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Health capabilities among Bamako young people, with special focus on acute malaria

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Abstract

Urbanisation is a major challenge for population health in Africa which has not deserved enough attention. The offer of health services is usually much better than in rural areas, however disparities in access are growing and city dwellers in poor areas are facing adverse health outcomes consequent to human densification and the transformation of the city environment carried inter alias by new habits of urban agriculture. This communication is part of a larger research project on human development in West African cities[1] and offers an analysis of health care behaviour and health incidence among young people in Mali's capital Bamako. Using Sen's (1999) capability approach, we analyze how inequalities in resource endowment are accentuated by inequalities in individual ability to access and convert these resources into health capabilities and, ultimately, health functionings. Our results from a retrospective survey highlight that access to modern health facilities is more important than personal health behaviour for reducing inequality in health. In particular, the lesser access of women to modern facilities, explains to a great extent their poorer health situation. Moreover, we found surprisingly larger inequalities in acute malaria compared to general health incidences.

[1] "Enhancing the capabilities of the most vulnerable: a pilot project on inequalities in human development in Bamako and Accra", supported by the Swiss Network for International Studies (SNIS).

Analytical strategy

We analyze here the health history of 1800 young people aged 12 to 30 years collected by the project "Chantier Jeunes" in 2002 in three neighbourhoods of Bamako (Niarela, Sicoroni and Bandiagara-Coura) that represent the diversity of urban settings in the capital. We focus on adverse health outcomes[2] reported for the five years preceding the survey (1998-2002) and, for each of them, the therapeutic itinerary adopted by the young people. The two main results are that, on the one side, acute malaria (*kono)*[3] made up almost half of the reported health incidence and is therefore a good indicator of health situation. On the other side, the use at least once of modern health facilities appears as a major factor of the ability to enjoy a good health, i.e. the health capabilities.

Socioeconomic differentials in health incidence and in the use of modern health facilities are assessed at two analytical levels. In a first step, we proceed to an aggregated analysis through descriptive and bivariate statistics in order to compare the incidence rate – i.e. the mean annual number of health events divided by the at-risk population (Siegel and Swanson 2003) – and the duration of illness by sex according to specific population trait such as for example education level. In a second step, we estimate inequalities in access to services and in health incidence at the individual level by controlling risk differentials for the influences of various confounding factors using binary logistic regressions (see tables in annex). Following Sen's capability approach (1999), three groups of independent factors are considered. A first group refers to the individuals' resource endowment, which is measured here by the neighbourhood context (as a proxy for the availability of health infrastructure) and an indicator of relative household wealth constructed by principal component analysis of household assets and housing conditions. The second group of variables reflects individual ability to access services, as well as to enjoy a good health. Three types of these so-called conversion factors are considered here : sex and age, as bio-social markers, educational attainment and activity status as economic one, whereas the cultural dimension is indicated by ethnicity and religious practice.

[2] The question was "quels problèmes ayant affecté votre santé avez-vous eus durant votre vie (ne pas noter les maux périodiques et palu sans gravité)".
[3] Defined in the questionnaire as "exceptionally hard episodes" accompagnied by "delirium and/or hospitalisation".

The aim is to explain socioeconomic differentials in the use of modern health facilities, considered as a means to enjoy good health, such as measured by health incidence. In measuring the impact of a first contact with modern facilities (and, for women, the impact of pregnancy status) on health incidence, we are specifically interested in the interaction between the opportunity sets - the capabilities – and the real health situation, i.e. the functionnings.

Preliminary discussion

According to the survey, acute malaria is among the most important adverse health outcomes among the young people in Bamako, representing slightly less than half of total health incidences. Mali indeed ranks eleventh among the 48 African countries in malaria incidence in 2009 (WHO 2010). The risk of acute malaria is shown to be socioeconomically more differentiated than overall health outcomes, what confirms the importance for research in communicable disease to investigate differentials in the human host, rather than only focusing on environmental and transmission aspects of epidemics (Heggenhougen et al. 2003).

Our analysis reveals that the ability to access modern health treatment indeed has a major protective effect on subsequent health outcomes, especially acute malaria. This is in line with the known fact that the most important action for preventing mild episodes to become acute are early diagnosis, prompt and effective therapy and prevention (Njama et al. 2003: 685). The observation of a stronger socioeconomic differential in the use of modern services than in health incidence makes us conclude that the former plays a buffer role of homogenizing peoples' health risks. This unequal access to modern services and its levelling effect on health risks concerns particularly women. Access to health care is also higher for the young people living in better off households, for those endowed with more skills and who are economically active. Thus, inequalities in resource endowment appear to be enhanced by inequalities in the ability to convert them in health capabilities. The higher socioeconomic differentials in women illustrates the role that female empowerment plays in increasing health capabilities.

Besides the primary importance of access to modern health care, neighbourhood seems to have an impact on malaria infection presumably because of the natural environment, and thus exposure to vectors. Although Bandiagara-Coura, the poorest neighbourhood, is not endowed with any modern health facility, incidence of acute malaria is lowest in this place which is

located on a hill farther from the Niger river and its swampy sides. Surprisingly, socioeconomic differentials seem to have the least significant and most inconsistent effects on general health and malaria incidence. In turn, we found robust individual effects of the cultural background. Those who practice Islam more regularly are protected from adverse health outcomes, but not from acute malaria. The Non-stockbreeding ethnic group from Northern Mali faces systematically lower risks of adverse health outcomes in comparison to the Bambara, the main ethnic group in the Bamako area. While socioeconomic differentials seem more important for women, in turn cultural factors appear to protect only men's health. Moreover, our results confirm women's vulnerability during pregnancy, what has a confounding effect on the relationship between age and health. Thus early motherhood is cumulating health risks both due to immaturity and to the vulnerability of pregnancy.

References

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Annex: selected results

Table 1: Factors influencing the probability of access at least once to a modern health facility. Logistic regression on individuals having had at least one adverse health event between 1998-2002, Bamako 1998-2002.

	Men		Women	
Explanatory variables	O.R.	Sig.	O.R.	Sig.
Neigbhourhood				
Bandiagara-C.	1.08	Ns	1.86	**
Niarella	0.99	Ns	1.26	ns
Sicoroni	1.00		1.00	
Asset and sanitary endowment of HH				
Low asset	0.83	Ns	1.26	ns
Median asset	1.00		1.00	
High asset	1.21	Ns	1.08	ns
Low sanitary	1.37	Ns	1.88	**
Median sanitary	1.00		1.00	
High sanitary	1.53	*	2.05	**
Age group				
Lowest	1.00		1.00	
Middle	0.89	Ns	1.04	ns
Highest	1.06	Ns	1.21	ns
Level of education				
None	1.00		1.00	
Primary	1.76	Ns	2.14	**
Secondary+	1.29	Ns	1.46	ns
Activity status				
Non active	1.00		1.00	
In education	1.07	Ns	1.50	ns
Active	2.05	Ns	1.78	**
Migrant status				
Non-migrant	1.00		1.00	
Immigrant	0.63	*	0.87	ns
Ethnicity				
Bambara	1.00		1.00	
Stockbreeder	1.18	Ns	1.08	ns
Non-stockbreeder	0.86	Ns	0.87	ns
Other	1.15	Ns	1.38	ns
Religious practice				
No / irregular	1.00		1.00	
Regular	1.12	Ns	1.05	ns
Have been in hosp. bef 1998				
No	1.00		1.00	
Yes	0.41	**	0.54	**
N		676		1073

Table 2: Determinants of having at least one acute malaria episode since 1998. Logistic regression, Bamako 1998-2002.

	Men		Men, was never in modern facility before 1998		Women		Women, was never in modern facility before 1998	
Explanatory variables	O.R.	Sig.	O.R.	Sig.	O.R.	Sig.	O.R.	Sig.
Neigbhourhood								
Bandiagara-C.	0.73	Ns	0.72	ns	0.55	**	0.51	**
Niarella	1.32	Ns	1.35	ns	0.61	**	0.64	**
Sicoroni	1.00		1.00		1.00		1.00	
Asset endowment and housing conditions of HH								
Low asset	0.94	ns	0.88	ns	1.02	ns	1.12	ns
Median asset	1.00		1.00		1.00		1.00	
High asset	1.44	ns	1.45	ns	1.04	ns	1.06	ns
Poor housing	1.13	ns	1.28	ns	1.00	ns	1.01	ns
Median housing	1.00		1.00		1.00		1.00	
Good housing	1.42	*	1.45	*	1.35	ns	1.31	ns
Age group								
Lowest	1.00		1.00		1.00		1.00	
Middle	0.75	Ns	0.73	ns	1.27	ns	1.31	ns
Highest	0.42	**	0.39	**	0.93	ns	1.04	ns
Level of education								
None	1.00		1.00		1.00		1.00	
Primary	2.00	**	2.13	**	1.46	*	1.54	*
Secondary+	1.25	Ns	1.12	ns	0.88	ns	0.97	ns
Activity status								
Non active	1.00		1.00		1.00		1.00	
In education	0.83	Ns	0.90	ns	1.47	*	1.47	ns
Active	1.97	**	1.91	*	1.35	ns	1.51	*
Migrant status								
Non-migrant	1.00		1.00		1.00		1.00	
Immigrant	0.52	**	0.51	**	1.14	ns	1.25	ns
Ethnicity								
Bambara	1.00		1.00		1.00		1.00	
Stockbreeder	1.14	ns	1.15	ns	0.89	ns	0.73	ns
Non-stockbreeder	0.49	**	0.48	**	0.87	ns	0.82	ns
Other	0.65	*	0.65	*	1.22	ns	1.18	ns
Religious practice								
No / irregular	1.00		1.00		1.00		1.00	
Regular	0.82	ns	0.77	ns	0.83	ns	0.81	ns
Was in modern health fac. bef 1998								
No	1.00				1.00			
Yes	0.21	**			0.31	**		
Pregancy since 1998								
No					1.00			
Yes					1.23	ns	1.09	ns
N	877		710		939		814	