the different health aspects of migrant women of reproductive age group according to the pattern of migration along with their socio-economic and bio-demographic characteristics.

Objectives

1. To study the pattern of migration of women in different states of India and also region wise by duration of stay.

2. To study the socio-economic and bio-demographic characteristics of migrant women by patterns of migration.

3. To study the effect of patterns of migration upon health and morbidity condition of women, with special focus on maternal and reproductive health.

4. To study about the knowledge and awareness of AIDS among migrant women according to their pattern of migration by duration of stay.

Methods and Material

Data is from India's second National Family Health Survey (NFHS-2) conducted in 1998–99. This survey was designed on the lines of the Demographic and Health Surveys (DHS) that have been conducted in many developing countries since the 1980s. NFHS-2 collected demographic, socio-economic, and health information from a nationally representative probability sample of 90,303 ever-married women age 15–49 residing in 92,486 households. All states of India are represented in the sample (except the small Union Territories), covering more than 99 percent of country's population. The sample is a multi-stage cluster sample with an overall response rate of 98 percent. Details of sample design, including sampling frame and sample implementation, are provided in the basic survey report for all India (IIPS & ORC Macro, 2000).

In the present study the information about type of place of residence and type of place of previous residence has been used for the identification of migrant women. Again, from the information about the urban and rural area of both the place, the four streams of migration (rural to rural, rural to urban, urban to rural and urban to urban) have been categorised. While categorisation of the stream of migration visitors has been excluded from the sample. This way a total of 71, 295 women from different streams of migration has been included for the analysis. Also those women who had not migrated had been separately analysed as a control group for comparison purpose. A total sample of 16,227 non-migrant women has been found for analysis. NFHS-2 also provides detailed information on nutrition, fertility, family planning, morbidity, maternal & reproductive health and Knowledge of AIDS, which are important inputs for the study.

Bivariate as well as multivariate analysis has been done for data analysis. In bivariate, cross tabulation is done in each of the four categories with different dependent variables in respect of different socio-economic and demographic conditions of individual. In multivariate analysis, binary logistic regression analysis has been carried out to know the odds ratio for different streams of migration by each socio-economic and bio-demographic characteristic of women, controlling for others.

Analysis and Discussion

1. Pattern of migration of women

Table 1.1 presents the distribution of migrant women aged 15- 49 years according to streams of migration in different states of India. All the four patterns of migration had

been found in case of Indian women. Overall, rural to rural migration (69 percent) ranks first followed by urban to urban (13 percent) and rural to urban migration (12 percent). However, urban to rural migration accounts for only six percent of total migration.

Region wise, rural to rural migration of women was highest in North-eastern and Eastern region which was about 80 percent in both the regions followed by Central region (73 percent). Western region had expressed lowest percentage (53 percent) of rural to rural migration, which is much below than national average. Rural to urban migration of women was found highest in Western region (19 percent) followed by Southern region (16 percent), whereas North-eastern and Eastern region shows lowest rural to urban migration of women. Urban to rural migration of women does not show significant differentials, as its proportion was very low in total migration. However, urban to urban migration of women shows a significant differential by region. It was highest in Western region (20 percent) followed by Northern region (19 percent), whereas North-eastern and Eastern region has experienced lowest urban to urban migration of women (7 percent and 8 percent, respectively).

State wise, rural to rural migration of women was quite high in Himachal Pradesh, Bihar, Assam and Orissa (more than 85 percent), whereas lowest in Delhi i.e. only 6.6 percent. It may be because, the urbanisation level in Himachal Pradesh, Bihar, Assam and Orissa are low and Delhi is a highly urbanised state. The states like Goa, Manipur, Maharastra, Nagaland, Tamil Nadu and Karnataka explain less than 60 percent of rural to rural migration to its total migration of women. Rural to urban migration of women was found highest in Delhi (32 percent) followed by Manipur (26 percent), Goa (24 percent) and Gujarat (20 percent). However, Assam shows lowest (3.8 percent) rural to urban migration of women followed by Himachal Pradesh (4.4 percent), Bihar (5 percent), Orissa (7 percent), Uttar Pradesh (7 percent) and West Bengal (9 percent). It may be because of dominance of agricultural economy in low rural to urban migration states. Again, urban to rural migration of women does not show a significant differential by states except some small states like Goa, Arunachal Pradesh and Nagaland. It may be because of the reason of comparatively small samples in these states where fluctuation may be more because of very less number. On the other hand, urban to urban migration of women shows significant differentials by states. It was noticed highest in Delhi (60 percent), followed by Maharastra (22 percent), Punjab (20 percent), and Gujarat (17 percent). It may be because of better development and industrialisation and urbanisation in these states. However, urban to urban migration was lowest again in agricultural dominated states like Himachal Pradesh, Bihar Orissa and Assam (all less than 5 percent).

1.2 Pattern of migration of women by duration of stay

Table 1.2 presents the distribution of migrant women aged 15- 49 years according to streams of migration in different states of India by duration of stay. Duration of stay has been divided in to three categories: 1-4 years as 'recently', 5-9 years as 'little before' and 10 and more years as 'long before'. These three durations represents three cohorts of women at one point of time. Overall, a significant change had been noticed in all types of

migration by duration of stay. Rural to rural migration has been decreased recently whereas other patterns of migration have been increased. Rural to rural migration has decreased from 72 percent in long before to 67 percent in little before, to further 61 percent recently. However, rural to urban migration had increased from 12 percent in long before to 13 percent in recent time. Similarly, urban to rural migration had increased from five percent in long before to 8.5 percent in recent time and urban to urban migration had increased from 11.6 percent in long before to 17.8 percent in recent time.

State differentials has also been found in the changing migration pattern of women. In some of the states, rapid change was experienced whereas somewhere it was steady. A decrease in rural to rural migration of women has been experienced by every states over the time expect Tripura, where rural to rural migration has significantly increased. On the other hand, almost all the states had experienced increase in rural to urban migration of women except Delhi, Tripura and West Bengal. Also Haryana, Punjab, Karnataka and Tripura experienced little decrease in rural to urban migration of women. On the other hand, urban to rural as well as urban to urban migration of women has increased in every states except Tripura. Region wise also, all regions has experienced increase in all types of migration accept rural to urban.

2.1 Socio-economic and bio-demographic characteristics of women by patterns of migration

Table 2.1 presents selected socio-economic, demographic characteristics of women aged 15- 49 years according to streams of migration and also non-migrants. Considering the basic demographic features such as mean age at marriage and birth order 3 and above, a significant differential has been found according to the migration pattern of the women. Women migrating towards urban area have a higher mean age at marriage, compared to women migrating towards rural area. Moreover, 42 percent of rural to rural migrant women, has experienced birth order of three and above compared to 35 percent of rural to urban migrant women and further decreased to 26 percent among urban to urban migrant women.

Again, more percentage of younger women aged 15-24 years tend to migrate towards rural area (rural to rural and urban to rural) than migration towards urban area (urban to urban and rural to urban). More than 25 percent women migrates towards rural area in younger age (15-24 years) whereas 19 percent from rural to urban area and 16 percent from urban to urban area. On the other hand, more proportion of women aged 35-49 years migrates towards urban area than rural area. Forty-six percent women has migrated in the age group of 35-49 years from rural to urban area followed by 44 percent women from urban to urban area compared to 37 percent from rural to rural area and 32 percent from urban to rural area. However, nearly 37 percent non-migrants were from younger age group 15-24 years and 29 percent in the age group of 35-49 years.

Educational status of women is significantly associated to pattern of migration. More than 70 percent of rural to rural migrants were illiterate compared to only 23 percent among urban to urban migrants. The educational level of women migrating towards

urban area was more compared to women migrating towards rural areas, as 44 percent women were high school and above who were migrating from urban to urban area compared to only six percent women who migrate from rural to rural area. Husband's educational status also shows similar situation with migration pattern but with little less gap. As 38 percent of rural to rural migrant women's husband were illiterate compared to 11 percent of urban to urban migrant women's husband. Also 21 percent of rural to rural migrant women's husband were high school and above compared to 58 percent of urban to urban migrant women's husband. However, education status were found almost similar for rural to urban and urban to rural stream of migration of women. However, non-migrants educational status was found in between of rural to rural and urban to urban migrants.

Religious differential was also found with the pattern of migration of women. Hindu women were migrating more from rural to rural area than other stream of migration whereas Muslim women were migrating more from urban to urban area than other streams of migration. Eighty-five percent of rural to rural migration takes place among Hindu women compared to 80 percent from rural to urban area and 75 percent from urban to urban area. On the other hand, Muslim women experienced 17 percent urban to urban migration compared to 13 percent in rural to urban area and 11 percent in rural to rural migration. However, rest of the religion like Sikh, Christianity and others were more prone to migrate towards urban area than rural area. In the distribution of non-migrant women, Sikh women were significantly less than migrants category, whereas Christian women were significantly more among non-migrant than any migration stream category. However, distribution of Hindu and Muslim non-migrant women were almost proportionate to migrant category.

Ethnic differential also exists with pattern of migration of women. Scheduled caste and scheduled tribes women migrate more from rural to rural areas than urban to urban areas whereas other castes migrates more from urban to urban areas than other streams. The proportion of scheduled caste women, migrating from rural to rural area, decreases from 20 percent to 12 percent in case of urban to urban migration. Similarly, the proportion for scheduled tribe women migrating from rural to rural area was 11 percent, which decreases to five percent in case of urban to rural and further only two percent in case of migration from urban to urban area. On the other hand, the participation of other caste women in migration increased from 35 percent in rural to rural migration to 62 percent in urban to urban migration.

According to working status of women, also the stream of migration differs. More working women were found migrating towards rural area (rural to rural and urban to rural) than towards urban area (urban to urban and rural to urban). Forty-three percent currently working women were migrating from rural to rural area compared to 26 percent from rural to urban area, and 22 percent from urban to urban area. In addition to this, women working in family farm/business were migrating more towards rural area than towards urban area, whereas self-employed women were migrating more towards urban area.

Occupational differential is also apparent with the pattern of migration. Women engaged in professional/technical/managerial work were highest among urban to urban migrants (31 percent) followed by rural to urban migration (13 percent), whereas least among rural to rural migrants (2 percent). Similarly, women engaged in clerical and sales work were highest among urban to urban migrants (18 percent) followed by rural to urban migration (12 percent) whereas least among rural to rural migrants (3 percent). However, dominancy of labourer was found among rural to rural migration (94 percent) followed by urban to rural (84 percent) and least in urban to urban migration of women (41 percent). On the other hand, women working as household worker were nine times more towards urban stream of migration than towards rural area. However, among non-migrant working women majority were labourer (86 percent) and engaged in all the other occupation was more than the women migrating towards rural area.

A significant differential has been observed with standard of living of women and pattern of migration. Rural to rural, and rural to urban migration was characterised by low and medium standard of living index of women whereas urban to urban migration by high standard of living. Forty-one percent of rural to rural migrants were from low standard of living followed by 27 percent of urban to rural migration whereas only eight percent and 17 percent were from urban to urban, and rural to urban migration, respectively. However, 52 percent of urban to urban migrants were from high standard of living followed by 32 percent of rural to urban and only 12 percent and 25 percent from rural to rural, and urban to rural area, respectively. On the other hand, 40 percent of the non-migrant were from medium standard of living and 34 percent from low standard of living compared to only 19 percent from high standard of living.

2.2 Result of logistic regression on socio-economic and bio-demographic characteristics of migrant women according to patterns of migration

Table 2.2 presents the odds ratio for different streams of migration of women aged 15-49 years by selected socio–economic and demographic characteristics in India. The result of logistic regression substantiates that the stream of migration were influenced by the standard of living, education, religion, caste, age and BMI of women and the odds ratios varies significantly with different streams of migration. In case of rural to rural migration, the likelihood decreases with higher education, higher standard of living, higher BMI, household worker with reference professional/technical worker, other backwards class with reference to scheduled caste, and all the religions except Sikh with reference to Hindu and results are also statistically significant. However, likelihood of rural to rural migration increases among scheduled tribes with reference to scheduled caste, labourer with reference professional/technical/managerial worker and in higher age group.

Almost reverse situation was found in case of rural to urban migration. The likelihood of rural to urban migration increases with higher standard of living, higher BMI, household worker with reference to professional/technical/managerial worker and Muslims and other religion with reference to Hindu and results are also statistically significant. However, likelihood of rural to urban migration significantly decreases among all the

castes with reference to scheduled caste, labourer with reference to professional/technical worker and in higher age group.

Migration from urban to rural areas shows less number of significant predictors. The likelihood of urban to rural migration increases only with higher education and for Sikh women with reference to Hindu women.

Almost similar pattern like rural to urban migration but with more gap was found in case of urban to urban migration. The likelihood of urban to urban migration increases with higher education, higher standard of living, higher BMI, higher age, clerical/sales and household worker with reference professional/technical/managerial worker, and Muslim and women belonging to other religion with reference to Hindu women and results are highly statistically significant. However, likelihood of urban to urban migration decreases among scheduled caste and other backward class with reference to scheduled caste and labourer with reference to professional/technical worker.

On the other hand, non-migrants show the reverse and to some extent mixed pattern than all types of migration streams. The likelihood of being a non-migrant increases with higher education, and among other backward class with reference to scheduled castes. However, likelihood of being a non-migrant decreases with higher standard of living and higher age.

3.1 Effect of patterns of migration on health and morbidity condition of women

Table 3.1 presents the general health situation and morbidity condition of migrant and non-migrant women aged 15- 49 years according to stream of migration. Women migrating towards rural area were more underweight than women migrating towards urban area, whereas women migrating towards urban area were more obese than women migrating towards rural area. Forty-one percent of rural to rural area, and 33 percent of urban to rural migrant women were underweight, compared to only 18 percent of urban to urban area and 26 percent of rural to urban area. Obesity increased from less than two percent among rural to rural migrant women to eight percent among urban to urban migrant women.

Regarding anemic condition also, women migrating from rural to rural area were more mild anemic (34 percent) than rural to urban or urban to urban area (30 percent). Moderate and severe anemia also shows the similar pattern.

Morbidity condition of women has been seen for asthma, tuberculosis, jaundice during the past 12 months, and malaria during the past 3 months in per 100000 population. Prevalence of asthma was noticed more among rural to rural migrants (2452) than rural to urban (2243), urban to urban (1830) and urban to rural migrant women (1982). However, among the non-migrant women prevalence of asthma was intermediate (2033).

Prevalence of tuberculosis was found more among women migrating towards rural area than women migrating towards urban area. The situation improves for women who were

migrating from rural area to urban area than women who remain in rural area after migration, as the prevalence of tuberculosis was noticed 743 for rural to rural migrant women, whereas 537 for rural to urban migrants women. However, the condition was worst for the women who had migrated from urban area to rural area than urban to urban area, or even rural to urban area, because the prevalence of tuberculosis was noticed 729 for urban to rural migrants women whereas 404 for urban to urban migrants women and also 537 for rural to urban migrants women. On the other hand, among the non-migrant women, prevalence of tuberculosis was little more than urban to urban migrant women (493).

Case of Jaundice was highest among urban to rural migrant women (1299) followed by rural to rural migrant women (1273), whereas least among urban to urban migrant women (1000). On the other hand, among the non-migrant women, the prevalence of jaundice was after urban to urban migrant women (1074).

Prevalence of malaria follows the jaundice pattern. It was highest among urban to rural migrant women (4994) followed by rural to rural migrant women (4694), whereas least among urban to rural migrant women (2862). On the other hand, among the non-migrant women, prevalence of malaria was 3102.

3.2. Effect of patterns of migration on maternal and reproductive health

Table 3.2 presents maternal and reproductive health problems among migrant and non-migrant women aged 15- 49 years according to stream of migration. Table shows the experience of migrant women regarding maternal health problems such as: *ever had an abortion, ever had a terminated pregnancy and ever had a still birth;* and reproductive health problems such as: *itching, bad odour, abdominal pain, fever and other problems, pain or burning sensation during urination, painful intercourse and blood after sex.* A mixed pattern of maternal health problem and reproductive health problem has been observed.

Women migrating towards urban area or from urban area ever had more an abortion (for every stream more than 17 percent) than rural to rural area (12 percent). Similarly, ever had a terminated pregnancy was more among women migrating towards urban area or from urban area (for every stream more than 22 percent) compared to rural to rural area (19 percent). However, migrants from rural to rural area had experienced more still birth than other streams.

Most of the reproductive health problems were found more among rural to rural migrant women than rural to urban migrant women. Itching, bad odour, abdominal pain, fever and pain or burning during urination was 18, 13, 20, 9 and 19 percent of rural to rural migrant women, respectively compared to 16, 9, 16, 6,and 15 percent of rural to urban migrant women, respectively. In reproductive health problems also, urban to rural migrant women were again having more problems than rural to urban migrant women. However, among non-migrant women, comparatively less reproductive health problems were found than women migrating towards rural area.

4.1 Knowledge and awareness of AIDS among migrant women

Table 4.1 presents knowledge related to STDs and AIDS among migrant women aged 15- 49 years in India. Very less percentage of women who migrated from rural to rural area had heard about AIDS compared to other streams of migrant women. Only 25 percent rural to rural migrant women ever heard of AIDS compared to 79 percent urban to urban migrant women, 58 percent rural to urban migrant women and 56 percent urban to rural migrant women. Regarding knowledge of AIDS also, women migrating from rural to urban area were performing better than women migrating from urban to rural area. On the other hand, about half of the non-migrant women had ever heard about AIDS.

Among those women who heard about AIDS, again less percentage of women migrating from rural to rural area (63 percent) knew ways to avoid AIDS, compared to women migrating from rural to urban area (66 percent), urban to rural area (70 percent) and further increase to 74 percent among urban to urban migrant women.

Knowledge of condom use for family planning and STDs, significantly varies among migrant women according to their streams of migration. About 25 percent of urban to urban migrant women were having knowledge of condom for family planning and STDs compared to only three percent of rural to rural migrant women and 11 percent of both (rural to urban and urban to rural migrant women). However, only eight percent of the non-migrants were having knowledge of condom for family planning and STDs.

4.2 Knowledge and awareness of AIDS among migrant women by duration of stay

Table 4.2 presents knowledge related to STDs and AIDS among migrant women of different streams aged 15- 49 years by duration of stay in India. In case of rural to rural migrant women knowledge has been significantly increased from 20 percent among women who stayed 20 years and above, to 27 percent among women who stayed 6 to 9 years and further to 31 percent among women who stayed 1 to 2 years. This shows that women of younger age had more knowledge of AIDS. However, in case of rural to urban migrant women knowledge has been significantly increased with exposure to stay in urban area. Knowledge of AIDS increased from 59 percent among women who stayed 1-2 years, to 61 percent among women who stayed 3 to 5 years and further to 65 percent among women stayed 6 to 9 years. On the other hand, in case of urban to rural migrant women knowledge has been significantly decreased with exposure to stay in rural area. Knowledge of AIDS decreased from 74 percent among women who stayed 1-2 years, to 62 percent among women who stayed 3 to 5 years and further decreased to 58 percent among women stayed 6 to 9 years. But in case of urban to urban migrant women, knowledge of AIDS was more or less constant in different duration of stay. Among non-migrant women, knowledge of AIDS was found more than rural to rural migrant women, but less than the other three streams of migration. It is a noticeable point that in all the streams of migration knowledge of AIDS with duration of stay more than 10 years and above is comparatively low than recent duration. It may be because of the epidemic of AIDS in India had been seen in the last 10 years.

Migrant women who had heard about AIDS, among those women knowledge about the ways to avoid AIDS also differs in different streams of migration. It shows almost similar pattern like ever heard of AIDS. However, duration of migration except 10 years and above in all the streams of migration of women does not show significant difference in knowledge about the ways to avoid AIDS.

Knowledge of condom for family planning and STDs, significantly varies among migrant women according to the streams of migration and by the duration of migration. Urban to urban migrant women has highest knowledge of condom for family planning and STDs followed by urban to rural migrant, and rural to urban migrant women. Recent urban to rural migrant have more knowledge of condom for family planning and STDs than older duration migrant, as 20 percent among 1-2 years migrants have knowledge of condom for family planning and STDs compared to 15 percent among 3-5 years migrants and further only 13 percent among 6-9 years migrants. However, in other streams of migration, knowledge of condom for family planning and STDs was not significantly varying by duration of migration, except 10 years and above. Again it has been noticed that in all the streams of migration knowledge of condom for family planning and STDs with duration of stay more than 10 years and above was comparatively quite low than recent duration.

Conclusion

It may be briefly concluded from the above discussion that in India, still rural to rural migration of women is predominant. However, trend is decreasing for rural to rural migration and increasing more for all the three other streams of migration. Differential is found in pattern as well trend according to states and region with different level of economy. Further regarding health outcome, women migrating towards rural area were more underweight than migrating towards urban area whereas reverse for obesity. However, women migrating from rural to rural area were more anaemic than rural to urban. Significant differences were found for morbidity conditions like Asthma, Tuberculosis, Jaundice, Malaria and some reproductive health problems according to streams of migration. Knowledge of AIDS also significantly differs according to the stream and duration of migration. Thus, the study observes that stream and duration of migration plays a key role in morbidity and health status of women.

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REFERENCES

Ammon, L. (1899): Zur Anthropologie der Badener: cited in : Boas (1912).

Brockerhoff, M. (1990): Rural to urban migration and child survival in Senegal. *Demography*. Vol 27, p601.

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

Brockerhoff, M. (1995): Child survival in big cities: The disadvantages of migrants. *Social Science and Medicine*. Vol. 40, p 1371.

Brockerhoff, M. and Eu, H. (1993): Socio-economic and demographic determinants of female rural - urban migration in Sub-Saharan Africa. *International Migration Review*, 27, p557.

Epstein, T.S. (1973): *South India: Yesterday, Today and Tomorrow*. London, Macmillan.

Gill, M.S. (1981): Patterns of migration in an under-developed tract: Hissar District of Haryana, 1951-1971. *Geographical Review of India*. Vol 43 (2).page 105-121.

Greenward, M.J. (1971): The influence of family and friends on geographic labour mobility in a Less Developed country: The case of India. *Review of Regional Studies*. Vol 3 (1). Pp 27-36.

Hugo, G.E. (1994): *Population Distribution and Migration*: Proceedings of the United Nations Expert Meeting on Population Distribution Santa Cruz, Bolivia. 18-22 January 1993.

Iglesias, E.; Robertson, E.; Johansson, S.E.; Engfeldt, P.; and Sundquist, J. (2003): Women, international migration and self-reported health: A population-based study of women of reproductive age, *Social Science and Medicine*, 56(1): Pp 111-124

International Institute for Population Sciences (IIPS), & ORC Macro. (2000): *National Family Health Survey (NFHS-2), 1998–99: India.* Mumbai: International Institute for Population Sciences.

Libee, M.J and Sopher, D.E. (1975): Marriage migration in rural India. In: Kosinski and Prothero (eds): *People on the move*. London Methuen and co Ltd. Page 347-359.

Livi, R. (1896): Anthropometrica Militatre. Romes. Cited in: Mascie-Taylor and Lasker (1988).

Mehta, S. (1990): Spatial mobility in India: Evolving patterns, emerging issues and implications. *Population Geography*. Vol 12, no 1&2. June - December.

Singh, G.B. (1987): Educational Differentials in City ward Migration In India. *Canadian Studies in Population*. Vol. 15 (1). Page 87-99.

Singh, J.P. (1992): Migration in India: A review. *Asian and Pacific Migration Journal*. Vol 1, no 1. Page 168-192. Quezon City, Philippines.

Smita, R.C and Chandna, S. (1991): Migration Patterns in India. *Population Geography*. Vol 13, No. 1-2. Page 31-52. Chandigarh, India.

Weiner, M. (1978): *Sons of the Soil: Migration and ethnic conflict in India*. Princeton University Press, Princeton.

Table 1.1: Percent distribution of migrant women aged 15- 49 years according to streams of migration by regions and states of India, 1998-99

Region/State	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Total Number
Northern Region	**64.4**	**12.3**	**4.0**	**19.3**	**9261**
Delhi	6.6	31.5	2.0	59.8	889
Haryana	68.2	13.2	3.0	15.7	1520
Himachal Pradesh	86.3	4.4	5.5	3.8	473
Jammu & Kashmir	73.5	9.7	4.7	12.1	487
Punjab	65.1	10.2	4.4	20.3	1756
Rajasthan	71.5	9.9	4.4	14.2	4140
Central Region	**73.2**	**9.1**	**5.9**	**11.8**	**17452**
Madhya Pradesh	69.8	13.1	6.0	11.2	5644
Uttar Pradesh	74.8	7.3	5.9	12.0	11808
Eastern Region	**79.9**	**6.8**	**5.0**	**8.2**	**17194**
Bihar	86.2	5.2	5.1	4.2	7838
Orissa	85.4	7.1	3.8	3.7	2788
West Bengal	70.9	8.7	5.4	15.0	6569
North-eastern Region	**80.2**	**6.5**	**6.3**	**7.0**	**2276**
Arunachal Pradesh	63.6	12.7	16.4	7.3	55
Assam	86.2	3.8	5.0	4.9	1691
Manipur	48.8	25.6	9.8	15.9	82
Meghalaya	55.3	18.4	7.9	18.4	38
Mizoram	33.3	33.3	5.6	27.8	36
Nagaland	58.8	10.0	16.3	15.0	80
Sikkim	73.3	6.7	13.3	6.7	30
Tripura	72.0	10.6	6.8	10.6	264
Western Region	**52.6**	**19.1**	**7.9**	**20.4**	**10503**
Goa	46.3	24.4	13.4	15.9	82
Gujarat	55.7	20.4	6.7	17.2	3437
Maharashtra	51.2	18.4	8.4	22.0	6983
Southern Region	**63.6**	**15.9**	**7.9**	**12.6**	**14603**
Andhra Pradesh	66.2	14.5	7.9	11.4	5268
Karnataka	59.5	17.6	7.5	15.4	3211
Kerala	70.1	16.6	6.5	6.8	2273
Tamil Nadu	59.4	16.0	9.1	15.5	3853
All India	**68.9**	**11.8**	**6.2**	**13.2**	**71295**

Note: Because of some missing cases, number may not match to total.

Table 1.2:Distribution of migrant women aged 15- 49 years according to streams of migration by duration of stay in regions and states of India, 1998-99*

Region/ States ↓ Duration of stay →	Rural to Rural			Rural to Urban			Urban to Rural			Urban to Urban		
	1-4	5-9	10+	1-4	5-9	10+	1-4	5-9	10+	1-4	5-9	10+
Northern Region	**55.3**	**63.6**	**67.0**	**13.0**	**12.6**	**12.0**	**5.8**	**4.5**	**3.3**	**24.9**	**19.4**	**17.7**
Delhi	6.3	6.3	6.9	28.5	30.7	32.9	3.9	2.6	1.2	61.4	60.3	59.0
Haryana	61.5	65.0	71.2	11.2	15.5	12.9	4.6	2.6	2.6	22.7	16.8	13.3
Himachal Pradesh	81.5	84.0	88.6	4.9	5.3	4.0	8.6	6.4	4.0	4.9	4.3	3.4
Jammu & Kashmir	68.2	75.0	74.8	10.2	9.4	9.6	6.8	3.1	4.3	14.8	12.5	11.3
Punjab	61.1	65.9	66.1	9.2	10.0	10.6	5.9	4.2	4.0	23.8	19.9	19.3
Rajasthan	62.7	71.3	74.0	11.9	9.8	9.4	6.3	5.5	3.5	19.1	13.4	13.1
Central Region	**64.5**	**71.3**	**76.0**	**10.1**	**9.2**	**8.9**	**8.7**	**7.1**	**4.8**	**16.7**	**12.5**	**10.3**
Madhya Pradesh	60.0	66.5	73.3	15.3	12.9	12.5	8.8	7.3	4.8	15.9	13.3	9.4
Uttar Pradesh	66.6	73.6	77.3	7.7	7.4	7.2	8.6	6.9	4.8	17.1	12.1	10.7
Eastern Region	**73.6**	**79.6**	**81.8**	**7.4**	**6.2**	**6.9**	**7.3**	**5.5**	**4.2**	**11.7**	**8.8**	**7.1**
Bihar	80.9	84.5	87.1	6.6	4.6	5.0	6.8	6.9	4.0	5.8	4.0	3.8
Orissa	78.6	83.1	87.8	8.3	8.4	6.4	7.4	4.4	2.8	5.7	4.1	3.0
West Bengal	63.8	72.6	72.4	7.9	7.2	9.5	7.8	4.3	5.1	20.5	16.0	13.0
North-eastern Region	**75.7**	**78.2**	**82.6**	**7.2**	**6.7**	**6.3**	**8.3**	**7.1**	**5.3**	**8.9**	**7.9**	**5.9**
Assam	83.9	85.9	87.0	3.9	31	4.1	6.1	5.4	4.6	6.1	5.6	4.3
Tripura	68.4	65.5	50.0	10.5	13.8	23.8	8.8	8.6	9.5	12.3	12.1	16.7
Western Region	**45.5**	**49.9**	**55.7**	**20.3**	**18.6**	**18.8**	**9.0**	**9.2**	**7.1**	**25.0**	**22.2**	**18.4**
Gujarat	48.3	53.6	58.8	23.0	20.0	19.8	8.4	8.2	5.8	20.3	18.2	16.0
Maharashtra	44.3	48.3	54.4	19.4	17.8	18.2	9.0	9.7	7.8	27.2	24.2	19.6
Southern Region	**55.5**	**59.2**	**67.5**	**16.3**	**17.2**	**15.3**	**10.9**	**9.5**	**6.5**	**17.3**	**14.0**	**10.7**
Andhra Pradesh	57.5	60.7	70.1	15.3	16.4	13.7	10.6	10.7	6.4	16.6	12.2	9.8
Karnataka	51.1	57.2	62.9	16.9	17.4	17.9	9.9	8.4	6.5	22.1	17.1	12.8
Kerala	62.9	67.7	73.8	19.1	20.3	14.3	8.1	6.4	5.9	9.9	5.6	6.0
Tamil Nadu	51.7	54.4	63.9	15.3	16.5	16.1	13.8	10.6	6.9	19.2	18.5	13.1
All India	**61.0**	**67.1**	**71.8**	**12.7**	**11.8**	**11.5**	**8.5**	**7.1**	**5.2**	**17.8**	**14.0**	**11.6**

**The states of Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Goa has not shown because of fewer than 50 cases*

Table 2.1: Percent distribution of migrant women aged 15- 49 years according to streams of migration and non-migrant by selected socio-economic and demographic characteristics, India, 1998-99

Background characteristics	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Age groups					
15- 19	7.7	4.3	7.4	2.7	14.4
20–24	17.9	14.5	19.1	13.5	22.8
25–29	20.5	19.5	21.1	18.8	19.9
30–34	17.4	18.9	19.3	19.4	14.2
35–39	15.2	17.2	14.2	18.8	11.5
40–44	12.1	14.2	11.0	15.0	9.5
45–49	9.3	11.4	7.9	11.7	7.6
Education					
Illiterate	71.1	47.1	40.1	23.2	53.1
Literate, < middle school complete	17.5	23.8	25.6	19.9	20.8
Middle school complete	5.8	10.5	12.9	12.9	9.4
High school complete and above	5.7	18.6	21.4	43.9	16.6
Husband's education					
Illiterate	38.1	19.4	20.1	10.6	30.8
Literate, < middle school complete	27.7	25.4	25.5	17.8	23.3
Middle school complete	13.3	14.7	14.6	12.9	12.5
High school complete and above	20.7	40.4	39.6	58.4	33.0
Religion					
Hindu	84.5	80.3	81.0	74.5	78.8
Muslims	10.7	12.7	12.3	17.4	15.2
Christian	1.8	3.1	3.1	2.9	4.0
Sikh	1.8	1.3	1.6	2.2	0.5
Others	1.1	2.6	2.0	3.0	1.5
Caste/tribes					
Scheduled caste	20.4	18.0	17.5	12.1	17.1
Scheduled tribe	11.1	4.4	5.4	2.4	9.0
Other backward class	33.5	33.6	34.0	24.0	38.3
Other	35.1	43.9	43.1	61.5	35.7
Currently working					
Yes	42.6	25.8	34.2	22.0	40.2
No	57.4	74.2	65.8	78.0	59.8
Working status					
Working in family farm/business	43.0	19.4	31.2	14.4	31.8
Employed by someone else	46.5	60.1	52.2	58.3	56.4
Self–employed	10.6	20.6	16.5	27.3	11.9

Contd…

Background characteristics	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Occupation					
Professional/Technical	2.3	12.6	10.5	31.0	6.7
Clerical/sales	2.7	11.8	4.8	18.2	4.8
Labour	94.0	66.8	83.8	41.3	85.7
Household worker	1.0	8.8	0.9	9.5	2.7
Standard of living index					
Low	41.1	17.4	26.5	7.6	33.7
Medium	47.1	50.2	48.8	40.1	47.8
High	11.7	32.4	24.7	52.2	18.6
Some other Demographic Characteristics					
Mean age at marriage	16.23	17.24	17.09	18.81	17.9
Mean age Gap between husband and wife	6.51	6.36	6.42	5.80	6.21
Mean age of women at first birth	18.28	19.12	18.95	20.42	18.91
Mean children ever born (CEB)	3.35	3.10	2.97	2.71	2.39
Birth order more than 3 (in percent)	41.6	35.5	32.1	25.6	22.9

Table 2.2: Logistic regression result showing adjusted effects (odds ratios) of selected socio–economic and demographic factors for different streams of migration of women aged 15- 49, India, 1998-99

Background Characteristics	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Age groups					
15- 24 [R]	1.000	1.000	1.000	1.000	1.000
25–34	1.241***	1.664***	1.096	1.504***	0.633***
35–49	1.135***	1.887***	1.048	1.956***	0.657***
Education					
Illiterate [R]	1.000	1.000	1.000	1.000	1.000
Literate, < middle school complete	0.571***	1.500***	2.536***	2.152***	1.171***
Middle school complete	0.503***	1.207*	2.883***	3.330***	1.190**
High school complete and above	0.272***	0.859	2.959***	4.436***	1.532***
Religion					
Hindu [R]	1.000	1.000	1.000	1.000	1.000
Muslims	0.532***	1.599***	1.048	2.452***	1.426***
Christian	0.590	0.888	1.182	0.825	1.997***
Sikh	1.354***	0.773	2.001**	1.163	0.326**
Others	0.681***	1.646***	1.062	1.693***	0.935
Caste/tribes					
Scheduled caste [R]	1.000	1.000	1.000	1.000	1.000
Scheduled tribe	1.415***	0.498***	0.645***	0.477***	0.959
Other backward class	0.863***	0.868**	0.917	0.753***	1.422***
Other	1.107**	0.710***	0.946	1.097	0.949
Occupation					
Professional/Technical/Managerial [R]	1.000	1.000	1.000	1.000	1.000
Clerical/sales	1.088	1.217**	0.676**	1.207**	0.909
Labour	2.516***	0.424***	0.963	0.336***	0.961
Household worker	0.429***	2.212***	0.325***	3.408***	1.218**
Standard of living index					
Low [R]	1.000	1.000	1.000	1.000	1.000
Medium	0.879***	1.587***	1.029	2.165***	0.907***
High	0.785***	1.864***	0.776**	3.340***	0.736***
BMI					
Underweight [R]	1.000	1.000	1.000	1.000	1.000
Normal	0.887***	1.291***	1.107*	1.245***	1.010
Overweight	0.519***	1.638***	1.076	2.085***	1.068
Obese	0.503***	1.146	0.842	2.838***	1.111
Constant	1.085	0.057	0.035	0.020	0.289

[R] Reference Category;
**** p <0 .001, ** p < 0.05, * p < 0.1*

Table 3.1: General health and morbidity condition of women aged 15- 49 years according to streams of migration and non-migrant, India, 1998-99

Health and Morbidity Condition	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Body Mass Index (BMI)[1]					
Underweight (BMI < 18.5)	40.6	26.3	33.3	18.4	34.2
Overweight (BMI 25 - 30)	4.5	14.3	9.9	21.2	8.0
Obese (BMI > 30)	1.5	3.9	2.4	8.2	2.9
Normal	53.4	55.4	54.5	52.2	55.0
Anaemia[1]					
Severe	1.6	1.3	1.4	1.2	1.7
Moderate	13.8	11.3	12.4	9.7	13.9
Mild	34.1	30.0	32.4	29.5	31.1
No	50.5	57.5	53.8	59.6	53.3
Morbidity condition[2]					
Asthma	2452	2243	1982	1830	2023
Tuberculosis	743	537	729	404	493
Jaundice during the past 12 months	1273	1252	1299	1000	1074
Malaria during the past 3 months	4694	2862	4994	3181	3102

[1] *In percentage*
[2] *Prevalence per 100000 Populations.*

Table 3.2: Maternal and reproductive health problems among women aged 15-49 years according to streams of migration and non-migrant, India, 1998-99

Problems	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Maternal health problems					
Ever had an abortion	11.8	18.1	17.1	17.6	9.0
Ever had a terminated pregnancy	19.0	24.9	22.3	22.5	17.4
Ever had a still birth	4.4	1.7	2.3	3.8	2.7
Reproductive health problems					
Itching	18.2	15.7	17.7	16.4	15.0
Bad odour	13.0	9.1	9.5	11.1	9.1
Abdominal pain	19.8	15.7	18.8	18.8	17.1
Fever	8.9	5.9	7.2	8.6	7.7
Other problems	7.8	8.8	9.0	8.5	7.9
Pain or burning during urination	18.8	14.7	17.1	18.6	16.1
Painful intercourse	12.6	10.5	12.1	15.0	12.5
Blood visible after sex	2.3	1.4	1.8	2.5	2.7

Table 4.1: Knowledge related to STDs and AIDS among women aged 15-49 years according to streams of migration and non-migrant, India, 1998-99

Knowledge	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Ever heard of AIDS	24.6	58.2	55.8	78.7	50.4
Way to avoid AIDS*	62.6	66.1	69.6	74.0	69.7
Knowledge of condom for family planning and STDs	3.2	11.3	11.3	24.7	8.8

** Includes only those women who had heard about AIDS*

Table 4.2: Knowledge related to STDs and AIDS by duration of migration among women aged 15- 49 years according to streams of migration and non-migrant, India, 1998-99

Knowledge/duration of migration in years	Rural to Rural	Rural to Urban	Urban to Rural	Urban to Urban	Non Migrant
Ever heard of AIDS					
1-2 years	31.2	58.5	73.8	83.6	46.4
3-5 years	30.4	60.8	61.6	83.4	43.5
6-9 years	26.6	65.0	58.4	83.1	39.5
10-19 years	23.7	58.5	51.4	79.2	34.0
20 years and above	20.4	52.4	43.7	68.3	50.6
Ways to avoid AIDS[1]					
1-2 years	67.6	68.8	71.3	76.9	61.3
3-5 years	66.1	68.9	71.8	77.3	70.0
6-9 years	66.6	70.2	70.9	76.7	62.5
10-19 years	62.6	66.6	67.4	73.4	69.7
20 years and above	56.2	59.9	67.5	67.6	69.8
Knowledge of condom for family planning and STDs					
1-2 years	5.3	12.4	19.9	28.0	*
3-5 years	5.6	14.2	15.2	31.9	*
6-9 years	4.3	13.8	12.6	28.3	7.0
10-19 years	2.7	11.6	7.7	23.7	7.2
20 years and above	1.7	7.5	6.9	16.3	8.8

[1] *Includes only those women who had heard about AIDS*

** Percentage not shown because of fewer than 30 cases.*