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# Health of families from the Landless Workers' Movement and temporary rural workers, Brazil, 2005

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## ABSTRACT

**OBJECTIVE:** To assess the health conditions of families from the Landless Rural Workers' Movement and temporary rural workers.

**METHODS:** The research involved a comparative study of three populations: a settlement and a camp linked to the Rural Workers' Movement, and the families of temporary rural workers in a city of Southeast Brazil, in 2005. Information relating to sociodemographic characteristics and families were collected by means of questionnaires that were put to 202 families. In addition, structured observation and group discussions were used. A discriminative factor analysis was carried out to confirm differences between the communities.

**RESULTS:** The three communities scored an average of 89%, which implies that they are distinct groups and supports the hypothesis that there are real differences between them when it come to health and lifestyle conditions. There was a high rate of food insecurity (39.5%) among temporary rural workers, almost double that of families who were camping and four times greater than those living on settlements. Temporary rural workers' salaries were low and fluctuate, meaning that they were more exposed to pesticides than the families living on settlements or in camps. A striking characteristic of families living on the settlement was that they all practiced animal rearing, unlike the families of temporary rural workers, practically none of whom were able to do so in the city. The perceptions of most families who were living on settlements or in camps were that the Brazilian Health System had not been meeting their health needs, mainly due to access difficulties. For this group, their needs are met only after making complaints to and putting pressure on governors.

**CONCLUSIONS:** The view held by families from the Landless Rural Workers' Movement was that the fact that they belonged to the Movement and were better organized meant their health was better than that of temporary rural workers. The conservative modernization of rural Brazil has led to worse conditions for temporary rural workers, while Agrarian Reform has allowed for a better quality of life and improved health conditions among families, when compared in the areas under study.

**DESCRIPTORS:** Rural Workers. Rural Settlements. Social Conditions. Family Health. Rural Health. Food Security. Rural Population Health. Landless Worker Movement.

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## INTRODUCTION

Current Brazilian research is not yet able to provide a full explanation of the complex relationship between the health conditions of rural people and their determinants (Figueiredo<sup>7</sup> et al 1987, Veiga & Burlandy<sup>19</sup> 2001).

Studies concerned with the health conditions of this population generally associate nutritional status with land ownership, work and health procedures

(including the use of pesticides), reported morbidity and mortality and relationships with health services. The results of these studies point to increased nutritional deficits as land ownership diminishes, and give evidence of a more precarious health status of the rural population when compared with urban populations. There remain significant shortcomings in terms of access to and the quality of rural health services, and in terms of environmental sanitation. The process of “conservative modernization” of Brazilian agriculture has made the situation worse, since it has led to an increase in the socio-environmental vulnerabilities of this population (Brentlinger et al<sup>3</sup> 1999, Silva<sup>16</sup> 1999, Kassouf<sup>10</sup> 2005).

The use of the term “health conditions” in this current study refers to a broader definition, as applied by Law 8080 which governs the *Sistema Único de Saúde* (SUS – Brazilian Health System): “the defining and conditioning factors of health include food, housing, basic sanitation, the environment, work, income, education, transport, leisure and access to essential goods and services; the levels of health of the population are an expression of the social and economic organization of the country”.

On this basis, the objective of the present study was to compare the health conditions of a permanent settlement, a temporary encampment, both from the *Movimento dos Trabalhadores Rurais Sem Terra* (MST – Landless Rural Workers’ Movement), and a community of temporary rural workers.

## METHODS

The study was carried out in the municipality of Unai in the state of Minas Gerais. Unai is located in the North-eastern meso-region of the state and in the micro-region, known as the Integrated Region of the Federal District and surroundings, located 130km from the capital of Brazil, Brasília. The 2000 demographic census reported there to be 55,525 inhabitants in the urban area of the municipality and 14,508 in the rural area.

Further to a pilot and adjustments to the research tools, questionnaires were carried out by the field team in each family unit in the place of residence between 15 and 28 April, 2005. The key informants were the female household member (or person who looked after the family) and male (for information relating to production). The study involved all families (26 households) from the settlement and 95 families from the encampment. Fifty families from the encampment who were not available during the research period were not included, nor were 10 squatter families who did not live on the encampment.

In addition to this research tool, additional information was gathered through structure observation, discussions with the MST health collectives and community representatives. The health collectives are organized groups of people responsible for looking after community health matters. In addition to local collectives (found on encampments and settlements), the MST includes state- and national-level collectives that have a wider coverage and are responsible for the promotion and monitoring of public policies and cooperation with other organizations and movements. At the time of study, the organization of these collectives was still at the initial stages on both the settlement and encampment.

Issues under study included: how subjects conceived the health-illness processes; social, demographic and family characteristics; life, work and production conditions; the presence of farm animals, pets and synanthropic animals; and the identification of the implementation of health policies in the different groups. The questions relating to food security were based on the works of Vasconcelos<sup>18</sup> (2000) and Unicamp.<sup>a</sup> The definition of food security was taken from Law n° 11.346 of 15 September 2006 which created the National System for Food and Nutritional Security, namely: “food and nutritional security consists of the realization of the rights of all to regular and permanent access to a sufficient amount of quality food, without jeopardizing access to other essential needs, based on health promoting food practices that respect cultural diversity and that are environmentally, culturally, economically and socially sustainable”.

Selection of the temporary rural workers was based on the registry of the city’s Primary Healthcare Information System which identified the neighborhood with the highest concentration of this population. A total of 98 families were registered in the local Family Health Program, of whom 81 were asked the questionnaire. Three families refused to take part and 14 were not at home.

The conceptual tools were used in order to allow for dialectic reflection of an object as defined by Breilh<sup>2</sup> (2006) “that moves between the characteristics of being, of time that is simple and complex, determined and contingent and uncertain, as well as being social and biological and general, particular and singular”. For Breilh,<sup>2</sup> the epidemiological rationale should take into account the structural determinants, generative processes, and finally the specific processes. On this basis, he believes that epidemiology should not just define its “object” of transformation of its scientific field, but also the “subject” of this transformation. Thus the epidemiological rationale could contribute towards people’s emancipation in light of the ways of life and situations that they face.

<sup>a</sup> Corrêa AMS, Escamilla RP, Maranhã LK, Sampaio MFA, Yuyama L, Alencar FL, et al. [In] Segurança alimentar no Brasil: validação de metodologia para acompanhamento e avaliação. Campinas: Faculdade de Ciências Médicas da UNICAMP; 2003. [technical report]. [cited 2006 Dec 10]. Available from: [http://bvsmms.saude.gov.br/bvs/publicacoes/validacao\\_brasil1.pdf](http://bvsmms.saude.gov.br/bvs/publicacoes/validacao_brasil1.pdf)

The data obtained from the questionnaires were put together and analyzed in EpiInfo (2001), version 6.0. For the purpose of comparing differences between the communities, frequency tables were drawn up and the chi-squared, Fisher, ANOVA and T tests were used depending on the information. Subsequently, those variables that showed the most acute differences between the groups were selected for a discriminant factor analysis using the Minitab program<sup>13</sup> (2006), version 14.

Based on the analysis of the variables and using the theoretical grounding of the study, those variables that were most representative and that best characterized ( $p < 0.05$  in the chi-square or Fisher's Test) the differences between the communities were selected (Table 1). This was followed by a discriminant factor analysis which aimed to certify there were differences between the three communities under study. This analysis meant it was possible to check which of the variables most characterized or differentiated these groups. Values above 70% were considered satisfactory.

Prior to the work in the three areas, the research team met with representatives from the community and from the local health sector to plan the activities. Education initiatives were carried out in schools and with organized groups. After the work, meetings were held to discuss the results with the families involved in the study.

The project was approved by the Research Ethics Committee of the Universidade Federal de Minas Gerais.

## RESULTS

The sociodemographic and familial characteristics of the three communities under study were similar ( $p > 0.05$ ), in relation to: age and sex, schooling and family composition (mostly nuclear – head, spouse and children). These similarities helped the comparison between these groups.

There were differences between the three communities in terms of food security, as is shown in Table 2. The circumstances in which the temporary rural workers found themselves were more critical, compared with those of families in the MST encampment and settlement.

With regard to government support, either in the form of a grant or other benefit, only 20.1% of those from the encampment received the basic social security package (*cesta basica*), with school grants (*bolsa escola*) being the most common form of welfare benefit on the settlement (14.8%), and the family welfare grant (*bolsa família*) most common in the temporary rural workers' neighborhood (4.8%). The offer of work for the families of temporary rural workers was generally limited to just six months of the year, which meant that these families had a variable and low income.

The majority of temporary rural workers (90%) wanted to change their occupations. The alternatives to which

they aspired included "any other" (29.2%), "machine operator" (13.9%), "farm laborer" (8.3%) and other options that were considered to be "more moderate". When asked about the worst thing in their jobs, answers included the time that they had to wake up (44.5%), travel (19.5%), food, damage to their health, tiredness and "exploitation" (14.3%). These conditions were sometimes extreme. Some reports referred to daily journey times to work of up to four hours, meaning that many people left work in the early hours of the morning. Some workers traveled more than 130km to the farms, with an average journey time of three hours. This led to problems in keeping food fresh and to complaints about tiredness and damage to one's health.

More than half of the families living on the settlement (57.7%) lived from subsistence farming on their plots, growing manioc (96.2%), rice (92.3%), sugar cane (84.6%), maize (65.4%), beans (53.8%), fruits (73.1%), vegetables (69.2%) and peanuts (30.8%), which distinguished them from the families on the encampment and the temporary rural workers. All farming was basically aimed at sustaining the family, with almost no exceptions. There were very few cooperative activities on the settlements, with some examples of cooperative action between neighbors and relatives (19.2%). Some families (42.3%) also worked on farms to complement their incomes.

Even with all the difficulties faced on the encampment, 22.1% of families managed to guarantee their subsistence from the land. The favored crops for growing were related to subsistence such as maize (64.2%), manioc and vegetables (62.1%), followed by rice (32.6%), fruits (28.4%), peanuts (22.1%) and sugar cane (14.7%). As with the settlement, 21.1% of families on the encampment carried out cooperative activities with their neighbors. There were no surpluses from their farming and a significant number of families also had to work as temporary rural workers (36.1%), or find temporary work in the city (9%) to earn a wage.

Among the roles expected of the public health system SUS, the families from the settlement and the encampment believed that it was important to guarantee access to health services and the necessary transport. The importance of access was most commonly mentioned by the families on the encampment (67.7%), while in the temporary rural workers' neighborhood, where there is a local health center, access was not mentioned. For most MST families (57.7% of those from the settlement), the only way to ensure that the SUS met their needs was through complaints and putting pressure on the government.

A large proportion of the families from the settlement and the encampment considered themselves to form part of a communitarian organization (65.4% and 61.1% respectively). For the families of temporary rural workers, the proportion was much less (25%).

**Table 1.** Variables used for the discriminant factor analysis of the three communities under study. Unaí, Southeastern Brazil, 2005.

Thematic group	Variable
Sociodemographic and family characteristics	Urban or rural origin
Living conditions	
Food security	The food supply ended in the last three months
Sanitation	Presence of piped water inside the home
Credit	Access to credit services (farming and others)
Community organization	Participation in an organization or community body
Production and working conditions	
Exposure to pesticides	Use of pesticides at work
Animal rearing	Do not rear farm animals
Health services	
Activities that mean that the SUS health system meets the health needs of the family or community	Demand improvements, put pressure on the government and form part of an organization
Health conditions	
Factors that are missing in guaranteeing good health	Access and improvements in health services

SUS: Brazilian Health System

Under the discriminant factor analysis, the three communities scored a general percentage of 89% correct classification, with only 21 families not having the typical characteristics of their own group out of a total of 189 families in the study. Of the 202 families interviewed, 13 were not included in the study as they did not provide all the information required. The families of the temporary rural workers scored the highest index of matching the classification with 96%, followed by 86% on the encampment and 76% for the settlement (Table 3).

The variables that best characterized the families from the settlement were access to credit, the rearing of farm animals, the availability of food over the previous three months, rural origins, the need for improved access to health services and the absence of piped water in their homes. At the other extreme, were the families of the temporary rural workers who were differentiated by the use of pesticides at work, the non-rearing of farm animals, the presence of piped water and the low level of participation in community organizations. The families from the encampment fell between the two, with most having urban origins, a high level of community participation and organization, low use of pesticides and access to credit (Table 4).

## DISCUSSION

The drawing of conclusions relating to the relationship between socio-economic development, health and food security is a difficult and complex issue, since there are a multitude of determinants related to nutritional deficiencies. The principal problems are related to the difficulty in controlling all the variables that are relevant to the issue and in choosing the most

appropriate epidemiological design for the drawing up of conclusions.

The better conditions relating to food security and animal rearing, coupled with the higher levels of community organization and capacities for complaints were positive attributes of the MST population. This shows the potential for this group to contribute towards a broad and participatory process of agrarian reform. However, the lack of homes with piped water and the difficulties of access to health services point to disadvantages associated with public health and sanitation policy limitations that have not yet been resolved, as noted by several authors (Schmidt et al<sup>15</sup> 1998, Leite et al<sup>8</sup> 2004, UnB<sup>a</sup> 2001).

The findings here relating to greater food insecurity amongst the temporary rural workers compared with those from the encampment and settlement are similar to those of other researchers (Victora<sup>20,21</sup> 1983 e 1986, Lira et al<sup>9</sup> 1985, Romani & Amigo<sup>14</sup> 1986, Ferreira et al<sup>6</sup> 1997, Brentlinger et al<sup>3</sup> 1999, Veiga & Burlandy<sup>19</sup> 2001, Castro et al<sup>5</sup> 2004). These studies show that ownership of the means of production, in this case understood to mean land ownership, is associated to a better nutritional status among children. Leite et al<sup>8</sup> (2004) also found that access to land and to the possibility of growing crops for personal consumption appeared to lead to an improvement in the nutritional status of people who previously lived from temporary work or from other forms of instable employment. The analysis of income generation, taking into account both income in the form of personal consumption and monetary income showed that, even with low levels, families guaranteed their food security. In addition, Leite et al<sup>8</sup>

<sup>a</sup> Universidade de Brasília. Saúde nos Assentamentos e Acampamentos da Reforma Agrária. Brasília: UnB/MST; 2001.

**Table 2.** Availability of food in the last three months among families. Unai, Southeastern Brazil, 2005.

Community	Lack of food in the last three months						Total
	Yes		No		Don't Know		
	N	%	N	%	N	%	
Settlement	3	11.5	23	88.5	-	-	26
Encampment	21	22.1	73	76.8	1	1.1	95
Temporary rural workers' neighborhood	32*	39.5	49*	60.5	-	-	81
Total	56	27.7	145	71.8	1	0.5	202

\* p <0.05 taking the settlement as the basis for comparison

(2004) found there to be an average improvement of 90% in families' living conditions after they had settled on the main settlement "strips" of Brazil.

The findings relating to food insecurity among temporary rural workers were also reported by Silva<sup>16</sup> (1999) in up-country São Paulo. Moreira & Watanabe's study<sup>12</sup> (2006) of the weekly dietary intake of the families of temporary rural workers in the Canavieira Zone in Paraíba also found diets to be lacking in proteins, with food intake weighted towards cereals and their derivatives. Most of these families spent more than half of their family income on food.

Some of the results can help to explain the higher levels of food insecurity among temporary rural workers. An important factor is the shortage of work over the 12 months of the year. Periods without work mean that the temporary rural workers incur debts of various kinds, ranging from public payments for water and electricity, to stores that sell food and other daily staple supplies. The *bolsa família* welfare payments, which could serve as a temporary solution to this problem, do not provide sufficient coverage to this population. These social programs are based on food distribution or cash transfers that are dependent on certain conditions relating to the reinforcement of basic social rights in the areas of health (children's vaccine certificates must be up-to-date) and education (children must attend school) that benefit poor families. Information from the social department of Unai's Municipal Mayor's Office suggest that the low levels of coverage of the *bolsa família* grant among temporary rural workers are related to the fact that the municipal Human Development Index is higher than other regions such as the Vale do Jequitinhonha, which means that federal government transfers tends to prioritize these other areas. Another factor is that these benefits are passed on inconsistently: the fact that many of the temporary rural workers are considered part of the formal labor market since their employment books

**Table 3.** Classification of the discriminant analysis by community of residence and selected variables. Unai, Southeastern Brazil, 2005.

Classification by Discriminant Analysis	Settlement	Encampment	Temporary rural workers' neighborhood
Settlement	19	8	0
Encampment	6	76	3
Temporary rural workers' neighborhood	0	4	73
Total	25	88	76
Correct classification	19	76	73
Proportion	0.76	0.86	0.96

**Table 4.** Linear discriminant function by community of residence and selected variables for the three communities under study. Unai, Southeastern Brazil, 2005.\*

Variable	Settlement	Encampment	Temporary rural workers' neighborhood
Constant	-6.95	-3.92	-9.88
Rural or urban origin	0.12	3.86	2.49
Presence of piped water in the home	0.93	1.69	5.29
Access to credit	10.22	1.06	1.21
Use of pesticides	1.12	-0.06	7.46
The food supply ended in the last three months	1.32	1.40	3.54
Demand improvements in the SUS system, form part of an organization	2.88	1.08	-0.47
Participate in an organization	2.89	3.02	0.98
Do not breed farm animals	0.99	2.20	6.04
Access and improvements in health services	2.56	1.98	1.16

\* Categorization of variables 1= presence of factor; 0= absence

SUS: Brazilian Health System

are signed, and this means they are not considered as possible beneficiaries; but when they are unemployed and enter the pool of those waiting to receive benefits, they are at the bottom of the pile.

The marked involvement with animal rearing among families from the settlement was also observed in other studies of settlements (Leite et al<sup>8</sup> 2004). Although this activity generally related to personal consumption, this kind of farming leads to increased family income and improvements in food security.<sup>a</sup>

<sup>a</sup> FAO, UNDP. 'Principais indicadores sócio-econômicos dos assentamentos de reforma agrária'. Brasília: Ministério da Agricultura Abastecimento e da Reforma Agrária; 1992. [Projeto BRA 87/022].

The situation of temporary rural workers was better only in terms of access to sanitation and health services, due to the greater number of facilities supplying these kinds of services in urban areas when compared with rural areas. However, the high levels of exposure to pesticides, high rates of food insecurity and low levels of political organization also made them different to the MST population involved in the study. These negative attributes are direct consequences of large-scale production models based on monoculture, that have been analyzed in other studies (Alessi & Navarro<sup>1</sup> 1997, Silva<sup>16</sup> 1999, Castro<sup>4</sup> 2003, Miranda<sup>11</sup> et al 2007, Soares & Porto<sup>17</sup> 2007).

Although families from the MST settlement and encampment have lower levels of access to most public health services and policies, their political organization is much more advanced than that of the temporary rural workers. Their robust political actions aimed at claiming their rights has led to a reduction in certain

differences such as access to education and government credits, as has also been noted in other studies.<sup>a</sup>

These findings contribute towards a reflection about Brazil's overall development aims. "Agro-business" is considered to be a major force in the Brazilian economy and is responsible for 40% of all exports, but its impact on health (workers, families and communities) and eco-systems has not been assessed. At the same time, the results that Agrarian Reform has had on living conditions and the health status of beneficiaries may justify the need for a wide-ranging Agrarian Reform Program in Brazil.

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<sup>a</sup> Bittencourt GA, Castilhos DSB, Bianchini V, Silva HBC. Principais fatores que afetam o desenvolvimento dos assentamentos de reforma agrária no Brasil. Brasília: Organização das Nações Unidas para a Agricultura e Alimentação / Instituto Nacional de Colonização e Reforma Agrária; 1999. (Projeto de Cooperação Técnica INCRA/FAO).

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