



## ORIGINAL ARTICLE

# Estimating the number of street children and adolescents in two cities of Brazil using capture–recapture

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**Aim:** To use the capture–recapture method to estimate the number of street children and adolescents in Maceió and Arapiraca, north-east Brazil, and describe the characteristics of the two populations.

**Methods:** The number of children and adolescents on the street in Maceió and Arapiraca was estimated using the multi-list capture–recapture method. Two street surveys and an official list from the social services department were compared. The characteristics of the children were recorded during the street surveys using a questionnaire.

**Results:** The estimated number of street children and adolescents was 5225 in Maceió and 1191 in Arapiraca. According to the official records, the population registered was 565 and 157, respectively. Most individuals were male (71.4% and 71.8%, respectively). They still maintain contact with their families (85.5% in Maceió and 89.6% in Arapiraca) and attend school regularly (43.4% and 49.7%). Drug use was admitted by 46.9% of the individuals in Maceió and by 26.9% in Arapiraca. In both cities, glue inhalation, associated or not with other drugs, was most frequently cited.

**Conclusions:** Children and adolescents on the streets are a common and underestimated occurrence in Maceió and Arapiraca. They have similar characteristics to street children from other countries and other cities in Brazil. The method of capture–recapture seems to be suited to study populations such as street children.

**Key words:** Brazil; capture–recapture; epidemiology; street children.

### What is already known on this topic

- 1 Street children are a common occurrence in developing countries, particularly in Africa and Latin America.
- 2 Street children are difficult to reach, and it is problematic to quantify their populations by census methods.
- 3 Capture–recapture is a useful tool to quantify such elusive populations.

### What this study adds

- 1 The population of street children in Maceió and Arapiraca is much larger than previously appreciated.
- 2 The main activities for street children in Maceió and Arapiraca are selling goods, cleaning shoes and cars, and begging. Drug use is a significant problem in this population, and the majority maintains contact with their families.
- 3 The capture–recapture method is suited for use in this population and can help planning to improve the health and socio-economic status of street children in Maceió and Arapiraca.

The presence of unsupervised children and adolescents on the streets in developing countries is common and a consequence of unfair politics and poor socio-economic development. Children living or spending part of their days or nights in the streets occurs world-wide, but the striking presence and social consequences of this phenomenon occur in the poor cities of Africa, Asia and Latin America, where the majority live.<sup>1–3</sup> In Latin America, intervention strategies vary from prevention and education to registration and correctional measures with low

success rates of reintegration into regular family and work life.<sup>3–5</sup>

One of the alleged difficulties in properly addressing the problem of street children (SC) is the high mobility they usually have and the refusal to establish contact with the official structures of support and control.<sup>6,7</sup> New approaches to assess the number of SC have included the use of methods that do not intend to reach the entire population (census), and capture–recapture (CRC) has been used successfully.<sup>7</sup> The method, originally used in biology,<sup>8</sup> has been used as an epidemiological tool to assess elusive populations, such as drug users and sex workers, and diseases that are neither compulsorily notified nor rare.<sup>9–15</sup> A key assumption of this method is that the population is closed, in other words, of fixed size and composition. The

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method also assumes that the population is homogeneous and that the sources used are independent, allowing every population individual the same chance of inclusion in the lists.<sup>9,16</sup>

Street living is frequently associated with drug abuse and illegal activities,<sup>3,6,15</sup> and official governmental structures frequently treat the problem with a repressive approach. This kind of intervention makes knowledge of the real motivations and habits of the youngsters difficult to obtain or biased.<sup>6</sup> Previous studies have shown that, in middle-size cities, drug use may be much less frequent than in large cities.<sup>1,2,7,15</sup> There is no information, except from non-governmental unsystematic listings, about the size of the SC population in Alagoas state in Brazil. This state, one of the poorest and with the worst social indicators of the entire country,<sup>17</sup> is located in the north-east region. Maceió is the capital city, has a population of 903 463 and, together with Arapiraca (population 199 964), is one of the two largest cities in the state. We chose these two cities to evaluate the CRC method because of their different sizes and proximity to Aracaju, where the method was used successfully.<sup>7</sup>

## Materials and Method

To estimate the size of the SC population in Maceió and Arapiraca, we used three independent lists.<sup>18</sup> Two of the lists for each city (lists A and B) were built after street surveys on two different days (Wednesday and Saturday) of 1 week. The third lists (list C) were obtained from the municipal secretary of citizenship and social assistance in Maceió and from the public prosecutor office in Arapiraca. They were considered as representative of the official number of SC in both cities.

During the street surveys to obtain individuals for lists A and B, after oral consent, the adolescents and children were briefly interviewed about their activities when in the streets, links with the family, reasons for being in the street, amount of money earned, attendance to school, habits and drug use. For the surveys, we used 12 (Maceió) and 10 (Arapiraca) pairs of interviewers located in strategic points (and their surroundings) of the city, from 8:00 AM to 7:00 PM. The points were previously determined because of the known concentration of SC in the areas. We used the same strategy in the same areas twice, one in a week day and the other in a weekend day, to avoid missing children who attend school during the week but are in the streets later on. The identification of individuals in the three lists was obtained using the following information/identifiers: name of the child/adolescent; nickname; name of the mother and father; sex; and age. If 'name' and two other identifiers were the same (or very close because of name spelling), the individual was considered the same. This strategy was used in Aracaju and was considered adequate.<sup>7</sup>

Capture frequencies were entered into the 'Rcapture' package of R version 2.10.1 (R Foundation for Statistical Computing, Vienna, Austria).<sup>19,20</sup> The function 'closedp' ran several log-linear models for a closed population for more than two lists.<sup>18,21</sup> The function for closed populations was selected for use here as all data were collected within a single week, and, as such, we would not expect any significant movement or changes within the SC population. Furthermore, interaction terms were modelled using the function closedp.mX to account for any between-list dependence. The output of the analyses produced

estimates of population size with standard error, deviance and Akaike's information criterion (AIC) statistics to enable selection of the best fitting model. The use of information criteria such as AIC to select the most appropriate model is widely adopted in CRC and is related to the likelihood ratio statistic of the model.<sup>18</sup> This process enabled selection of the most appropriate model by the lowest AIC value, having excluded implausible models. For the selected model, the function 'profileCI' was run to calculate the population estimate maximising the multinomial likelihood. This function also produced the 95% profile likelihood confidence interval (CI) for the estimate. The use of likelihood profile CIs, as proposed by Cormack,<sup>22</sup> is preferable in CRC as the population is skewed, and normal distribution CIs produce unreliable results.<sup>18,21,22</sup> By this method, an estimate of the number of SC was obtained for both cities individually.

Data obtained with the questionnaires are presented using descriptive statistics in absolute numbers and percentages. The  $\chi^2$  test was used to comparatively analyse certain characteristics of the SC populations. It was applied to compare the frequency of activities by sex to assess if main activity in the street was significantly different for girls or boys, with significance level established as  $P < 0.05$ .

This study was approved by the Ethics Committee, Federal University of Alagoas before the beginning of data collection (6 November 2004).

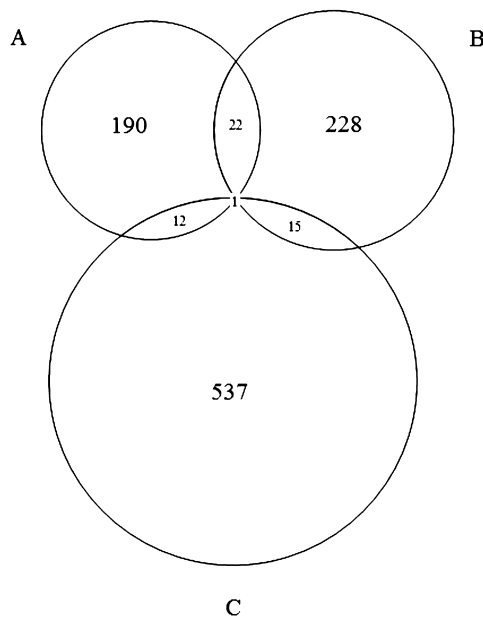
## Results

The distribution of individuals in the three lists and their intersections from Maceió are represented in the Figure 1. There were 225 individuals in the first survey (list A), 266 in the second survey (list B) and 565 in the official governmental list (list C). The estimated number of SC in Maceió was 5225 (95% CI 3964–7196) (Table 1). There was an estimate of 4220 individuals that were not included in any of the three lists (n000).

For Arapiraca (Fig. 2), the numbers are: 106 individuals in list A; 92 in list B; and 157 in list C (official list). The estimated number of SC in Arapiraca was 1191 (95% CI 877–1737) (Table 1), and the estimate of individuals not included in any list was 875.

Characteristics of both cities' populations were similar in most cases. The majority of SC were males (71.4% in Maceió and 71.8% in Arapiraca) and were born in the same city where they were living (73.4% in Maceió and 73.5% in Arapiraca). More than half (56.6% in Maceió and 50.3% in Arapiraca) had dropped out school, but 85.5% in Maceió and 89.6% in Arapiraca still had regular contact with their families (data not shown).

Working activities provided an average weekly income between 10 to 50 reais (US\$ 5–25) for almost 2/3 of the SC (62.2% in Maceió and 64.3% in Arapiraca). To investigate the kind of activities they developed when in the streets, we asked the SC from Maceió and Arapiraca what they did to earn money. Information was collected on the main activity for each child and adolescent (defined as that which occupied the majority of time) (Table 2). Activities were different between sexes and cities. Males were mostly porters and goods sellers (31.7% in Maceió and 45% in Arapiraca), or shoe and car cleaners (25.4%



**Fig. 1** Proportional Venn diagram with the number of street children in the three lists and intersections. Maceió, 2005.  $N = 5225$  (95% CI 3964–7196);  $n000 = 4220$ . A, list A; B, list B; C, list C; CI, confidence interval; N, population estimate;  $n000$ , individuals not observed.

in Maceió and 35.1% in Arapiraca). Females were predominantly porters and goods sellers, or beggars (34.3% in Maceió), while in Arapiraca, 38.5% were shoe and car cleaners. There were significantly more SC individuals involved with criminal activities in Maceió (7.5%) than in Arapiraca (1.1%),  $P < 0.005$ .

## Discussion

Using the CRC method to count, the estimated number of SC in Maceió and Arapiraca increased substantially. According to the official lists, the numbers were 565 and 157, respectively, far from the 5225 and 1191 obtained.

The log-linear method for CRC relies on the observations (counts) in the Poisson distribution, based on the probabilities of the counts occurring over a specified time or place where the count increases with the time period.<sup>23</sup> The prerequisite assumptions of this probability distribution reflect the assumptions for CRC analysis (e.g. relating to independence of events and homogeneity of the count probability between time intervals). The main limitation of this method is that the overlaps from the three lists are small. Generally, in CRC, a small overlap might indicate that the result obtained may be an overestimate as there may be negative dependence between the lists.<sup>18</sup> However, in this case, there is unlikely to be significant dependence of the three lists as the surveys were undertaken on separate days, and inclusion on the third official government list would have no effect on inclusion in the street surveys. There were unlikely to be significant differences in the SC presenting on the different days as, although almost half of the children were registered at school, attendance is generally poor, mostly

during 'Dias de Feira' (days of the week) where commercial activities increase because of particular reasons in each city, and they have more opportunity to work, for example, as porters. There were 10–12 pairs of interviewers at differing locations in the two cities so appearance in one survey was unlikely to affect the likelihood of being picked up in another survey at a different location on a different day. Thus, this small overlap is unlikely to represent a negative dependence of the lists. Furthermore, we know that from the three lists (A, B and C), the population demographics are comparable, indicating that the lists come from the same overall population. Additionally, the model selected incorporated the most significant interactions between sources, and the heterogeneity plots of the data are more or less linear, demonstrating that both populations were reasonably homogenous (Fig. 3). Thus, we can assume that the reason for the small amount of overlap is because the population is genuinely very large. Another potential limitation is that the model assumes a closed population, which is not true of SC – being dynamic by their very nature. However, in this case, all the surveys were carried out within the space of 1 week so there is a low likelihood for significant migration of SC in or out of the area. In addition, the surveys carried out at different locations in each city maximised inclusion of SC from the entire city, thus negating the effect of any migration within the cities themselves. Therefore, we can consider that the population in the two cities was closed within this very short study period, thus fulfilling the assumption for the model.

Another potential limitation relates to the street surveys. There were perhaps young people with similar names; however, as age and parents' names were also used for matching, this reduced the risk that different individuals with similar names were matched erroneously.

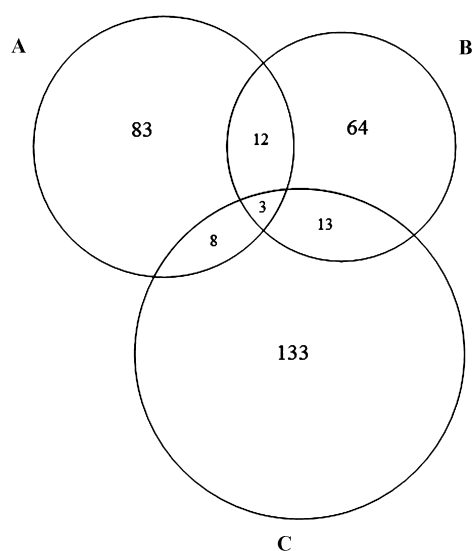
The two cities are the largest in Alagoas state with populations of 903 463 (Maceió) and 199 964 (Arapiraca).<sup>17</sup> Alagoas state has some of the worst socio-demographic indicators of the entire country, and the general perception is that SC is a real problem for the poor population. When compared with Aracaju city (less than 300 km away), the number of SC estimated was much more than would be expected considering the sizes of the cities. Aracaju has a population of 536 785, and the estimated number of SC using CRC was 1456 in 2003.<sup>7</sup> Maceió's population size is 68% bigger than Aracaju's, but the number of SC is over 3.5 times bigger. Comparison of social indicators may help to understand why the number of SC in Maceió is so much higher. Infant mortality in Sergipe state in 2004 was 35.2‰, while in Alagoas, infant mortality was 49.4‰ in the same year. The proportion of the population under the poverty line was 63.1% in Alagoas, while in Sergipe, this was 45.3%, and gross internal product per capita was R\$ 3011 and R\$ 5082, respectively. For Maceió city, the Human Development Index was 0.739 in 2005, while for Aracaju, this index was 0.794 at the same time.<sup>17</sup>

CRC use in epidemiology is already well established, and the method has been used to estimate the prevalence of different conditions such as type 2 diabetes,<sup>16</sup> infantile spasms<sup>24</sup> and drug use.<sup>15</sup> Traditional census methods such as prevalence surveys and active/passive surveillance are invariably incomplete and do not take into account the possibility of missing or undetected cases.<sup>25</sup> This is reflected in the official figures of SC in the two

**Table 1** Best fitting models of abundance estimations for Maceió and Arapiraca

	Abundance	Standard error	Deviance	Degrees of freedom	AIC	Abundance (corrected)	CI
Maceió							
Number of captured units = 1005 (interactions 2, 3)	5239	796.1	16.9	2	65.2	5225	3964–7196
Arapiraca							
Number of captured units = 316 (interactions 1, 2)	1197	209.6	3.1	2	47.8	1191	877–1736

Abundance, population estimate; abundance (corrected), population estimate (corrected to maximise multinomial likelihood); AIC, Akaike's information criterion; CI, profile likelihood confidence interval.



**Fig. 2** Proportional Venn diagram with the number of street children in the three lists and intersections. Arapiraca, 2005.  $N = 1191$  (95% CI 877–1737);  $n000 = 875$ . A, list A; B, list B; C, list C; CI, confidence interval;  $N$ , population estimate;  $n000$ , individuals not observed.

**Table 2** Self-reported activities of street children and adolescents according to sex, 2005

Activity	Sex				Total	
	Male		Female		n	%
	n	%	n	%		
Maceió						
Porter and good seller	106	31.7	50	37.3	156	33.3
Shoe and car cleaner	85	25.4	4	3.0	89	19.0
Criminal activities	20	6.0	15	11.2	35	7.5
Beggars	62	18.6	46	34.3	108	23.1
Other	61	18.3	19	14.2	80	17.1
Total	334	100	134	100	468	100
Arapiraca						
Porter and good seller	59	45.0	18	34.6	77	41.1
Shoe and car cleaner	46	35.1	20	38.5	66	36.1
Criminal activities	2	1.5	—	—	2	1.1
Beggars	3	2.3	3	5.8	6	3.3
Other	21	16.0	11	21.2	32	17.5
Total	131	100	52	100	183	100

$\chi^2 = 40.9$ ;  $P < 0.001$ . –, Nil reported.

cities from the municipal secretary of citizenship and social assistance in Maceió and the public prosecutor office in Arapiraca. These lists were compiled from SC in families registered to receive social assistance and those having had contact with police and judicial bodies. These official lists are regularly updated and so were comparable with the street surveys at the time of research. SC in Latin America are a real and long-lasting problem as acknowledged from different sources.<sup>26,27</sup> There are several studies showing their existence and characteristics,<sup>2,4,26</sup> but the problem of estimation of their real number is recognised. They constitute an elusive population, with bad experiences with official bodies, suffering abuse and violence on a regular basis.<sup>6,28</sup>

A particular characteristic of SC in Maceió and Arapiraca is that although they spend many hours in the streets, they still have links with their families. This seems to be a common situation in Latin America and was observed in Aracaju,<sup>7</sup> Porto Alegre<sup>28</sup> and João Pessoa,<sup>29</sup> but is much different from what happens in Africa.<sup>1,27</sup> Internal migration seems to play a role in

family disorganisation, leading to children in the workforce becoming necessary, almost mandatory.<sup>4,7</sup>

The main reason expressed for SC to be in the streets is to help with the family budget,<sup>27,29</sup> and the predominance of boys in the SC population is widespread,<sup>27,28</sup> also evident in Maceió and Arapiraca. Similar numbers of girls work outside their homes, as domestic workers for the middle and rich classes, but as these girls are not in the streets, they are not considered as SC, although they are involved in child labour. The girls are also submitted to high-risk activity in the streets as sex workers. This may be a consequence or even the reason for them to go to the streets, and exposes them to the huge risk of contracting sexually transmitted infections, including human immunodeficiency virus/acquired immune deficiency syndrome.<sup>30,31</sup>

In Maceió, female SC are predominantly goods sellers or beggars, but there are some involved in illicit activities. This situation was not found in Arapiraca, probably because of the city size and the low tourist appeal of the city. In this city, only

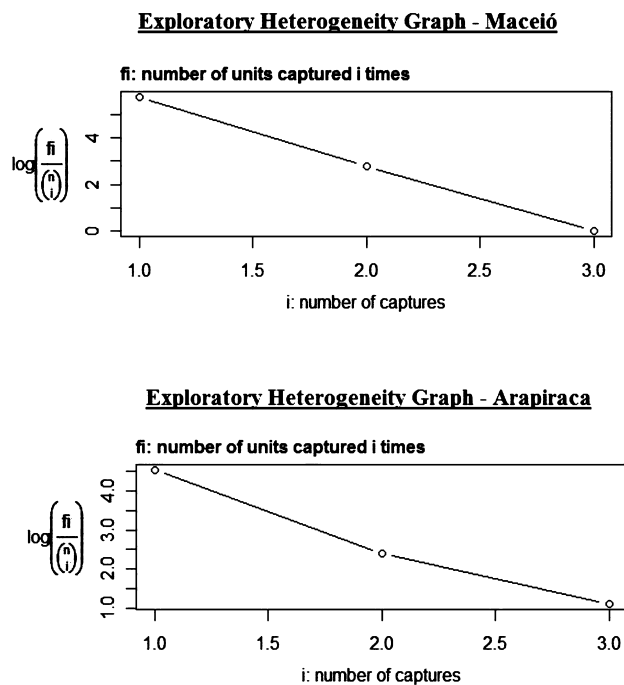


Fig. 3 Heterogeneity plots for Maceio and Arapiraca.

two boys admitted participation in illegal activity. The money a street child earns is considered very significant for his/her family. A total of 62.2% in Maceio and 14.3% in Arapiraca earn 10–50 reais (US\$5–25) weekly. The Brazilian minimum wage at that time was 300 reais/month (US\$150). Sometimes, they could double the family income with their work.

At the time of this research, there was increased implementation of *Programa Bolsa Familia* (Family Scholarship Program), where families receive 15–95 reais/month (US\$7–47) on the condition that their children register and attend school.

School attendance is a legal right for every child in the country,<sup>32</sup> but in some areas, poor quality schools and insufficient places in public schools may contribute to the widespread lack of confidence children have in their schools.

Drug use was a frequent occurrence in Maceio, but not in Arapiraca. Most frequent was inhalation of glue and other solvents associated or not with other drugs. Marijuana and cocaine were named, but we did not detect crack use at that time. Boys were more frequently involved with drug use and robbery, but criminal activities were more frequent in girls because of prostitution. There is a possibility that illegal activity was under-reported by the SC. Similarly, the SC may have intentionally provided different and incorrect identifying information to different interviewers, resulting in error in the matching process. However, these limitations may not be significant as the interviewers had no links to authoritarian bodies, and the survey was presented as confidential public health research; thus, they managed to establish a rapport with the SC. In Aracaju, the presence of girls in the street meant more severe family disintegration.<sup>4</sup>

The CRC method seems to be suitable to effectively evaluate SC populations and may be used to compare different places

or the same place after specific interventions or changes. Such research into the prevalence of SC in Brazil can form the basis for advocacy to local and national governments and authorities. Lobbying for implementation of social programmes that aim to improve the living standards of the poorest families is necessary to reduce the need for their children to go to the street to seek income. Interventions and policies such as *Programa Bolsa Familia* have been initiated with support from the evidence presented from research into SC, poverty and other important socio-demographic factors, validating the importance of such research.<sup>33</sup> In this case, awareness that the numbers of SC in Maceio and Arapiraca are much higher than previously appreciated will enable local authorities to plan more effective health and social policies to address this disadvantaged and significant population. It will also serve as a basis for further study into the specific needs of these SC in terms of health, education and development.

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## References

- Olley BO. Social and health behaviors in youth of the streets of Ibadan, Nigeria. *Child Abuse Negl.* 2006; **30**: 271–82.
- Ribeiro MO, Ciampone MHT. Homeless children: the lives of a group of Brazilian street children. *J. Adv. Nurs.* 2001; **35**: 42–9.
- Roux JL, Smith CS. Causes and characteristics of the street child phenomenon: a global perspective. *Adolescence* 1998; **33**: 683–8.
- Abdelgalil S, Gurgel RG, Theobald S, Cuevas LE. Household and family characteristics of street children in Aracaju, Brazil. *Arch. Dis. Child.* 2004; **89**: 817–20.
- Raffaelli M, Koller SH. Future expectations of Brazilian street youth. *J. Adolesc.* 2005; **28**: 249–62.
- Veale A, Dona G. Street children and political violence: a socio-demographic analysis of street children in Rwanda. *Child Abuse Negl.* 2003; **27**: 253–69.
- Gurgel RQ, da Fonseca JD, Neyra-Castaneda D, Gill GV, Cuevas LE. Capture-recapture to estimate the number of street children in a city in Brazil. *Arch. Dis. Child.* 2004; **89**: 222–4.
- Link WA, Barker RJ. Modeling association among demographic parameters in analysis of open population capture-recapture data. *Biometrics* 2005; **61**: 46–54.
- Harrison MJ, O'Hare AE, Campbell H, Adamson A, McNeillage J. Prevalence of autistic spectrum disorders in Lothian, Scotland: an estimate using the 'capture-recapture' technique. *Arch. Dis. Child.* 2006; **91**: 16–9.
- del Rio Vilas VJ, Sayers R, Sivam K, Pfeiffer D, Guitian J, Wilesmith JW. A case study of capture-recapture methodology using scrapie surveillance data in Great Britain. *Prev. Vet. Med.* 2005; **67**: 303–17.
- Dunn J, Andreoli SB. [Capture and recapture method: a new methodology for epidemiological research]. *Rev. Saude Publica* 1994; **28**: 449–53.
- Goldman GS. Using capture-recapture methods to assess varicella incidence in a community under active surveillance. *Vaccine* 2003; **21**: 4250–5.
- Coeli CM, Veras RP, da Silva Freire Coutinho E. [Capture-recapture methodology: an option for surveillance of non-communicable diseases in the elderly]. *Cad. Saude Publica* 2000; **16**: 1071–82.



- 14 Argollo N, Lessa I. [Estimated prevalence of cerebral neoplasm of childhood from the capture-recapture method]. *Arq. Neuropsiquiatr.* 1999; **57**: 435–41.
- 15 Hay G. Capture-recapture estimates of drug misuse in urban and non-urban settings in the north east of Scotland. *Addiction* 2000; **95**: 1795–803.
- 16 Gill GV, Ismail AA, Beeching NJ. The use of capture-recapture techniques in determining the prevalence of type 2 diabetes. *QJM* 2001; **94**: 341–6.
- 17 Instituto Brasileiro de Geografia e Estatística (IBGE). Informações sobre todos os municípios do Brasil. 2006. Available from: <http://ibge.gov.br/cidadestat> [accessed 16 September 2006].
- 18 International Working Group for Disease Monitoring and Forecasting. Capture-recapture and multiple-record systems estimation I: history and theoretical development. International Working Group for Disease Monitoring and Forecasting. *Am. J. Epidemiol.* 1995; **142**: 1047–58.
- 19 Baillargeon S, Rivest L-P. Rcapture: loglinear models for capture-recapture experiments. R package version 1.2-0. 2009. Available from: <http://CRAN.R-project.org/package=Rcapture> [accessed 7 April 2010].
- 20 R Development Core Team. R: a language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. 2009. ISBN 3-900051-07-0. Available from: <http://www.R-project.org> [accessed 7 April 2010].
- 21 Baillargeon S, Rivest LP. Rcapture: loglinear models for capture-recapture in R. *J. Stat. Softw.* 2007; **19**: 1–31.
- 22 Cormack RM. Interval estimation for mark-recapture studies of closed populations. *Biometrics* 1992; **48**: 567–76.
- 23 Bellocchio R, Pagano M. From the binomial to the Poisson distribution. *Nutrition* 1997; **13**: 842–3.
- 24 Chen CC, Chen TF, Lin HC et al. Estimation of prevalence and incidence of infantile spasms in Taiwan using capture-recapture method. *Epilepsy Res.* 2004; **58**: 37–42.
- 25 International Working Group for Disease Monitoring and Forecasting. Capture-recapture and multiple-record systems estimation II: applications in human diseases. International Working Group for Disease Monitoring and Forecasting. *Am. J. Epidemiol.* 1995; **142**: 1059–68.
- 26 Scanlon TJ, Tomkins A, Lynch MA, Scanlon F. Street children in Latin America. *BMJ* 1998; **316**: 1596–600.
- 27 Lalor KJ. Street children: a comparative perspective. *Child Abuse Negl.* 1999; **23**: 759–70.
- 28 Alves PB, Koller SH, Silva AS, Santos CL, Silva MR, Reppold CT. Atividades Cotidianas de Crianças em Situação de Rua. *Psic.: Teor. e Pesq.* 2002; **18**: 305–13.
- 29 Maciel C, Brito S, Camino L. Caracterização dps Meninos em Situação de Rua de João Pessoa. *Psicol. Reflex. Crit.* 1997; **10**: 315–34.
- 30 Turkmen M, Okyay P, Ata O, Okuyanoglu S. A descriptive study on street children living in a southern city of Turkey. *Turk. J. Pediatr.* 2004; **46**: 131–6.
- 31 Martins RA. Uma Tipologia de Crianças e Adolescentes em Situação de Rua Baseado em análise de Aglomerados (cluster analysis). *Psicol. Reflex. Crit.* 2002; **15**: 251–60.
- 32 ECA. Estatuto da Criança e do Adolescente. 2006. Available from: <http://www.eca.org.br/eca.htm> [accessed 12 August 2006].
- 33 Hall A. From Fome Zero to Bolsa Família: social policies and poverty alleviation under Lula. *J. Lat. Am. Stud.* 2006; **38**: 689–709.