

UK working group on education and HIV/AIDS

HIV & AIDS

Approaches to examining the impact
of HIV/AIDS on teachers

Policy & Research: series 1

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Education for all (EFA) will not be achieved unless we, the international education community, recognise the HIV/AIDS epidemic to be a global emergency and react accordingly.

The working group consists primarily of UK-based researchers, practitioners and policy-makers working in the fields of education and reproductive health. The group provides an informal opportunity for UK-based partners to discuss and build upon research on the interfaces between education and HIV/AIDS.

The purpose of the working group is threefold. First, it aims to build upon current research. Second, to engage people working on education at all levels to prioritise HIV/AIDS as an issue that should not be ignored. And finally, to strengthen links between education and HIV/AIDS networks.

This paper summarises discussions from the first meeting of the working group. The four presenters who contributed to the meeting were:

Paul Bennell
Roy Carr-Hill
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Alan Whiteside

David Clarke chaired the meeting.

Acknowledgements:

We would also like to thank the following people for their help in preparing this paper: Peter Aggleton, David Archer, Sandra Barton, Paul Bennell, Roy Carr-Hill, Kate Carroll, David Clarke, Elaine Ireland, Anthony Kinghorn, Linnea Renton, and Alan Whiteside.

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Approaches to examining the impact of HIV/AIDS on teachers

HIV/AIDS has, unequivocally, led to increased morbidity and mortality among young adults in many parts of sub-Saharan Africa. Although all sectors of society have been affected, one sector in particular has been the focus for attention and controversy: teachers. This paper does not attempt to assess what the actual and likely impact of the epidemic is on teachers. Instead, it attempts to draw together the different approaches to understanding the impact on teachers: highlighting the key methodological issues and consequent gaps and recommendations. It is hoped that this analysis will help to ground some of the tensions in the debate through a greater awareness of the complexities and subtleties of studying the impact of HIV/AIDS on teachers and teaching.

Quantifying the impact of HIV/AIDS on teachers

The clearest quantifiable impact of HIV/AIDS on teachers is the level of in-service mortality. Actual and past impacts have been measured mostly through school-based surveys and educational personnel records. The second key area of quantitative research has been around HIV prevalence among teachers; the data in this case relies mostly on projections and some limited population-based studies.

Each approach is described below, as well as key findings, limitations and implications.

1) Education personnel records and Education Management and Information Systems (EMIS)

Personnel records are used for calculating salaries and pensions for teachers. There are two main types: payroll or related personnel registers, and pension fund databases (where

a separate pension fund exists, eg Namibia, South Africa, Zimbabwe, Rwanda). If well maintained, they both contain a wealth of information about teachers, including levels of in-service mortality. The personnel system is part of the wider education management and information system. In some cases, for example Rwanda, Namibia and Zimbabwe, the systems are not well integrated into EMIS and are used independently for personnel administration or pension fund purposes. EMIS consists of annual school census data, and in some countries (eg South Africa) contains questions on in-service educator mortality. EMIS potentially offers an easier way of quantifying levels of teacher mortality than personnel records.

Data from personnel records has been analysed in South Africa, Namibia, Rwanda, Zimbabwe and Botswana. Mortality rates for teachers were shown to be on the increase in South Africa, whilst possibly stabilising in Botswana and Namibia. A significant proportion of the decrease in mortality in these two countries is suspected to be due to the increased uptake of antiretrovirals.

Deriving mortality rates from personnel records and EMIS was shown in South Africa to be both reliable and consistent compared to other school-based approaches. However, it did appear that estimates from all three data sources were underestimating levels of mortality. In the short term, the EMIS approach is unfeasible simply because education management systems are not functioning well enough in a number of high prevalence countries, rendering mortality data both unreliable and invalid.

As will be discussed later, these estimates are limited to measuring in-service mortality: ie those teachers who die whilst still employed as teachers. We, therefore, have no idea about

how many AIDS affected teachers die after leaving the service. This number is likely to be substantial as teachers leave due to medical grounds or perhaps claim early retirement.

Furthermore, although personnel records can, in theory, be used for time-series estimates, in most cases, data does not exist over a sustained period of time. These point estimates are limited in that they do not show trends in mortality: ie there is no certainty as to whether rates are increasing, decreasing or plateauing.¹ Finally, personnel data offers a reflection of the past which is limited when trying to understand future impact.

Recommendations

Well-functioning personnel systems and EMIS offer consistent, sustainable and simple ways to examine teacher mortality. These systems need to be strengthened in a number of resource-poor countries, not merely to further our understanding of the impact of HIV/AIDS, but more crucially to improve the capacity to monitor and respond to changes in the education sector. From a wider management perspective, EMIS human resource-related data could be integrated with personnel systems such as payroll, to allow for a more rigorous assessment of quality and completeness of data.

2) School-based surveys

School-based surveys have now been conducted in a number of high-prevalence countries, including: Uganda, Malawi, Botswana, Kenya, Mozambique, Zimbabwe, Tanzania, South Africa, Namibia and Zambia. Typically, researchers randomly sample between 30 and 100 schools in a high prevalence district. Schools, usually head teachers, are then asked about levels of

teacher mortality over a given time period. In South Africa, the government administers a school survey annually which, since 1999, has measured levels of in-service mortality.

The data from these school-based surveys varies across and within countries,² and it is impossible to make unequivocal generalised statements from the existing research. As this paper shows, the nuances are important and it becomes inadvisable to aim for generalised statements across countries. These surveys have been important in highlighting the limitations of aggregate data: for example, mortality rates differ widely between districts within countries – aggregating the data up to the national level therefore hides the impact. Moreover, AIDS impacts differentially, according to gender, age, urban/rural differences and level of education: teachers are not a homogenous group and the profile of a primary school teacher differs to that of a secondary school teacher or a head teacher.³

However, there are a number of pitfalls inherent in this approach. First, it is costly and tends to rely on small sample sizes. The exception is the official annual school survey in South Africa, but this is marred by high levels of non-response with regards to teacher mortality. The small sample sizes mean that school-based surveys must be interpreted with caution. In addition, as with the previous approach, the data provides point estimates – not allowing us to determine trends in mortality, and similarly, reflecting past rather than future impact.

It also appears that the way the survey is implemented will affect the estimated mortality rates. It has been suggested that the longer the researcher spends in a school, the higher the mortality and absenteeism rates. Moreover, within a school, self-reporting by teachers can yield different results to reporting by headteachers. The quality of the data also depends on the quality of the schools' record keeping. Unfortunately, the reality in many high-prevalence countries is that schools do not keep adequate or reliable records.

¹ Given the unreliability of many HIV-related estimates, it was recommended that a series of at least five point estimates are required before making any claim about trends in rates (this applies to either mortality or prevalence rates).

² It is beyond the scope of this paper to detail individual research findings.

³ For instance, head teachers are older than the average teacher and therefore their risk profile for HIV is lower.

Lastly, school-based surveys have, to date, been mostly carried out by international research teams. The nature of the research is extractive and the data has not been used to build the capacity of schools to monitor and respond to the impact of HIV/AIDS.

Recommendations

In attempting to quantify the impact of HIV/AIDS on teacher mortality, it is paramount to bear in mind that the impact will differ between districts, and even between schools and years. Teachers are not a homogenous group and data should therefore be disaggregated as much as possible. It follows that impact management must, at the very least, be country specific, and target different sub-groups of teachers in different ways. The utility of school-based surveys would be increased if they fed into a wider attempt to improve the underlying educational management system, both at the local and national level.

3) Estimating HIV prevalence

The two approaches above focus on mortality rates. There has also been a research focus on levels of HIV prevalence. This can be estimated for teachers through either population-based surveys or seroprevalence testing in the school-place. Population-based surveys include seroprevalence testing of a representative sample of households within a district or country. This type of survey was carried out in a rural area of Zimbabwe and showed that HIV prevalence for teachers was lower than for the general population.

However, the sample of teachers was small and the data must therefore be treated with caution.

HIV testing of teachers in the school-place has not been systematically carried out anywhere else. There are, however, proposals to develop this research in Lesotho, Zambia, Uganda and South Africa. These types of risk assessments are more common in the private sector and, although much of the data is not in the public domain, some data from South Africa suggests that prevalence is lower for

higher occupational groups. However, Zambian antenatal and Demographic Health Survey (DHS) data suggests persistence of higher prevalence among higher educated people, but with suggestions of lower prevalence among younger, better educated people as the epidemic progresses.

The limitations of using population-based seroprevalence testing can include high refusal rates and relatively small samples of teachers. With regards to school-based seroprevalence testing, a bias known as the “healthy worker effect” exists, which holds that you need to be of a certain level of health in order to be at work.

Knowing if a teacher has HIV does not give any information about when the infection occurred and knowledge is therefore limited as to how and when the impact will be felt. Finally, it should be stressed that a number of ethical issues must be addressed when conducting seroprevalence testing in the workplace – not least of all, plans for voluntary testing, access to care and workplace policies.

Recommendations

Large scale and representative seroprevalence studies are an important way to quantify the actual and likely impact of HIV/AIDS on teachers. This type of study should be encouraged in the school-place and testing should ideally also include a CD4 count so that virus progression can be monitored. Although testing is anonymous, it is vital that Voluntary Counselling and Testing (VCT) services are available for teachers and that testing should, more broadly, be part of an initiative to respond to the needs of infected staff.

4) Modeling future impact

The approaches detailed above examine the past or actual impact. Of equal, or perhaps greater, importance, is the future impact. This is because most HIV-related morbidity and mortality typically occurs some eight years after incidence (in a non-antiretroviral (ARV) scenario). As the incidence of HIV has been increasing in many parts of southern Africa, we can expect that, without intervention, the impact on teacher mortality will be greater in the future than at present. The situation in eastern Africa is different – another reason for disaggregating data as much as possible.

Projections are, therefore, an important tool for estimating the future impact. These are mathematical models which turn 'input data', such as ANC prevalence estimates, into general population estimates. A curve is then fitted with respect to the likely spread of the virus within the population. In the case of teachers, the curve should then be adjusted to fit the specific age, gender and risk profiles of teachers. Not all studies have done this, and data on age and gender profiles are not always available.

A number of projections have been used to estimate both prevalence and mortality rates for teachers. The success of these models is judged by how closely they fit existing demographic and epidemiological data: for example, general population projections can be compared with mortality and prevalence rates derived from DHS, or teacher-specific projections can be compared with teacher mortality data. Ultimately, the quality of projections will be determined by the quality of the input data. Therefore, the biases, which exist for ANC data, will also often apply to projections, although careful use of ANC data can correct some of these biases.⁴ Given the inadequacy of many of these data sources, as described above, validation for teachers as a sub-group becomes difficult.

Projections on teacher mortality in Botswana, Namibia and Rwanda have been shown to converge with other forms of estimates. These

⁴ It is beyond the scope of this paper to detail biases involved in ANC prevalence data. Briefly, they include under-representation of older women, all men and rural sub-groups.

projections suggest that, although we can expect teacher mortality to increase in the future, there will be a limited impact at the system level. The problem is, in these cases, probably manageable. The projections also suggest that other causes of teacher attrition may still be dominant, especially if ARVs are made available. Different scenarios were built into the projections, such as availability of antiretrovirals, type of educator, urban/rural differences and possible behaviour change. However, one key assumption must be made regarding whether or not teachers are a high, average or low risk group for HIV compared to the general population, and how their risk may change over time. As this question has not yet been unequivocally answered, a level of uncertainty is unavoidable.

Projections offer a way to generalise data: both from the general population to teachers, and from present to future. However, given the nuances inherent in how HIV/AIDS impacts on teachers, projections run the risk of over-generalising. The challenge remains: how to factor in behaviour change; differences between sub-groups; changing demand for education; availability of antiretrovirals; and possible additional resurgences in HIV incidence. In addition, projections which show the cumulative impact can be useful, but may compound inaccuracies due to factors such as masking of changes in risk profile over time.

Recommendations

Projections are our main tool for understanding – and planning for – the future impact of HIV/AIDS on teachers. However, given the paucity of robust input data, projections must be contextualised as much as possible and should offer scenarios which reflect the subtleties described earlier. This level of sophistication requires the work of experienced modellers. Finally, projections must be frequently validated and revisited with epidemiological, demographic and risk behaviour data.

Planning and policy decisions, which require a very precise estimation of mortality in the context of any particular country, should be differentiated from those in which the planning decision is likely to remain the same across a range of likely projection scenarios.

Interpreting numbers – the importance of qualitative research and context

Whilst AIDS-related mortality of teachers is undoubtedly an issue which warrants attention, in terms of educational planning these rates must be placed within the wider educational context. In many countries, annual attrition rates may be as high as 10% – signalling a wider crisis in the teaching profession and dwarfing AIDS-related attrition.

Coupled with the push for education for all (EFA), and the subsequent increase in demand for education, the AIDS-related impact is just one of many challenges which Ministries of Education must face. The wider educational context is therefore pivotal in understanding and responding to the impact of HIV/AIDS on teachers. For instance, an ungrounded response to expected increases in teacher mortality might be to open more teacher training colleges. However, in some countries there is an over-supply of teachers, and this response would therefore be unwise. In order to contextualise the data, qualitative data methodologies must also be employed.

In addition, qualitative research is necessary for understanding social or 'soft' impacts which mortality data fails to capture. Questions in need of qualitative research include:

1) What drives HIV in schools?

Research is needed to profile teachers' sexual behaviour and whether or not certain sub-groups of teachers are high-risk for HIV. This information is important in terms of targeting interventions (rural/urban; male/female; primary/secondary; transferred teachers etc).

2) How much teacher attrition is due to the epidemic?

Because of AIDS-related morbidity, teachers may be leaving schools on medical grounds, perhaps on early retirement. Is AIDS-related attrition qualitatively different to other forms of

attrition? Indirectly, it has been suggested that teachers are leaving their profession to fill human resource deficits in the private sector (exacerbated by the epidemic).

3) Does stigma and discrimination in the school mask the true impact of HIV/AIDS?

Some qualitative research suggests that because of the role teachers hold in communities, AIDS-related stigma is higher than for other sectors of society. If this is the case, teachers might go to great lengths to hide their status, and deaths or illness may not be disclosed, making quantifying impact difficult.

4) How does AIDS-related absenteeism affect the quality of education?

To what extent has teaching been affected by the epidemic? If the quality of teaching has deteriorated, what has been the ensuing effect on educational outcomes for children? Is absenteeism by those who are affected (eg for funeral attendance or care of family members) more problematic than absenteeism due to HIV/AIDS illness of teachers per se?

5) What other challenges has the epidemic created for teachers?

Not only are teachers directly affected by HIV, but they face the additional challenges of teaching about HIV and dealing with children affected by HIV/AIDS.

6) What role do positive living and availability of ARVs play in mitigating the impact?

How can a school provide an enabling environment for teachers affected by HIV? What workplace policies, including access to ARVs, should be in place?

Discussion

A significant number of methodological limitations exist in current approaches to quantifying the impact of HIV/AIDS on teachers and teaching. Not only are the data, in most cases, unreliable, but they are limited unless placed in context. It is clear that the impact will be felt differently in different contexts, depending on how mature the epidemic is and what wider educational reforms and policies exist to mediate the impact.

Given these limitations, it is impossible and undesirable at this stage to make generalisations about the exact impact of HIV/AIDS on teachers. The question arises: do the exact numbers matter? The numbers are important for educational planning, but does it suffice to say we don't always need to be completely accurate to make the appropriate planning decisions in many cases?

The problem is that if we don't have robust estimates, the impact will either be overestimated or underestimated and, given the limitations of the data, this is currently inevitable. The tendency to overestimate the impact is understandable and is based on the assumption that, in the case of AIDS, too much action is better than inaction. Some oppose this approach, arguing that it leads to fatalism and negativity. However, the latter standpoint runs the risk of inducing complacency over the severity of the epidemic.

No consensus has yet been established on the relative importance of these views in different contexts and how to manage the risk of negative implications. The question seems to be: what are the risks of overestimation?

There seem to be two sets of possible problems: a) incorrect, costly planning decisions – here it is important to, first, identify which decisions are very sensitive to different mortality scenarios and, second, get better data before final decisions are made (without holding up other decisions); and b) advocacy related problems – in order to reduce the risk of fatalism, it is important to avoid the highly inaccurate estimates that appear in the media, and differentiate these from the more appropriate advocacy messages.

The working group concludes that, while it seems plausible that the levels of teacher mortality are lower than suggested by many commentators, further work needs to be done to establish more rigorously on a country-by-country basis what the impacts are, how to interpret projections and empirical data, and whether new estimates make a substantial difference to policy and planning decisions. The improvement in quality of data will allow for more accurate projections, thus improving educational planning. Data should be collected through personnel systems and be part of a wider attempt to improve education management systems. Not only will this reconcile knowledge gaps about impact, but it will also meet the wider education and development objectives.

Which leads us to the following point: HIV/AIDS should not be seen as a 'stand-alone issue'. Impact management must take into account wider educational context and the subtleties inherent in understanding the impact on teachers. In order to do this, quantitative research must go hand-in-hand with more in-depth qualitative research.

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