ESTIMATING TRENDS IN ORPHANHOOD AMONG YOUNGER PERSONS IN THE ERA OF HIV/AIDS IN SOUTH AFRICA, 2001-2006

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INTRODUCTION

Historical Background and Issues in Estimating proportions of Orphans from Orphanhood Questions

From a demographic standpoint, a child is a person under the age of 15 years. Extending the principle of estimating childhood mortality from information from mothers about the survival of children ever born, Brass[1] in the early 1970s developed the orphanhood method to estimate adult mortality. The method is based on two questions in a census or survey household schedule/questionnaire namely:

Is (the person's) own biological mother still alive?

Is (the person's) own biological father still alive?

While Brass referred to the former as the maternal orphanhood question (for indirectly estimating adult female mortality), he referred to the latter as the paternal orphanhood question (for indirectly estimating adult male mortality). These questions are asked of every person enumerated in a household during a census or survey. Brass then developed an equation for translating the proportions of persons with a surviving parent into probabilities of survival from a base age B, to age B+N expressed: follows:

$$l_{B+N}/l_B = W_N({}_5P_{N-5}) + {}_5P_N (1-W_N)$$

where l_{B+N}/l_B is the probability of surviving from a base age B, to B+N, and the term $W_N({}_5P_{N-5}) + {}_5P_N (1-W_N)$ is defined as follows.

N is the central age between two adjacent five-year age groups;
${}_5P_{N-5}$ is the proportion in the age group N-5 to N having a surviving parent;
${}_5P_N$ is the proportion in the age group N to N+5 having a surviving parent; and
W_N is a weighting factor, which depends on N and the location of child bearing, represented by the mean age of childbearing, M.

Further work by Brass and Bamgboye[2] led to the development of the time location of the survival probabilities such that trends in the levels of adult female and male can be obtained for about 5-17 years before the census or survey.

There are a number of issues however in the application of the method but only a few that are relevant to the current study will be highlighted. As far back as the 1970s Brass observed with regard to maternal orphanhood that: "another problem that has appeared in much of the data examined is that for the first age groups (and especially for the first two *i.e. the 0-4 and 5-9 age groups* (emphasis mine), the mortality estimate obtained is extremely low relative to the other age groups. There is an obvious explanation for this phenomenon. Very young orphans are generally adopted by other women, and thus do not appear as orphans in the survey. In many African populations, if the interviewer asked a woman whether a child was really hers, for cultural reasons she would answer affirmatively, even if she adopted him". This is what is now generally known in the demographic literature as the "adoption effect". In subsequent work relating to the orphanhood method, Brass and Hill[3] advised "it has been found most satisfactory to ignore reports from all respondents except those aged 20 to 45. The reasons are that the reports for younger respondents are particularly sensitive to the under-reporting of deaths of mothers that results from foster-parents being reported as true parents…."

Applications of this method in various African contexts have confirmed the "adoption effect". According to the United Nations[4], "survivorship estimates based on reports by young respondents, and thus corresponding to small values n (under 20), tend to be affected by misreporting of orphanhood status: young orphaned children are often adopted by relatives who report them as their own children. This phenomenon artificially inflated the proportion of young respondents having a surviving parent and biases upward the estimated probabilities of younger adults". Also on the orphanhood method, Hill[5] observed that information from young respondents, below about age 20, cannot be used because of what may be called an adoption effect; proportions reported as orphans are far too low perhaps because orphans are adopted by relatives, who are then reported as true parents". Blacker[6] and Timeaus[7] have also made similar observations.

Udjo[8,9] has applied the orphanhood method to the 1995, 1998 October household surveys, 1996 and 2001 censuses in South Africa and on the basis of his evaluation of the results observed that 'In the case of the survivorship of mothers, the errors appear to be largely due to the "adoption effect," which is common in survivorship reports in African censuses and surveys'. Furthermore, he points out that In the South African context, Mandela[10] has noted "In African culture …. We do not make the same distinctions among relations practiced by Whites. We have no half-brothers or half-sisters. My mother's sister is my mother; my uncle's son is my brother; *my brother's child is my son, my daughter"* (emphasis added).

Although the bias observed in applications of the orphanhood method has generally been in relation to the adoption effect, Udjo[8,9] observed a peculiar phenomenon with regard to paternal orphanhood in South Africa. On the basis of his analysis of the 1995, 1998 October Household Surveys, 1996 and 2001 census, he noted that the paternal orphanhood reports were largely unusable, perhaps due the father "absentee effect"

(i.e over reporting [by the younger respondents deliberately or unknowingly] of fathers as dead when in fact they were alive).

It is very clear from the above review that: (1) one cannot accept at face value the number of orphans (maternal or paternal) reported among persons less than 20 years of age in a census or survey as the number may be biased due to adoption or absentee father effect. (2) The orphanhood questions were not designed for the purpose of obtaining the number of orphans below the age of 20 years, rather, they were designed for estimating adult female and male mortality i.e. the mortality of persons aged 25 years and above and in such estimation the information obtained from young respondents, below about age 20, cannot be used because of the biases noted above. In light of the above one may not that some researchers have inappropriately used the orphanhood questions to estimate the number of orphans of persons less than 20 years in the context of HIV/AIDS. Even when confidence intervals are attached to such estimates, they would still be inappropriate since the issues noted above are not related to sampling errors but in the main, relate to non-sampling errors. It is within this context that present study is designed.

Purpose of study

The purpose of this study is to estimate trends in the proportions and number of orphans in 2001 – 2006 in the era of HIV/AIDS in South Africa.

Specific objectives

Specifically, the study would attempt to

1. Estimate the number and proportions of maternal orphans in 2001 - 2005 under the age of 15 due to causes other than AIDS
2. Estimate the number and proportions of paternal orphans in 2001 - 2005 under the age of 15 due to causes other than AIDS
3. Estimate the number and proportions of maternal orphans in 2001 - 2005 under the age of 15 due to AIDS;
4. Estimate the number and proportions of paternal orphans in 2001 - 2005 under the age of 15 due to AIDS.

DATA

2001 Population Census: The 2001 Census provides the total population of South Africa as estimated by Statistics South Africa[11] and also the age-sex distribution of the population. However, the estimated size of the population as given by Statistics South Africa is controversial, also Udjo[12] has drawn attention to certain deficiencies in the age-sex distributions. In view of this, although the total size of the population in 2001 as given by Statistics South Africa was used as a bench mark for some of the estimates in this study, the age distribution was smoothed as detailed in the next section so as to ensure that biases due to age mis-reporting are minimised in the estimated number of orphans.

Human Sciences Research Council/Nelson Mandela population based HIV (2003 and 2005) prevalence studies. These constitute the sources of data for the HIV prevalence

rates, which were then modelled and used as inputs for the estimation. A description of the modelling is provided.

South Africa DHS 1998: Some of the nuptiality indicators needed for the model used in the estimation were obtained from the South Africa DHS 1998.

Fertility, mortality and net migration inputs: The fertility, mortality and migration inputs for the estimation were obtained from studies by Udjo[8,9,13,14.]

METHODS

The estimation process consisted of a cohort component method to estimate the age-sex distributions and mortality during the period 2001-2006. On the basis of HIV prevalence curves fitted to observed data, the number of orphans due to AIDS were then estimated. These values were then compared with those obtained from Brass orphanhood questions.

RESULTS

Analysis is still on going.

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