

Economic transition and maternal health care for internal migrants in Shanghai, China

ZHAN SHAOKANG,¹ SUN ZHENWEI² AND ERIK BLAS³

¹*School of Public Health, Fudan University, Shanghai, China*, ²*Health Bureau of Minhang District, Shanghai, China* and ³*Special Programme for Research and Training in Tropical Diseases (TDR), World Health Organization, Geneva, Switzerland*

Economic migration and growth in informal employment in many of the major cities of developing countries, combined with health sector reforms that are increasingly relying on insurance and out-of-pocket payment, are raising concerns about equity and sustainability of economic and social development.

In China, the number of internal migrants has dramatically grown since economic transition started in 1980, and maternal health care for these is a pressing issue to be addressed. To provide information for policy-makers and health administrators, a medical records review, a questionnaire survey and qualitative interviews were carried out in Minhang District, Shanghai. This paper describes important inequities in main maternal health outcomes and utilization indicators relating to economic and social transformation of the Chinese society. Analysis of the data collected clarifies that insufficient antenatal care is one of the main determinants for poor maternal health outcomes and that migrants are using antenatal care services significantly less than permanent residents. The data suggest that there is no single explanatory factor, but that migrants are faced with a package of obstacles to accessing health care services, and that health systems may need to rethink and redesign their delivery approaches to specifically target those groups that are faced with such multi-faceted packages of obstacles to service-access. Although the study addresses a specific Chinese phenomenon related to internal migration and registration of residency, parallels can be drawn to other settings where a combination of economic and social transitions of the society and a reform of health care financing are potentially creating the same conditions of significant inequalities.

Key words: health reform, equity, maternal health, child health, antenatal care, migration, economic transition, China

Introduction

Internal and cross-border migration is closely associated with globalization, economic development and social and economic disparities. Since World War II, the world has experienced a rapid increase in migration. The 1994 International Conference on Population in Cairo estimated a total of 125 million migrants worldwide – however, depending on the definition used, the real figure may be more than twice that amount (Siem 1997). Common to all migrants, regardless of the definition, is that they have been through a process of uprooting from one environment or culture to more or less successful insertion into a new one. The process of migration is never easy and may be particularly difficult for the most vulnerable, e.g. the less educated, women and children.

China embarked on two policy reforms in 1980, one designed to restructure the economy and the other designed to curtail the population growth. As part of the economic reform, rural households were given individual responsibility for agricultural production. This shift from a communal production system created a vast surplus of rural labour, estimated by some to amount to 40% of the total rural labour force (Woon 1993). As a result, the pressure on the urban areas increased and the number of internal migrants has grown rapidly (Li 1993; Wang 1995). In the official statistics, it is estimated that

in China as a whole, the migrant or ‘floating’ population, as it is sometimes referred to, now constitutes more than 100 million. The government expects that this number will grow by a further 46 million over the next 5 years, as the number of surplus rural workers continues to increase.

There are always considerable social and economic issues related to such massive movements of populations. In China, it is further complicated by the existence of the *hukou* or household registration system, which was introduced during the ‘great leap forward’ in the 1950s. According to the *hukou*, people are required to live and work only where they are officially permitted to; this was the main policy instrument during the period of strict central planning to make sure people stayed where they were. During the economic reform process of the past 20 years, the number of surplus workers in rural areas has increased, as has the demand for workers for the industries and construction sites in the cities. Together with a relaxation of the strict central control, this has offered an incentive for the surplus rural population to migrate to cities in search of a better livelihood. However, since the *hukou* system is still in place, they face significant challenges here. More than a dozen certificates and approvals are required to get permission to live and work in the cities, a process that can take several months and involve considerable costs – and before they have completed the process, they

may find that some of the first certificates they obtained have already expired.

It is, therefore, not unsurprising that many migrants chose to live and work without the legal documentation. They find work at construction sites, small factories and with rubbish collection – work that is not only low status and low paid but also excludes them from benefits such as health insurance of the legal workforce. The lack of official permission, further, makes them vulnerable to mistreatment when, for example, caught by the police.

Such a rigid labour market system is not, in the long run, conducive to further economic development, and in August 2001, the government announced plans to do away with the migration restrictions over the next 5 years in order to create a unified national labour market. While some municipal government departments have already relaxed their systems by easing the registration for certain ‘desired’ skilled workers or affluent migrants, completely ending the migration restriction is likely to be met with resistance, in particular in the big cities. Here, allowing unrestricted access by rural dwellers is expected by some to create utter chaos and to put strains on housing, communication and other resources, as well as to increase competition for jobs and add to the already increasing unemployment (*The Economist* 2001).

In Shanghai alone, the migrant or floating population numbers between 3.0 and 3.4 million, i.e. about one-quarter of the total population in the city. The proportion of women was around 40% in the early 1990s, mostly of childbearing age (*Demographic Year Book* 1994), and has since been increasing (Wang 2000). Obviously, maternal and child health (MCH) will be one of the most critical components of the overall health care for this population, in particular because of the poor living conditions and marginalization of many migrants. Concerns about inequities in access to public services, including health, between migrants and permanent residents are increasing. Already in 1995, the Deputy Secretary of the Communist Party in Shanghai, Wang Liping, stated in a conference on migration that Shanghai could not succeed without the migrants and called for managers and staff of public service organizations to take migrants as brothers and sisters and to give a hand to help solve their problems and to provide good services (Wang et al. 1995).

As part of the economic reform, health care financing was revised. Between 1950 and 1980 China established a health care system with almost universal access to basic health services at an affordable price, which in the urban areas was publicly funded and centrally managed through two major schemes, the government insurance scheme (GIS) and the labour insurance scheme (LIS). Since the start of the economic reforms there have been significant changes to these schemes in terms of payment as well as population coverage. Requirements for co-payment are increasing, and while there was almost full coverage around 1980, the coverage of the two schemes had fallen to 52% in 1993 and 39% in 1998. The urban population not covered by any insurance schemes was 44% in 1998, up from 28% in 1993. Together with increasing unemployment and rapidly

increasing prices of health services, this has had a profound impact on service utilization by all population groups, but in particular the poor. It is only in the richest regions of the country, such as Shanghai and Guangdong, that medical financial assistance schemes have been established to support the urban poor (Gao et al. 2001).

The other policy reform that took place in 1980 was the introduction of the so-called *One-child Policy*. Through a wide range of measures, including incentives, fines, close monitoring and a bureaucratic system of approval of pregnancies, fertility was to be closely controlled. Involuntary abortions and sterilization were widely used, and according to the State Family Planning Commission (SFPC) more than half of the women of child bearing age are now sterilized (Bernman 1999). These drastic measures combined with close linkages between the enforcement of the policy and the providers of obstetric care naturally had an impact on the utilization of these services. A study by Doherty et al. (2001) analyzing data from the China Health and Nutrition Survey collected in 1991 and 1993 concluded, ‘The statistical results of this study partially confirms the hypothesis that the one-child policy contains economic and social costs that cause women to forego seeking modern obstetric care services’. Specifically, they found that the fines and the unapproved status of a pregnancy were strongly negatively associated with the use of obstetric care. However, Doherty et al. also recognized that the policy was not uniformly implemented across the country, which could add to the uncertainty of their findings.

In some of the larger and more advanced cities such as Shanghai, implementation of the policy was smoother as sizeable proportions of couples had already chosen to have only one child for economic and work related reasons; and not long after the policy was enacted about 90% of couples in these areas were persuaded to have only one child. Further, as a result of concerns about reported abuses in connection with implementation of the policy, in 1993 the family planning associations were officially given a supervisory role in monitoring coercion and other abuses in implementing the policy (Kane and Choi 1999). In 1995, the Law on Infant and Maternal Health was enacted, and although some of the articles of the law raised concerns in the Western press, it was, in the Chinese maternal and child health circles, seen as a major step forward in attempts to improve health care for women and children (Hesketh and Wei 1997). More recent accounts, in *The Lancet* for example, indicate that such improvements in services have indeed taken place, such as in Shanghai and Hangzhou where family planning and a much wider range of services have been integrated in a more respectful and user-friendly fashion (Bernman 1999).

Several articles have been published from studies on international migrants, mostly labour and refugee migration from poorer to richer nations. Findings from the studies on maternal care are: migrants have less access to medical care, insurance status and not ethnicity was the most important predictor of access, higher rates of perinatal mortality and accidents/disability are linked to lower entitlements in the receiving societies (Zulkifli et al. 1994; Bollini and Siem 1995), duration of residence has a strong effect on both the

probability and number of health care contacts (Leclerc et al. 1994), and pregnancy outcome and perinatal health indicators tend to be worse among migrants and refugees (Carballo et al. 1996). The results suggest that, after taking into consideration socioeconomic characteristics, access to health insurance and differences in morbidity, recent migrants are much less likely than both the native-born and those migrants of longer duration to receive timely health care.

Much less has been published on internal migrants or internally displaced populations. However, the published literature suggests that the issues for internal migrants may not be very different from those of international migrants (Bulut et al. 1991; Gao 1994).

This paper reports on a study to explore the possible differences in pregnancy outcomes and obstetric service utilization between internal migrants and permanent residents in Shanghai, with the aim of informing the wider health reform policy agenda.

Methodology

The study consists of three parts: analysis of medical records, structured interviews and in-depth individual and group interviews. The target populations are mothers who are internal migrants, i.e. having no permanent residential registration in Shanghai, but who are registered as permanent residents in their hometown; and permanent residents, i.e. having permanent residential registration in Shanghai.

Three hospitals, located in the Minhang District of Shanghai, were selected for collecting data on health outcomes and service utilization. Medical records of all the 2381 migrant women delivering in the hospitals from January 1993 to June 1996 were reviewed. Each record was paired with one resident woman who delivered her child closest to the same time as a control. Thus the total number of records reviewed is 4762.

Structured interviews were conducted using a questionnaire to explore the relationship between utilization of antenatal care (ANC) services and socioeconomic factors. Interviews were undertaken with all 260 women from Meilong Township who brought a child for immunization in the Township Health Centre from 1 April to 5 May 2000 and fulfilled the following criteria:

- The woman carrying the child when presenting for immunization was the child's mother.
- The child being carried was born during the period 1 January 1999 to 5 May 2000.
- The woman lived in Shanghai during the period of the pregnancy.

The interviews were conducted at the time that the eligible subjects presented themselves.

One hundred and eighty women were classified as internal migrants and 80 as permanent residents. Twenty-four out of

the 180 women in the migrant group were married to permanent residents and subsequently excluded from the analysis. The study questionnaire was developed and tested by the study team and included such items as general information, socioeconomic background, level of education, mode of payment and utilization of maternal care. Furthermore, a 23-question test was used with each interviewee to determine their general MCH-knowledge. Senior students from the School of Public Health conducted the interviews after training on field survey and interview techniques. The Township Health Centre in Meilong was purposively selected as one frequented by both migrant and permanent resident mothers.

Data were entered twice and mistakes were corrected after the two sets of data were checked using EpiInfo 5.1. The statistical analysis was carried out using SAS 6.12. Group interviews were organized to provide more understanding on the migrants' health-seeking pattern. Outlines for the interviews were developed in advance with advice from local MCH staff. The interviews were conducted outside the health unit in a place free from disturbances and interference from other staff, patients, etc. Seventeen female migrants and four migrant husbands were included in six small group interviews, all had delivery history in the past 2 years. Some of them had short stays in other provinces in the beginning of the pregnancy before moving to Shanghai. Others had stayed in Shanghai for most of the pregnancy and then returned to their hometown a few weeks before delivery. Women who had stayed in other provinces for the whole period of their pregnancy and delivery were not included.

Three individual interviews were carried out with one village doctor and two physicians from the Township Health Centre.

Consent to tape-recording the interviews was obtained and all information (transcripts and tapes) was coded, content-analyzed and remained with the research team. After the final analysis was completed, all tapes were erased and coded written documents archived.

Results

The review of the hospital medical records from Minhang District shows substantial differences in the pregnancy outcomes for the internal migrants and the permanent residents. The number of still-births among the migrants is twice that of the control group, i.e. 36 (1.5%) against 18 (0.8%). Overall, for all indicators, the outcome is less favourable for the migrants. The direction of the difference is the same for all indicators both totally and splitting into subgroups with and without ANC. The only exception is for Eclampsia and Eclampsia (EM and EA) for the two sub-groups without prior ANC visits. However, both the absolute numbers and the difference are small and could be explained by random variation. The review further showed considerable difference with respect to frequency of ANC visits. Of the 2381 migrant mothers who gave birth at the hospitals, 1047 (44%) had had no prior ANC visits, while this was the case for only 112 (5%) of the permanent residents. The data show that without exception the outcome is less favourable for those who did

Table 1. Delivery outcomes – percentages by residence and antenatal care status of the mother (Minhang District of Shanghai, 1993–96)

Indicators	Migrants			Residents		
	Overall n (%)	With ANC n (%)	Without ANC n (%)	Overall n (%)	With ANC n (%)	Without ANC n (%)
Premature birth ^a	2345 (11.2)	1324 (8.5)	1021 (14.7)	2363 (8.5)	2252 (8.3)	111 (12.6)
Low birth weight ^a	2345 (6.4)	1324 (3.6)	1021 (10.1)	2363 (2.4)	2252 (2.3)	111 (4.5)
Apgar score ≤7 ^a	2345 (7.6)	1324 (5.7)	1021 (10.0)	2363 (4.2)	2252 (4.2)	111 (4.5)
PL and BBA	2381 (2.8)	1334 (1.4)	1047 (4.5)	2381 (1.0)	2269 (0.9)	112 (2.7)
Perinatal death	2381 (2.1)	1334 (1.0)	1047 (3.5)	2381 (0.8)	2269 (0.8)	112 (0.9)
EM and EA	2381 (1.0)	1334 (0.4)	1047 (1.7)	2381 (0.2)	2269 (0.1)	112 (1.8)
Emergency treatment	2381 (1.7)	1334 (1.0)	1047 (2.5)	2381 (0.5)	2269 (0.4)	112 (1.8)

^a Live-birth only.

ANC = antenatal care; PL = precipitate labour; BBA = born before arrival; EM = Eclampsism; EA = Eclampsia.

not attend prior ANC services, regardless of whether the mother is migrant or resident (Table 1).

Table 2 translates the data into relative risks, i.e. the risk among migrants divided by the risk among residents, and shows that overall relative risks for the migrants for the outcome indicators range from 1.3 to 6.0. Furthermore, the relative risks for all indicators are greater than or equal to 1, regardless of whether the migrant mother attended ANC prior to the delivery or not. However, the relative risk is consistently lower, with exception of the last two indicators, when the mother has attended ANC. The overall relative risks for five of the seven indicators are higher than the relative risks for both with and without ANC, indicating that use of ANC services is a confounder related to both migrantship and outcome. The confidence intervals for the last three indicators in this table for all relative risks become rather long because of the low number of cases, while the length of the intervals for ‘relative risk without ANC’ is

extended by the low number of resident mothers who did not attend ANC services during the pregnancy.

In order to get a better understanding of the social and economic factors behind these findings, interviews were conducted with migrant and resident mothers who had recently given birth and were attending the same immunization clinic. The results of the interviews with these mothers are presented in Tables 3 to 6; the comparisons between the distributions in subgroups in these tables were done using ordinary χ^2 tests. All differences reported are associated with p-values less than 0.001.

Almost one-fifth of the migrants interviewed indicated a family income of less than Yuan 1000, while this was the case for only 2.5% of the permanent residents. Close to half of the permanent residents had an income of more than Yuan 3000 against one-quarter for the migrant families. However, for both migrants and residents there was a large middle group

Table 2. Delivery outcomes – relative risk for migrant mothers by antenatal care status of the mother (Minhang District of Shanghai, 1993–96)

Indicators	Overall		With ANC		Without ANC	
	RR	95% CI	RR	95% CI	RR	95% CI
Premature birth ^a	1.3	[1.10; 1.56]	1.0	[0.81; 1.27]	1.2	[0.70; 1.94]
Low birth weight ^a	2.7	[2.04; 3.72]	1.6	[1.09; 2.36]	2.2	[0.93; 5.38]
Apgar score ≤7 ^a	1.8	[1.14; 2.38]	1.4	[1.01; 1.89]	2.2	[0.92; 5.33]
PL and BBA	2.9	[1.79; 4.60]	1.6	[0.87; 3.02]	1.7	[0.53; 5.30]
Perinatal death	2.5	[1.49; 4.19]	1.2	[0.58; 2.35]	4.0	[0.55; 28.57]
EM and EA	6.0	[2.08; 17.27]	5.1	[1.03; 25.25]	1.0	[0.23; 4.10]
Emergency treatment	3.6	[1.87; 7.07]	2.6	[1.15; 6.10]	1.4	[0.33; 5.78]

^a Live-birth only.

ANC = antenatal care; RR = relative risk; CI = confidence interval; PL = precipitate labour; BBA = born before arrival; EM = Eclampsism; EA = Eclampsia.

of, respectively, 56.6 and 50% with incomes between Yuan 1000 and 2999. With regard to out-of-pocket payments for health services, nearly all the migrants (93.3%) had to pay these, while this was the case for only about one-quarter of the permanent residents, and only 6.7% of the migrants, compared with 73.7% of the residents, were covered by an insurance scheme (Table 3).

The group and in-depth interviews showed that the cost of ANC and hospital delivery services was indeed an issue of concern to the migrants. A woman working in a women's society said: "It is more expensive to deliver in a hospital – it costs 2000 Yuan, while delivery at home with a birth attendant only costs 400". A senior doctor in the Meilong Township Health Centre said: "Internal migrants' first reaction to the topic of antenatal care is to ask how much money is needed. They would like to have hospital delivery if they had money. Many women do not deliver their children in hospital in order to save money. My estimation is that about one-third of pregnant women go to their home village for delivery, and one-third seek delivery in private sectors using illegal birth attendants." When the issue of post-natal care was brought up in one of the group interviews, one migrant mother said: "I am very healthy; they probably just want to collect money again."

The education level of the migrants is generally lower than that of the permanent residents. Of the migrants, 8.3% have no schooling, while this is the case for none of the residents; 26.9% of the migrants have only primary schooling compared with only 2.5% of the residents. In higher education, 67.5% of the residents have high or college education compared with only 12.2% of the migrants. However, in both groups there is a large subgroup with middle schooling, at 52.6 and 30.0% for migrants and residents, respectively (Table 4). Although there is a difference in educational level between the two groups, the migrants cannot, as a group, be characterized as poorly educated and it is likely that they have an education level which is superior to that of their rural place of origin. The interviews revealed a very marked difference in knowledge on MCH between the two population groups. Of the migrants, 62.2% scored in the two lowest categories, while 83.8% of the permanent residents scored in the upper two categories. The difference in MCH knowledge score is much more marked than the difference in education level.

Several of the women in the group interviews did not believe that there was any need for ANC unless there were problems in their pregnancy. A 23-year-old woman from Jiangsu Province, who had no job and had delivered her child in her home village, said: "Pregnancy is as simple as normal daily life, many of us have never been for an antenatal check-up for the whole time until delivery." A 28-year-old female migrant with two children said: "My previous delivery and delivery history told to me by others is that there is no problem in delivery – it's not necessary to have antenatal care. It's just a waste of time and money."

Possibly related to the MCH knowledge score is the number of times that the mother attended an ANC clinic prior to giving birth. Again the profile of the two groups is markedly

Table 3. Family income and health care payment^a

Indicator	Internal migrants % (n = 156)	Permanent residents % (n = 80)
Family income (Yuan)		
0–999	18.4	2.5
1000–1999	38.3	25.0
2000–2999	18.3	25.0
3000+	25.0	47.5
Total	100.0	100.0
Payment for health services		
Out of pocket	93.3	26.3
Partially covered	6.7	73.7
Total	100.0	100.0

^a US \$100 = 827 Yuan.

Table 4. Formal education and knowledge score for the two population groups

Indicator	Internal migrants % (n = 156)	Permanent residents % (n = 80)
Education (highest level attained)		
No schooling	8.3	0.0
Primary	26.9	2.5
Middle	52.6	30.0
High	6.4	37.5
College	5.8	30.0
Total	100.0	100.0
MCH knowledge score		
0–9	32.2	5.0
10–14	30.0	11.2
15–19	33.3	51.3
20–23	4.5	32.5
Total	100.0	100.0

MCH = maternal and child health.

Table 5. Antenatal care service utilization and place of birth

Indicator	Internal migrants % (n = 156)	Permanent residents % (n = 80)
Number of times attended ANC		
0	4.5	0.0
1–3	25.6	1.3
4–8	39.1	11.3
9+	30.8	87.4
Total	100.0	100.0
Place of delivery		
Hospital	84.0	100.0
Elsewhere	16.0	0.0
Total	100.0	100.0

ANC = antenatal care.

Table 6. Use of antenatal care versus socioeconomic indicators (n = 236)

Indicator	Number of times attended ANC				
	0 %	1–3 %	4–8 %	9+ %	Total %
Family income (Yuan)					
0–999	17.1	37.1	28.7	17.1	100.0
1000–1999	1.1	23.6	41.6	33.7	100.0
2000–2999	1.9	13.2	22.6	62.3	100.0
3000+	0.0	3.6	24.1	72.3	100.0
Payment for health services					
Out of pocket	4.2	23.3	38.1	34.4	100.0
Partially covered	0.0	0.0	9.9	90.1	100.0
Education (highest level attained)					
No schooling	18.7	43.8	18.8	18.7	100.0
Primary	6.3	33.3	45.8	14.6	100.0
Middle	1.7	17.0	38.1	43.2	100.0
High	0.0	2.3	18.6	79.1	100.0
College	0.0	0.0	2.9	97.1	100.0
MCH knowledge score					
0–9	12.8	32.3	32.3	22.6	100.0
10–14	0.0	25.4	46.0	28.6	100.0
15–19	0.0	7.9	27.7	64.4	100.0
20–23	0.0	0.0	5.9	94.1	100.0

ANC = antenatal care; MCH = maternal and child health.

different. A small proportion (4.5%) of the migrants interviewed did not attend any ANC services during their recent pregnancy. This was the case for none of the permanent residents. Almost 90% of the permanent residents had attended nine or more ANC clinics, compared with less than one-third of the migrants. About 30% of the migrants only attended three or fewer times, compared with 1.3% for the residents. All of the permanent residents gave birth at a hospital, while this was the case for only 84% of the internal migrants (Table 5).

During the interviews, the mothers were requested to give information on the total number of migrant women whom they knew had delivered in the past 2 years in Shanghai (including friends, relatives and neighbours) and whether they had delivered at a hospital. From a total of 170 deliveries, they reported 42 (24.7%) outside of hospitals. The 16% reported in Table 5 could, therefore, be an under-estimation of the true proportion.

In the group interviews, one migrant woman said, “I am now working in a dress-making factory and am 6 months pregnant. The main explanation for the many antenatal check-ups for permanent residents in Shanghai is that they are sissy. Migrants have less money so in normal situations it is not necessary to go for antenatal check-ups. We will go to a clinic for care if we are in difficult labour.”

The women and men in the group interviews were generally supportive of the one-child policy and saw a small family size as facilitating the economic advancement for which they had

come to the city. However, they could also report that women who already had a child were charged a higher fee for ANC and delivery at the hospital, and they all knew women who for that reason sought ANC and delivery services from illegal birth attendants rather than from the hospital.

Table 6 cross-tabulates the number of times the mother attended antenatal care services against the four social indicators. For all four a positive association can be seen. The higher the family income, the more likely it is that the mother will attend antenatal clinics. A mother covered by insurance is much more likely to attend a larger number of clinics than a mother who has to pay out-of-pocket. However, it is not only the level of income or whether the pregnant woman has to pay that determines the number of times she attended. The higher the level of education, the higher is the attendance. For the last indicator, the MCH test-score, there is a similar positive correlation between the level of score and the number of times of attendance. However, the knowledge also could have come from attendance.

A number of multiple regression analyses were undertaken with ‘place of delivery’ and ‘number of antenatal visits’ as dependent outcome variables and ‘income’, ‘education’, ‘MCH knowledge’, ‘out-of-pocket payment’ and ‘migrant/resident status’ as independent, explanatory variables. These approaches did not add much to the understanding. The variables that best explain the variations in the dependent variables are the MCH-knowledge and education. Income does not have a statistically significant regression coefficient. Also, out-of-pocket payment is not visible in the multiple

models; it is strongly correlated to other variables. Migrant/resident status is strongly correlated to both outcome variables, as already demonstrated in the previous tables.

There was a strong sentiment among the participants in the group interviews of 'them and us', of not being full members of the Shanghai society, being looked down upon, and being harassed by the officials that they come into contact with. The migrant women did not feel comfortable when seeking care or advice at the hospitals. Two women from Zhejiang Province, who owned a laundry in Shanghai and were both relatively well off and self-confident, said: "Staff in the hospital have bad attitudes towards us – they are unfriendly and keep silent when we ask questions. They look down upon us and we are afraid to be at the hospital." Such attitudes and feelings, of course, are not conducive to creating an environment where a pregnant migrant woman can benefit from attending ANC.

Discussion

This study provides clear indications that there are increased risks of unfavourable pregnancy outcomes associated with being an internal migrant in Shanghai compared with being a permanent resident of the same city. Regardless of whether a woman attends ANC or not, the relative risk for practically all the outcome indicators is significantly higher for the migrants. However, the use of ANC services is related to both the health outcome and the residence status of the mother. Almost half of the migrant women giving birth at the three hospitals in Minhang district, during the period under review, did not attend any ANC services during the pregnancy, contributing to the overall poor outcome for the migrant group. For the permanent residents, less than 5% did not attend any ANC services. For both population groups, not having attended ANC during the pregnancy increases the risk of poor outcome. The low attendance among the migrants could be explained by a number of inter-related factors, which may be divided into three main groups: structural, individual and social factors.

Structural factors

The health care financing in China assumes that most people are members of an insurance scheme. To be a member will, currently, for all practical purposes, require that one has fixed-term employment. The migrant workers have not, and more than 90% of the migrants interviewed in this study indicated that they had to pay for health care services out-of-pocket (Table 3). The analysis of the interview data showed a strong association between mode of payment and the number of times attending ANC services (Table 6). This is in line with findings from other studies, which show that the introduction of direct user-payment can have detrimental impact on general service utilization; for example, Blas and Limbambala (2001) found a lasting 35% decline in utilization when user-fees were introduced in Zambia. It is also in line with the findings of Gao et al. (2001), stipulating decrease in general service utilization and increase in 'non-use' of in-patient services to which a patient had been referred as a

function of decreasing insurance coverage and increasing prices of services. Furthermore, the specific conclusion by Zweifel and Manning (2000) suggests that the demand for preventive care services is a declining function of out-of-pocket payment price and that preventive care is possibly more responsive to price than demand for other health care services.

About 30% of the women bringing their children for immunization to the Township Health Centre had attended ANC services three times or less during their pregnancy. This is less than the five times recommended by the government (Doherty et al. 2001). While there could obviously be several reasons for this, one reason could be that ANC services are provided from MCH centres at the county hospitals only, which runs the risk of amplifying the alienation that the migrants already feel towards the city, its people and institutions. Had the services been offered at the Township Health Centre, where the women appear to be more comfortable going, it is possible that utilization would have been greater.

Individual factors

The analyses of the interview data further show an increase in the use of ANC and hospital delivery services as family income and, in particular, education levels increase (Table 6). These results are consistent with the findings of a study by Doherty et al. (2001). From a general population survey database, this study found use of prenatal care increasing from 61 to 91%, and delivery at hospital or clinic increasing from 39 to 89%, as the mother's education rose from 'none' to 'finished high school'. For household incomes less than Yuan 4600 use of these services were 73 and 51%, respectively, compared with 85 and 75%, respectively, for household incomes above Yuan 4600. In our study, both income and education levels among the migrants are markedly lower than for the permanent residents (Tables 3 and 4). The income and education factors could, in addition to lowering the use of ANC services, also contribute to a generally lower health status among the migrant population, thus likely to further worsen the pregnancy outcomes. These individual factors are not unique to the migrants, but become apparent because migrants, as a group, have lower incomes and less education than the permanent residents.

Social factors

The temporary conditions of employment, lack of access to health insurance and registration situation, combined with a general lower level of income and education, may contribute to creating a permanent state of marginalization despite the migrant group constituting around one-quarter of the population in Shanghai. The women of the group interviews clearly had a perception of not being integrated and having lower social status than residents. They saw themselves as different from the residents and the health system as extracting their money. Even the two successful laundry-owners, participating in the group interview, did not feel comfortable addressing the hospital staff, whom they felt had discriminatory attitudes towards migrants.

Looking at the income and education indicators (Tables 3 and 4) it is clear that the migrants constitute a less homogeneous group than the permanent residents. While the residents are primarily found in the three highest income groups, the migrants are distributed across all four income groups. Also with respect to education, migrants are distributed across all five levels, while the residents are virtually only found in the three upper levels. Nevertheless, there is a not insignificant number of migrants who in terms of income and education level are no different from the residents.

Our study concentrated on exploring the differences between migrants and residents in social and economic terms and did not include specific questions on family planning, including a possible impact of the one-child policy on differential use of maternal health services. It is known from other studies that the one-child policy had an adverse effect on mothers seeking obstetric care during pregnancy (Doherty et al. 2001). In the group interviews it was indicated that the one-child policy possibly stopped some mothers from seeking services at hospitals because of higher charges with higher order pregnancies. However, we do not have data to support the view that the policy should have a disproportional effect on migrants as a group, lowering their use of services in particular. It could be quite the contrary, as not being registered as legal residents in the city, they do not fall under the control of any family planning agency, neither at place of residency nor at work place. Further, studies on migrant fertility in Anhui and Hubei have shown that fertility among migrants is not significantly different from non-migrants (Liu and Goldstein 1996; Goldstein et al. 1997). Therefore, the main deterrent as found by Doherty et al. (2001), namely the consequences of unapproved pregnancies, is unlikely to contribute to the lower use of ANC and hospital delivery services among migrants.

Limitations and generalizations

The most significant limitation of the study is that it is facility-based, i.e. it does not capture the health outcomes, views and behaviour of those who are not using the official urban health services. Both the group interviews and the in-depth interviews with health staff indicated that there could be a sizeable number of women in the migrant community who are not using immunization, ANC or delivery services. These would be likely to have worse outcomes compared with those using the services. On the other hand, the migrant mothers interviewed also indicated that they use services only in case something goes wrong. If this is the case, the figures shown in Tables 1 and 2 would depict a pregnancy outcome situation slightly worse than the reality. With these caveats in mind, the authors believe that the data presented provide a cohesive and logical picture of a less than desirable situation in respect to inequity of both access and outcome, and further point to some possible policy action to ameliorate the current inequitable situation.

Spurious results from multivariate analysis on the interview material from the facility survey can easily occur when the independent variables are correlated and the material is small, as is the case for the facility part of this study. To

quantify the importance of each variable separately new studies with much more material need to be carried out. However, it is questionable how much such larger studies would add to the understanding of a problem, which appears to be that the migrants are facing not a single but a 'package' of disadvantages.

Conclusion

There are clear inequities with respect to both service access and pregnancy outcomes between permanent residents and migrants in Shanghai. There are several barriers for migrants preventing them from using the services. The low use of ANC services by the migrants is likely to contribute to the higher relative risks for this population group. There is no single variable that fully explains the lower use of services by migrants. It is rather the situation that migrants as a population group are facing a 'package' of obstacles, ranging from lack of legal status, low social status, lower income and education, and lack of insurance when health care financing is based on insurance. All of which leads to marginalization.

Currently the health care financing system is not geared to the fact that possibly one-quarter of the population in Shanghai is excluded from the insurance system, and that they, in addition to this exclusion, face other economic and social challenges which prevent them from accessing health care services, or make access difficult. Overcoming these barriers will be a major political undertaking going beyond the health sector. The labour laws give employers a loophole for keeping the labour costs down by not providing health insurance coverage when employing staff 'temporarily'. The *hukou* policy on registration of residency possibly both supports and reinforces this state of 'temporariness', which keeps a very large proportion of the citizens marginalized and is non-optimal for continued economic development. This is recognized by policy-makers, who are scheduling the system for possible abolition or softening over the next 5 years. What the health system could do in the meantime would be to provide dedicated services in parts of the city with high concentrations of migrants, services that would take into account that migrants are unlikely to have health insurance and in addition have to struggle with a host of other social barriers when approaching the city's health services. This would mean taking routine ANC and delivery services out of the hospitals to provide them (e.g. from township health centres) where immunization services already appear to be doing a better job in reaching these population groups.

The authors believe that although the situation in Shanghai may be specific and more visible because of the size of the migrant population and the registration and employment policies, the findings will apply to many other developing country settings with a combination of rapid urbanization, economic transition with increased use of insurance and direct user-payments to finance health services, widening income gaps, and decreasing school attendance. This contributes to the creation of substantial population segments that are faced, not with a single obstacle, but a package of obstacles in accessing public services. Our study findings call for reform – or adjustment of the reforms that started in

China about 20 years ago. They also call for serious considerations in all other countries, which are travelling the road of rapid economic and social transformations. Health sector reform is not a discrete event but a continuing process that needs to take into account and interact with other social and economic processes that take place in the society, and constantly adapt and adjust approaches and means in response to the contextual changes.

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Biographies

Shaokang Zhan is a professor in health statistics in the School of Public Health, Fudan University, Shanghai. He has been teaching in health statistics for many years and his main research interests are financing health care, especially in poor rural areas, and health care for internal migrants. He was Dean of the School and Chairman of the Society of Health Statistics, Preventive Medicine Association in Shanghai, China.

Sun Zhenwei is deputy director of the Health Bureau in Minhang District, Shanghai. He is Chief Director and Doctor in Public Health and his main research interests are reform of health care and medical aid to old and poor people.

Erik Blas is Programme Manager, UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, Geneva. His main research interests are large systems and health system interaction with social and economic systems.

Correspondence: Dr Zhan Shaokang, School of Public Health, Fudan University Shanghai, 138 Yixueyuan Rd, Shanghai 200032, China. Tel: 86-21-64041900 ext 2205-14; Email: sk_zhan@online.sh.cn