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2007 No. 38

DEMOGRAPHIC AND HEALTH RESEARCH

November 2007

This document was produced for review by the United States Agency for International Development.

The *DHS Working Papers* series is an unreviewed and unedited prepublication series of papers reporting on research in progress based on Demographic and Health Surveys (DHS) data. This research was carried out with support provided by the United States Agency for International Development (USAID) through the MEASURE DHS project (#GPO-C-00-03-00002-00). The views expressed are those of the authors and do not necessarily reflect the views of USAID or the United States Government.

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## ABSTRACT

Urban migrants and their children constitute 11% of the population of Peru, according to the 2000 DHS survey in Peru. Given that there are substantial differences in fertility and mortality rates between people living in urban areas and those living in rural areas, rural migrants to Peru's cities are likely to be affected by the change in residence. A better understanding of the role that internal migration plays in the use of reproductive and child health services would help inform primary health care program interventions, and advance knowledge of the migration process.

This study uses data from the Peru 2000 DHS survey to investigate the relationship between rural-to-urban migration and the utilization of reproductive and child health services. The dependent variables are the following: current use of modern contraceptive methods (from institutional sources), formal and informal unions among urban women, recent antenatal care (ANC) visits by urban mothers prior to delivery, and use of health care services for children with diarrhea or symptoms of acute respiratory infection (ARI).

Bivariate (chi square) and multivariate (binomial logistic regression) methods are used to test the relationship between each of the four dependent variables and the migrant status of respondents, i.e., whether the women were urban non-migrants, urban-to-urban migrants, or rural-to-urban migrants. The results show that few rural-to-urban migrants seek services from private or public sources for their reproductive and child health needs. At the same time, compared with urban non-migrants and urban-to-urban migrants, more rural-to-urban migrants have no education or only a primary level of education, have no health insurance, and live in households that are in the lowest wealth category in terms of household assets. The results from the multivariate regression indicate that education, health insurance, household wealth, and rural-to-urban migrant status are significant factors in explaining the differentials in women's use of health care services for family planning and maternal health, but not for child health.

**ACKNOWLEDGMENT**

The author would like to thank Shea O. Rutstein and colleagues at Macro International for their comments on earlier drafts.

## INTRODUCTION

Latin America is now largely urban, with 77.4% of the population living in cities in 2005. The urban population is projected to grow to 84% by 2030. In this region, Peru is one of the most urbanized countries, with a population that is 73% urban, having increased by 30% since 1940 (United Nations, 2006). There are substantial differentials in fertility and mortality between urban and rural areas of Peru. At 4.3 children per woman, the rural total fertility rate (TFR) is twice that of women in urban areas. This ratio is mirrored in rural-urban child mortality rates. The rural under-five mortality rate is 85 deaths per 1,000 children, whereas the urban under-five mortality rate is 39 (INEI and Macro International, 2001). These differentials reflect variations in access to infrastructure and health care, as well as customary practice and individual knowledge.

Urban migrants and their children constitute 11% of the population of Peru, according to the 2000 DHS survey in Peru (INEI and Macro International, 2001). Given that there are substantial differences in fertility and mortality rates between people living in urban areas and those living in rural areas, rural migrants to Peru's cities are likely to be influenced by the change in residence. This study uses survey data to investigate the relationship between rural-to-urban migration and the use of reproductive and child health services.

## BACKGROUND

The level of use of contraception is of interest to demographers and policymakers because of its influence on fertility and reproductive health, while the improvement of child health through the increase of preventive maternal and childhood care is an important goal of health programs in developing countries. A better understanding of the role that internal migration plays in the use of reproductive and child health services would help inform interventions for primary health programs, and advance our knowledge of the process.

While researchers have studied the influence of rural-urban migration on fertility (Brockerhoff and Yang, 1994; Chattopadhyay et al., 2006; White et al., 2005) and mortality (Islam and Azad, 2007; Stephenson et al., 2003), barring a few exceptions there is a dearth of literature exploring the relationship between internal migration and reproductive and child health care use. Lindstrom and Hernandez (2006) find that migration does influence contraceptive behavior. The authors argue that limited knowledge and/or limited access to modern methods of contraception are important factors in the differential use of contraception between rural migrants and non-migrants in urban Guatemala. Other research shows that rural migrants are more likely than rural non-migrants, but less likely than urban non-migrants, to use reproductive health care in Latin America, Africa, and Asia (Bender et al., 1993).

Given the rapid rate of urbanization in the world—2.04% in 2005 (United Nations, 2006)—the process of urbanization is a critical issue in developing countries, both from the perspective of the receiving cities as well as from the perspective of the migrant, and negative population health outcomes in urban areas are likely to be sources of concern. The role urbanization plays in population health is not well understood, particularly with regard to the use of health care services. Women who have lived for a long time in urban areas where health care is available are more likely to know where to go for help. Further, they are more likely to have extended networks that can provide them with this knowledge. In comparison, recent migrants to urban areas may be less likely to have information on the availability of health services, but they are likely to be highly motivated individuals, who made the move to better their opportunities. This study investigates the broad relationship between internal migration of people to urban areas and the use of reproductive and child health care services in Peru.

## DATA AND METHODS

The data used for this study come from the Peru Demographic and Health Survey (PDHS) conducted under the MEASURE DHS project during the months of July and November 2000 using the standard questionnaire. Demographic and Health Surveys (DHS) are nationally representative, population-based surveys of women of reproductive age. Information is collected on various population and health characteristics, including fertility, family planning, child mortality, maternal and child health, nutrition, and individual and household background characteristics. A final report based on the PDHS was issued in 2001 (INEI and Macro International, 2001). For the 2000 Peru DHS survey, a total of 27,843 women between the ages of 15 to 49 years were interviewed.

This analysis is restricted to urban women who are currently in a union, formal or otherwise, since two of the primary outcomes of interest indicate use of fertility-related health care (contraceptive use and use of delivery care). Of a total of 16,518 currently married women in the survey, 9,099 (63.0%) lived in urban areas at the time of the survey. Among this sub-group of urban women currently in a union, 46% have lived in urban areas all their life, 43% have moved from another urban area, and 11% have moved from a rural area.

Different samples are used, one for current use of contraceptive methods and the other for use of pregnancy and childhood health care, because information on contraceptive use is asked of all women, while the maternal and child health information is obtained from women who had a birth in the five years preceding the survey. The maternal and child health component of the questionnaire obtained information on the use of health care services by mothers during pregnancy and delivery for recent births. Information was also collected on childhood immunizations, and treatment of diarrhea and acute respiratory infections in children born in the five years preceding the survey.

Three types of health utilization outcomes are selected for the analysis of reproductive health seeking behavior. These are:

1) **Contraceptive use.** Current use of modern contraception is used to measure utilization of birth spacing and limiting mechanisms that can generally be obtained from an institution. The outcome is dichotomous: does the respondent use the specified contraceptive method or not. Women who say that they are currently using a modern method were coded as 1, those who have never used a modern method were coded as 0. The detailed list of modern methods is as follows: pill, IUD, injection, diaphragm, condom, female or male sterilization, Norplant, and foam or jelly. The sample for this part of the analysis includes all urban women currently in a union (9,099).

2) **Maternal health care utilization.** Whether women seek health care from an institution or not is measured with women's visits for antenatal care for their most recent birth. Based on the World Health Organization's recommendation that at least four visits are minimum and necessary for adequate maternal

care (WHO, 1994), women who made at least four or more visits are coded as 1, while those who made no visits or less than three visits are coded as 0. The outcome is also a two category variable: did the respondent go for four or more antenatal care visits for their most recent birth or not. In this case, only women who have had a birth in the past five years are selected, bringing the sample size down to 4,550 women.

3) **Child health care utilization.** The third and fourth dependent variables, also dichotomous ones, reflect whether or not respondents took any of their children under the age of five for treatment when the particular child was ill with diarrhea or exhibited symptoms of acute respiratory infection (ARI), respectively. For this set of dependent variables only women who have had a child under five with the relevant illness are selected, reducing the sample to 765 women for analysis of treatment in the case of diarrhea, and 784 women for treatment in the case of ARI. If mothers took any child under five who suffered from diarrhea or showed signs of having ARI in the two weeks prior to the survey for treatment to a public or private health institution, they were coded as 1, and if not they were coded as 0.

Bivariate (chi square) and multivariate (binomial logistic regression) methods were used to test the relationship between each of the four dependent variables and migrant status. Migrant status is constructed as a three category variable: urban non-migrant, urban to urban migrant, and urban to rural migrant using information in the PDHS on current place of residence, whether urban or rural, and childhood place of residence if different or not, and whether urban or rural. While sample weights were used in the bivariate analysis, they were omitted from the regression analysis.

Besides migrant status, other important explanatory variables included in the analysis are based on Kreger's review of the literature on health care utilization. Kreger proposed three broad types of factors that influence health-seeking behavior in developing countries: (1) predisposing or background characteristics, (2) characteristics of the illness, beliefs about disease, and benefits from treatment, and (3) characteristics of the health care system. According to this framework, knowledge of diseases and ability to seek treatment, as well as availability and access to health care, are important determinants of the utilization of health care services. Thus age, education, employment, media exposure, family structure and composition, empowerment, health insurance status, place of residence, and household wealth are included as explanatory variables.

## RESULTS

### Distributions by Socioeconomic Characteristics

The distributions of women according to their migrant status show substantial variations by socioeconomic characteristics and/or presented in Table 1. In particular, migrants and urban non-migrants differ by their level of education, fertility and fertility desire, death of a child, and level of wealth. These factors might also influence women's use of health services and need to be examined.

On average, migrant women tend to be in the older age groups compared with life-long urban women. About 73% each of urban migrant and rural migrant women are age 30 years and over, while the corresponding figure for urban non-migrant women is 65%. In Peru, the majority of women have at least a primary level of education. Among the three groups, urban natives have the highest proportion of women with a secondary level of education (85%), followed by urban migrants (71%) and rural migrants (41%). Whether women work for cash or not does not vary by their migrant status. In each group, about 58% of women work for cash. However, looking at the distributions by occupation makes it clear that rural migrants are less likely to be in professional jobs than urban non-migrants and more likely to work in the agricultural and domestic sector. These jobs might influence women's use of health services in that professional women might have more control over their conditions of work, and be more able to take time off to visit a health facility. While the majority of women in Peru are exposed to at least one medium (TV, radio, newspaper) on a regular basis[1], rural migrants are the least likely to be exposed at 82% while urban non-migrants are most likely to be exposed at 93%. Access to information from media (TV, radio, newspaper) is likely to influence women's use of health care through the increased exposure to information regarding women's reproductive health.

While there is a long tradition of social security to provide a safety net in Latin America, it is employment based and coverage is poor. Private health insurance does exist for individuals who can afford it. Not unexpectedly, rural migrants are the least likely to have health insurance of the three groups. Only 19% of rural immigrants have health insurance, while 34% of urban migrants and 37% of urban non-migrants have insurance. Further, rural migrants are most likely to have a previous child that died. Twenty-three percent of women who are rural migrants have had a child that has died, compared with 15% or urban migrants and only 11% of urban non-migrants.

[1] Exposure is considered to be regular if women watch TV, listen to the radio, or read the newspaper at least once a week.

Table 1. Characteristics of currently married women by their migration status, Peru DHS 2000

| Characteristics | All Urban | Urban non-migrant | Urban migrant | Rural migrant |
|---|---|---|---|---|
| Age | | | | |
| 15-19 | 2.6 | 3.3 | 2.1 | 2.0 |
| 20-24 | 11.2 | 13.1 | 9.6 | 9.1 |
| 25-29 | 17.5 | 19.1 | 15.9 | 16.1 |
| 30-34 | 20.9 | 22.0 | 19.3 | 23.2 |
| 35-39 | 17.9 | 16.4 | 19.1 | 19.3 |
| 40-49 | 30.0 | 26.1 | 34.0 | 30.3 |
| Education level | | | | |
| No education | 2.4 | 1.0 | 2.4 | 7.3 |
| Primary | 23.9 | 14.4 | 27.0 | 51.5 |
| Secondary or higher | 73.8 | 84.6 | 70.6 | 41.2 |
| Employment | | | | |
| Does not work | 40.0 | 41.1 | 38.4 | 41.6 |
| Works for cash | 60.0 | 58.9 | 61.6 | 58.4 |
| Occupation | | | | |
| Not working | 35.5 | 37.8 | 33.7 | 33.3 |
| Professional, technical, managerial | 12.0 | 14.9 | 11.0 | 2.8 |
| Clerical, sales, services | 35.5 | 32.9 | 37.5 | 38.8 |
| Household domestic | 7.6 | 5.9 | 8.9 | 9.9 |
| Agricultural | 3.6 | 2.7 | 3.0 | 9.2 |
| Manual or other | 5.8 | 5.8 | 5.9 | 5.9 |
| Media exposure | | | | |
| Not or less frequently exposed | 9.3 | 7.2 | 9.1 | 18.3 |
| At least once a week | 90.7 | 92.8 | 90.9 | 81.7 |
| Have health insurance | | | | |
| Yes | 33.6 | 37.0 | 33.8 | 19.2 |
| No | 66.4 | 63.0 | 66.2 | 80.8 |
| Empowerment | | | | |
| Participate in ALL household decisions | 69.9 | 71.1 | 70.9 | 60.6 |
| Do not participate in all household decisions | 30.1 | 28.9 | 29.1 | 39.4 |
| Children still living | | | | |
| None | 6.0 | 7.3 | 5.0 | 3.4 |
| 1 | 21.5 | 26.2 | 19.1 | 12.4 |
| 2 | 29.0 | 30.2 | 28.5 | 26.9 |
| 3 | 19.2 | 17.1 | 20.9 | 22.2 |
| 4+ | 24.2 | 19.2 | 26.6 | 35.1 |
| Want another child | | | | |
| No | 67.4 | 61.9 | 70.1 | 79.9 |
| Yes | 32.6 | 38.1 | 29.9 | 20.1 |
| Death of any child | | | | |
| No or have no previous birth | 86.3 | 89.4 | 85.3 | 77.4 |
| Yes | 13.7 | 10.6 | 14.7 | 22.6 |
| Union status | | | | |
| Married | 57.6 | 59.9 | 56.9 | 50.5 |
| Living together | 42.4 | 40.1 | 43.1 | 49.5 |
| Household structure | | | | |
| Nuclear | 62.4 | 56.4 | 66.7 | 71.2 |
| Extended | 37.6 | 43.6 | 33.3 | 28.8 |
| Reside in Lima | | | | |
| Yes | 45.2 | 49.8 | 45.0 | 28.2 |
| No | 54.8 | 50.2 | 55.0 | 71.8 |
| Wealth | | | | |
| Low | 33.4 | 27.7 | 33.5 | 57.4 |
| Middle | 33.4 | 33.6 | 34.4 | 27.7 |
| High | 33.2 | 38.8 | 32.1 | 15.0 |
| N (Unweighted) | 9099 | 3767 | 4025 | 1162 |
| N (Weighted) | 9992 | 4506 | 4252 | 1095 |

Migrants differ from urban non-migrants in the number of children they have. The majority of urban non-migrants have one or two children. While a significant percentage of women have two children among the migrants, a large proportion of migrants also have four or more children. This category accounts for the majority of the women who are rural migrants. Thirty-five percent of rural migrants have four or more children, followed by women who have two children and then women who have three. Rural migrants are less likely to want another child. Only 20% of rural migrants say that they want another child, while the corresponding figure is 30% for urban migrants and 38% for urban non-migrants.

The distributions of women by the nature of their unions reflect the variations in cultural practices by region in Peru. Urban non-migrants and urban migrants are more likely to be in formal unions compared with rural migrants. Further, they are more likely to participate in household decisionmaking compared with rural migrants. Only 61% of rural migrants say that they participate in decisions (solely or with someone else) on matters relating to 1) their own health care, 2) large household purchases, 3) small day to day purchases, and 4) their visits to relatives and friends. The corresponding figure for urban migrants and non-migrants is about 10% higher. Participation in household decisionmaking is included to analyze the association between women's empowerment and their use of health care.

Women also vary by the characteristics of the household they live in. Both urban and rural migrants are more likely to live in nuclear households[2] compared with urban non-migrants.

Distributions by household's place of residence and wealth category[3] reflect the inequality between urban non-migrants and urban migrants on one hand and rural migrants on the other. Of the three groups, at 28% rural migrants are least likely to reside in Lima, compared with 45% of urban migrants and half of all urban non-migrants. Not surprisingly, rural migrants are least likely to be in the highest category of the variable indicating the relative wealth of the household. Only 15% of rural migrant women are in this group, compared with 39% of women who are urban non-migrants and 32% of women who are urban migrants.

Examining the distributions of women by socioeconomic characteristics and migrant status shows that migrants differ from non-migrants in various ways. Further, rural migrants are the least likely of the three groups to have a secondary level of education; work in the professional, managerial, or technical fields, have health insurance, and live in households that are in the highest wealth category (in asset accumulation), compared with urban non-migrants and urban migrants. Also, rural migrants are the most likely to have a large number of children, have had a child that died, and have married at an early age.

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[2] A nuclear household is one that contains a head of household, spouse, co-spouse, child, grandchild, or adopted/foster child only. Family structure is extended in nature if the usual residents of the household also include the son-in-law, daughter-in-law, parent, parent-in-law, brother, sister, or other relative of the household head.

[3] Relative wealth of the household is measured using a three category variable constructed from the assets owned by the household and weighted by size of the household. Details of the methodology can be found in Rutstein and Johnson (2004).

These are factors that are in their turn likely to influence whether women resort to an institution for reproductive and child health services or not.

**Bivariate Analysis**

The results of the bivariate analysis are presented in Table 2. Chi-square tests were conducted to test the significance of the relationships between migrant status and the four dependent variables.

The distributions of health care use by migrant status indicate that migrants are less likely to utilize health care services compared with urban non-migrants (see Table 2). In each case, rural migrants were least likely, followed by urban migrants, to currently use modern contraceptive methods from government or private sources, make four or more antenatal care visits to a government or private facility, and seek treatment if a child under five years had diarrhea or exhibited symptoms of ARI in the two weeks prior to the survey. The two outcomes in which this variation stands out are the use of antenatal care and treatment for ARI symptoms.

Table 2: Distribution of currently married women by their use of health services, Peru DHS 2000

| | All | N | Urban only | Urban non-migrant | Urban migrant | Rural migrant | N |
|---|---|---|---|---|---|---|---|
| Ever use of contraception | | | | | | | |
| Never used any modern method | 24.6 | | 15.7 | 13.4 | 15.7 | 25.5 | |
| Ever used but currently not using | 25.0 | | 28.2 | 28.4 | 29.0 | 24.0 | |
| Use modern methods currently | 50.4 | 16518 | 56.1 | 58.2 | 55.3 | 50.5 | 9099 |
| Number of ANC visits | | | | | | | |
| None | 15.1 | | 6.8 | 4.2 | 7.7 | 14.9 | |
| Less than three | 15.3 | | 10.5 | 7.9 | 11.0 | 19.3 | |
| Four or more | 69.7 | 8956 | 82.8 | 87.9 | 81.3 | 65.8 | 4550 |
| Sought treatment for child under 5 for diahhrea | | | | | | | |
| No | 61.5 | | 61.0 | 55.4 | 64.3 | 71.4 | |
| Yes | 38.5 | 1771 | 39.0 | 44.6 | 35.7 | 28.6 | 765 |
| Sought treatment for child under 5 for ARI | | | | | | | |
| No | 41.0 | | 36.3 | 28.9 | 40.0 | 49.5 | |
| Yes | 59.0 | 1618 | 63.7 | 71.1 | 60.0 | 50.5 | 784 |

Note: Ns are unweighted

Among the sample of urban women, half of rural migrants were currently using a modern contraceptive method, compared with 55% of urban migrants and 58% of urban non-migrants. While the pattern is similar, the difference between rural migrants on one hand and urban migrants and non-migrants on the other is marked for ANC visits, with only 66% of rural migrants making four or more antenatal care visits, compared with 81% of urban migrants and 89% of non-migrants. At the same time,

29% of rural migrants sought treatment when their young child had diarrhea, compared with 36% of urban migrants and 45% of non-migrants, while only half of all rural migrants sought treatment when their child showed symptoms of ARI, compared with significantly higher proportion of non-migrants (71%) and urban migrants (60%).

## Multivariate Analysis

### Use of modern contraceptive methods

The odds ratios from the logistic regression predicting the use of modern contraceptive methods by currently married women are presented in Table 3. The results show that after controlling for the effects of age, level of education, employment status, exposure to media, formality of union, empowerment, number of living children, desire for another child, health insurance, whether residence is in Lima or not, and level of household wealth, a woman's rural-urban migrant status reduces the likelihood that she will use a modern contraceptive method.

In general, women's age, their level of education, the number of children they have, whether they want to have another child, whether they are rural migrants, and whether their household is in the highest wealth category (of asset ownership), are significantly associated with the use of modern contraceptive methods. The relationship between contraceptive use and age is a linear one. As women age, they are less likely to use contraceptive methods. Compared with women age 25-29, younger women are significantly more likely to use contraceptive methods, while older women are significantly less likely to use them. The association between contraceptive use and the number of children a woman has is, not surprisingly, a negative linear one because the more children a woman has the more likely she is to practice contraception. Further, women who want another child are less likely to use contraception compared with those women who do not want more children. Not unexpectedly, women who have a high school or higher education are more likely to use contraception than women who have only a primary level education. Finally, women who live in households that are in the highest wealth category (of asset ownership) are more likely to use contraceptive methods than women in households that are in the lowest wealth category.

Given the above associations, it is notable that migration influences women's use of contraception. Women who migrate from rural areas are less likely to use contraception compared with women who have lived in urban areas all their lives. At the same time, women who migrate from one urban area to another show no differences in their use of contraception, compared with urban non-migrants. These results suggest that rural migrants are an underserved population when it comes to family planning services, and special efforts are needed to reach them.

Table 3: Odds ratios estimating the likelihood of currently married women's use of modern contraceptive methods, Peru DHS 2000

| | | |
|---|---|---|
| Age group | | |
| 15-19 | 1.32 | + |
| 20-24 | 1.29 | ** |
| *25-29* | *1.00* | |
| 30-34 | 0.73 | *** |
| 35-39 | 0.60 | *** |
| 40-49 | 0.34 | *** |
| Education level | | |
| No education | 0.79 | |
| *Primary* | *1.00* | |
| Secondary or higher | 1.33 | *** |
| Employment | | |
| *Does not work for cash* | *1.00* | |
| Works for cash | 0.99 | |
| Media exposure | | |
| *Not or less frequently exposed* | *1.00* | |
| At least once a week | 1.03 | |
| Union status | | |
| *Living together* | *1.00* | |
| Married | 1.07 | |
| Empowerment | | |
| *Does not participate in all household decisions* | *1.00* | |
| Participates in ALL household decisions | 1.00 | |
| Number of children | | |
| None | 0.20 | *** |
| *1* | *1.00* | |
| 2 | 1.89 | *** |
| 3 | 2.63 | *** |
| 4+ | 2.84 | |
| Want another child | | |
| *No* | *1.00* | |
| Yes | 0.87 | * |
| Have health insurance | | |
| *No* | *1.00* | |
| Yes | 1.04 | |
| Migration status | | |
| *Urban non-migrant* | *1.00* | |
| Urban migrant | 0.97 | |
| Rural migrant | 0.70 | *** |
| Reside in Lima | | |
| *No* | *1.00* | |
| Yes | 1.11 | |
| Wealth | | |
| *Low* | *1.00* | |
| Middle | 1.04 | |
| High | 1.20 | * |
| Percentage of women who watch TV | 1.01 | *** |
| Constant | 0.49 | |

Note: Reference group is in italics.

**Use of antenatal care**

The next table (Table 4) presents the odds ratios from the logistic regression predicting the use of maternal health care by currently married women. The results of the multivariate regression show that after controlling for the effects of age, level of education, employment status, exposure to media, formality of union, empowerment, number of living children, whether a previous child has died or not, having health insurance status, whether residence is in Lima or not, and level of household wealth, a woman's rural-urban migrant status reduces the likelihood that she will use appropriate antenatal care.

In the case of this outcome variable, significant associations between a woman's individual socioeconomic characteristics and her likelihood of making four or more visits for antenatal care are found for education, formality of union, empowerment, number of children, death of a child, having health insurance, rural migrant status, residence in Lima, and wealth category of household. Women who have more than a high school education are more likely to use appropriate maternal health care. Women who participate in all types of household decision-making are more likely to make four or more ANC visits, compared with women who participate in fewer or no decisions. Further, the more children women have, the less likely they are to use sufficient maternal health care. At the same time, women who have lost a child are also less likely than women who have not to make four or more ANC visits. Not surprisingly, women who have health insurance are much more likely to seek appropriate institutional support during pregnancy. Finally, residence in Lima and household wealth have a positive influence on women's use of antenatal care. Women who live in Lima are much more likely than those who do not to visit a health facility four or more times for antenatal care. Women who live in households in the middle or upper wealth categories are also more likely to receive appropriate antenatal care.

Controlling for the effects of other socioeconomic factors, women who have migrated from rural areas are less likely to receive appropriate antenatal care, compared with women who have lived in urban areas all their lives. On the other hand, women who have migrated from other urban areas are no different in their use of antenatal care, compared with urban non-migrants.

Table 4: Odds ratios estimating the likelihood of currently married women making 4 or more visits for antenatal care for their most recent birth, Peru DHS 2000

| | | |
|---|---|---|
| Age group | | |
| 15-19 | 0.89 | |
| 20-24 | 0.75 | * |
| *25-29* | *1.00* | |
| 30-34 | 1.21 | |
| 35-39 | 1.52 | ** |
| 40-49 | 1.28 | |
| Education level | | |
| No education | 0.97 | |
| *Primary* | *1.00* | |
| Secondary or higher | 1.87 | *** |
| Employment | | |
| *Does not work for cash* | *1.00* | |
| Works for cash | 1.09 | |
| Media exposure | | |
| *Not or less frequently exposed* | *1.00* | |
| At least once a week | 1.02 | |
| Union status | | |
| *Living together* | *1.00* | |
| Married | 0.78 | * |
| Empowerment | | |
| *Does not participate in all household decisions* | *1.00* | |
| Participates in ALL household decisions | 1.18 | + |
| Number of children | | |
| None | 0.55 | |
| *1* | *1.00* | |
| 2 | 0.71 | ** |
| 3 | 0.60 | ** |
| 4+ | 0.34 | *** |
| Death of any child | | |
| *No or have no previous birth* | *1.00* | |
| Yes | 0.69 | ** |
| Have health insurance | | |
| *No* | *1.00* | |
| Yes | 2.79 | *** |
| Household structure | | |
| *Nuclear* | *1.00* | |
| Extended | 0.99 | |
| Migration status | | |
| *Urban non-migrant* | *1.00* | |
| Urban migrant | 0.91 | |
| Rural migrant | 0.80 | + |
| Reside in Lima | | |
| *No* | *1.00* | |
| Yes | 2.06 | *** |
| Wealth | | |
| *Low* | *1.00* | |
| Middle | 1.56 | *** |
| High | 2.22 | *** |
| Percentage of women who watch TV | 1.00 | |
| Constant | 4.99 | *** |

Note: Reference group is in italics.

**Use of health care for young children**

The results of the logistic regression predicting the use of health care services for young children are presented in Table 5. The results show that controlling for the effects of age, level of education, employment status, exposure to media, formality of union, empowerment, number of living children, whether a child has died or not, health insurance, whether residence is in Lima or not, and level of household wealth, a woman's migrant status is no longer a significant correlate of whether a mother seeks treatment or not.

In the case of treatment for diarrhea, the most significant associations are between whether a previous child has died or not, whether the mother has health insurance or not, and whether the family resides in Lima. Women who have lost a child are much more likely to seek treatment if their young child is suffering from diarrhea, compared with women who have not lost a child. At the same time, women who have insurance are much more likely to seek treatment compared with women who do not have insurance. Finally, if a woman's residence is in Lima, she is much more likely to seek treatment in the case of her young child having diarrhea. It is notable that women's own demographic and social characteristics are unable to explain the variation in treatment seeking behavior.

Very few variables are significantly associated with the likelihood of a mother seeking treatment when her young child exhibits symptoms of ARI. However, unlike the case with seeking treatment for diarrhea, the two factors that do explain some of the variation are women's own characteristics – that is, their empowerment and the wealth status of their household. Women who participate in all decisionmaking in their households are much more likely than women who do not participate to seek treatment for a young child with ARI symptoms. At the same time, women who live in households that are in the middle and highest wealth categories are more likely to seek treatment, compared with women who are in the lowest category.

However, in both cases, the migrant status of the mother has no bearing on whether a mother seeks the treatment when her young child is ill. The variation is likely to play out in the quality of care that is sought and/or provided.

Table 5: Odds ratios estimating the likelihood of currently married women seeking treatment for children under 5 years of age, Peru DHS 2000

| | for Diarrhea | for ARI |
|---|---|---|
| Age group | | |
| 15-19 | 0.79 | 1.53 |
| 20-24 | 0.69 | 1.00 |
| *25-29* | *1.00* | *1.00* |
| 30-34 | 0.63 + | 1.17 |
| 35-39 | 0.61 + | 0.88 |
| 40-49 | 0.65 | 1.17 |
| Education level | | |
| No education | 1.90 | 1.59 |
| *Primary* | *1.00* | *1.00* |
| Secondary or higher | 1.01 | 1.13 |
| Employment | | |
| *Does not work for cash* | *1.00* | *1.00* |
| Works for cash | 1.08 | 1.05 |
| Media exposure | | |
| *Not or less frequently exposed* | *1.00* | *1.00* |
| At least once a week | 1.11 | 0.68 |
| Union status | | |
| *Living together* | *1.00* | *1.00* |
| Married | 1.12 | 0.85 |
| Empowerment | | |
| *Does not participate in all household decisions* | *1.00* | *1.00* |
| Participates in ALL household decisions | 1.28 | 1.54 * |
| Number of children | | |
| *1* | *1.00* | *1.00* |
| 2 | 0.97 | 0.91 |
| 3 | 0.74 | 0.70 |
| 4+ | 0.75 | 0.47 ** |
| Death of any child | | |
| *No or have no previous birth* | *1.00* | *1.00* |
| Yes | 1.51 + | 0.97 |
| Have health insurance | | |
| *No* | *1.00* | *1.00* |
| Yes | 1.98 ** | 1.33 |
| Household structure | | |
| *Nuclear* | *1.00* | *1.00* |
| Extended | 0.81 | 1.07 |
| Migration status | | |
| *Urban non-migrant* | *1.00* | *1.00* |
| Urban migrant | 0.83 | 0.91 |
| Rural migrant | 0.75 | 0.73 |
| Reside in Lima | | |
| *No* | *1.00* | *1.00* |
| Yes | 1.59 + | 0.83 |
| Wealth | | |
| *Low* | *1.00* | *1.00* |
| Middle | 0.94 | 1.69 * |
| High | 1.48 | 2.90 *** |
| Percentage of women who watch TV | 0.99 * | 1.00 |
| Constant | 2.53 * | 3.46 ** |

Note: The reference group is in italics.

## SUMMARY

Bivariate and multivariate analyses show that currently married women in urban areas of Peru differ in their use of the health care system. More women who have lived in urban areas all their lives seek an institutional source for modern methods of family planning, antenatal care, and help with child diarrhea or ARI symptoms, compared with women who are migrants, both from urban and rural areas. Of the three groups (urban non-migrants, urban-to-urban migrants, and rural-to-urban migrants), women who are rural migrants are least likely to seek support from private or public sources for their reproductive and child health needs. However, the socioeconomic characteristics of the three groups indicate that more rural migrants have no education or only a primary level of education, have no health insurance, or live in households that are in the lowest wealth category (in terms of assets owned) compared with urban non-migrants and urban migrants.

The results of multivariate regressions show that these factors are significantly associated with women's likelihood of using reproductive health care, but not health care for children's illnesses. That is, education, health insurance, household wealth, and rural-to-urban migrant status are significant factors in explaining the variation in women's use of health care sources for family planning and maternal health, but not for child health. These findings have important policy implications for reducing the barriers to health services, particularly women's health services.

## CONCLUSION

Rural migrant women face multiple hurdles in filling their health needs: they have little or no education, live in poor households, and are less likely to seek appropriate care for themselves, compared with other women. The responses of women to the question of the factors that prevent women from getting medical advice or treatment for themselves are illustrative of the problems involved. Of the seven factors mentioned, urban women were most likely to cite getting money for treatment as a problem (61%), followed by concern that a female health provider may not be available (34%), and the distance to the health facility (24%) (data not shown). Among all urban respondents, in each case, rural migrants were most likely to find the factors prohibitive, followed by urban migrants. For governments and policymakers, these results point to two interventions that would most helpful to migrants: improving access of health care, and insurance coverage.

## REFERENCES


Chattopadhyay A., M.J. White, and C. Debpur. 2006. Migrant fertility in Ghana: selection versus adaptation and disruption as causal mechanisms. *Population Studies* 60(2):189-203.

Brockerhoff, M., and X. Yang. 1994. Impact of migration on fertility in sub-Saharan Africa. *Social Biology* 41(1-2):19-43.

Bender, D.E., T. Rivera, and D. Madonna. 1993. Rural origin as a risk factor for maternal and child health in peri-urban Bolivia *Social Science and Medicine* 37(11):1345-1349.

Instituto Nacional de Estadística e Informática (INEI) [Peru] and Macro International Inc. 2001. *Encuesta demográfica y de salud familiar 2000*. Lima. Peru: Instituto Nacional de Estadística e Informática.

Islam, M.M., and K.M. Azad. 2007. Rural-urban migration and child survival in urban Bangladesh: are the urban migrants and poor disadvantaged? *Journal of Biosocial Science* July, 19:1-14.

Kroeger, A. 1983. Anthropological and socio-medical health care research in developing countries. *Social Science and Medicine* 17:147-161.

Lindstrom, D.P., and C.H. Hernández. 2006. Internal migration and contraceptive knowledge and use in Guatemala. *International Family Planning Perspectives* 32(3):146-153.

Rutstein S.O., and K. Johnson. 2004. *The DHS wealth index*. DHS Comparative Reports No. 6. ORC Macro: Calverton, Maryland.

Stephenson, R., Z. Matthews, and J.W. McDonald. 2003. The impact of rural-urban migration on under-two mortality in India. *Journal of Biosocial Science* 35(1):15-31.

United Nations. 2006. *World urbanization prospects: the 2005 revision population database*. Available at http://esa.un.org/unup/index.asp?panel=3.

White, M.J., E. Tagoe, C. Stiff, K. Adazu, and D.J. Smith. 2005. Urbanization and the fertility transition in Ghana. *Population Research and Policy Review* 24(1):59-83.

World Health Organization (WHO). 1994. *Antenatal care, report of a technical working group*. WHO/FRH/MSM/ 96.8. Geneva: World Health Organization.