



Southern and Eastern Africa Consortium
for Monitoring Educational Quality

Pupil and Teacher Knowledge about HIV and AIDS in Kenya

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Introduction

The HIV and AIDS pandemic presents a major challenge for the social and economic development of nations located in Sub-Saharan Africa. The Joint United Nations Programme on HIV and AIDS (UNAIDS, 2010: 180) has estimated that in this region there are more than 20 million people living with HIV, and that around 10 percent of these people are below the age of 15 years.

In 2009 governments and international donors together provided US\$ 15.9 billion for the global AIDS response (UNAIDS, 2010: 146). At this point of time there is no known cure for AIDS, and a vaccine for HIV still appears to be in a development phase.

The first case of HIV infection in Kenya was diagnosed in 1984. In 2009 it was estimated that around 1.5 million Kenyans were living with HIV, and around 200,000 were children under the age of 15 years (UNAIDS, 2010: 180).

AIDS is widely accepted as being one of the main causes of a dramatic increase in the number of orphans. The estimated number of orphans aged 0-17 years due to AIDS in Kenya rose from 820,000 in 2001 to 1.2 million in 2009 (UNAIDS, 2010: 186).

The UNAIDS organization has reported that the HIV prevalence rate in Kenya for adults aged 15-49 years in 2009 was 6.3% (UNAIDS, 2010: 181). This represented a small improvement on estimated rates from earlier years. This trend has been partly attributed to reductions in high-risk behaviour – but may also have been influenced by changes in the methodology for estimating HIV infection rates that occurred during 2007 (UNAIDS, 2007: 3).

The United Nations has recognized that the education sector has a critical role to play in terms of the delivery of effective HIV and AIDS prevention education programmes.

The Education Sector Response

The Kenyan Ministry of Education has responded to this message by implementing HIV and AIDS prevention education programmes that aim to ensure that all young people possess the basic knowledge required to make informed decisions about HIV and AIDS that will protect and promote their health.

The primary school level has been identified as a crucial access point for HIV and AIDS prevention education programmes. This is because: (a) most children attend these schools, and (b) it is important to improve the knowledge of children about HIV and AIDS before they become sexually active and/or involved in high-risk behaviors.

The SACMEQ Research Programme

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) is a network of 15 Ministries of Education: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe.

SACMEQ's main mission is to undertake integrated research and training activities that: (a) provide educational planners with the technical skills required to monitor and evaluate the quality of their own education systems, and (b) generate information that can be used to plan the quality of education.

The SACMEQ Consortium has undertaken three large-scale cross-national studies of the quality of education in Southern and Eastern Africa: the SACMEQ I Project (1995-1999), the SACMEQ II Project (2000-2004) and the SACMEQ III project (2007-2011).

The SACMEQ III Project included an additional data collection concerned with a detailed assessment of pupil and teacher knowledge about HIV and AIDS.

A New HIV and AIDS Knowledge Indicator

In 2006 SACMEQ's Governing Body (the SACMEQ Assembly of Ministers of Education) expressed concern about the need for a well-designed indicator that could be used to guide informed debate about the effectiveness of HIV and AIDS prevention education programmes. The one indicator that had been widely used to judge these programmes (known as the "United Nations General Assembly (UNGASS) HIV-AIDS Knowledge Indicator for Young People") was considered to lack validity because it was based on a short list of five test questions that were problematic in terms of wording complexity, content coverage, and reliability.

The SACMEQ Ministers asked the SACMEQ III Project Research Teams to address information needs in this area by developing a valid SACMEQ HIV-AIDS Knowledge Test that would be suitable for administration to Standard 6 pupils (who have average ages of 13.5 years across the SACMEQ countries and 13.8 years in Kenya) and their teachers.

The SACMEQ HIV-AIDS Knowledge Test (HAKT)

The SACMEQ HIV-AIDS Knowledge Test (HAKT) was designed to provide a valid assessment of pupil and teacher knowledge about HIV and AIDS with respect to the topics specified in official school curriculum frameworks, textbooks, and teaching materials used by the SACMEQ countries.

The 86 HAKT test items covered 43 curriculum topics, and they were focused on an assessment of "the basic knowledge about HIV and AIDS that is required for protecting and promoting health". These topics were grouped into five main areas: definitions and terminology; transmission mechanisms; avoidance behaviours; diagnosis and treatment; and myths and misconceptions.

The HAKT was administered in late 2007 to 61,396 Standard 6 pupils and 8,026 teachers in 2,779 schools across the 15 SACMEQ countries. In Kenya the HAKT was administered to 4,436 Standard 6 pupils and 733 teachers in 193 schools. The advanced psychometric analyses that were applied to the SACMEQ III Project data indicated that the HAKT had a high level of reliability, and that it was suitable for placing pupils and their teachers on a common scale of knowledge about HIV and AIDS.

In Kenya, the SACMEQ III Project data collection covered 8 education provinces: Nairobi, North Eastern, Central, Eastern, Nyanza, Coast, Rift Valley, and Western.

The performance of pupils and teachers on the HAKT in these education provinces, and for SACMEQ countries overall, was assessed by applying two complementary scoring procedures:

(a) "**HAKT Scores**" – these were Rasch-scaled scores on the HAKT that had been transformed to a Standard 6 pupil average of 500 and standard deviation of 100.

(b) "**HAKT Minimal Knowledge Scores**" – these were dichotomous scores that indicated whether pupils or teachers reached (score=1) or did not reach (score=0) SACMEQ's "minimal" HIV and AIDS knowledge benchmark (defined as mastery of half of the official curriculum assessed by the HAKT).

Table 1 contains summarized information about these two scores for Standard 6 pupils and teachers in the 8 Kenyan education provinces and SACMEQ countries. Two sets of figures have been presented in the table for these groups of respondents: (a) the Average HAKT Scores and (b) the Average HAKT Minimal Knowledge Scores (expressed as percentages).

For example, the figures in the first row of **Table 1** indicated that in Kenya's Nairobi Province: (a) the average HAKT Scores for pupils and teachers were 579 and 822, respectively, and (b) the percentages of pupils and teachers that reached the minimal level of knowledge on the HAKT were 68% and 100%, respectively.

Table 2 contains the average HAKT Scores for groups of Kenya's Standard 6 pupils defined by four demographic variables: Socioeconomic Status, Geographic Location, Gender, and Age.

For example, the figures in the first row of **Table 2** indicated that pupils from high socioeconomic status families had a higher average HAKT Score (535.8) than pupils from low socioeconomic status families (488.9), and that the difference between these averages (46.9) exceeded two standard errors of sampling (14.2).

Note that SACMEQ Projects use pupils as the units of analysis. Therefore, teacher statistics such as the mean refer to teacher characteristics associated with the average pupil.

Pupil Knowledge Levels

(a) SACMEQ Countries

The average HAKT Scores for Standard 6 pupils provided a means of making relative comparisons of knowledge levels among SACMEQ countries.

The results presented for countries in the first column of **Table 1** showed that: (a) Standard 6 pupil averages ranged from a low of 453 in Mauritius to a high of 576 in Tanzania, and (b) the Kenyan pupil average of 509 was just above the SACMEQ overall average of 500.

These average HAKT Scores for SACMEQ countries were dangerously deceptive. For example, they suggested that Standard 6 pupil knowledge levels about HIV and AIDS in Kenya were “satisfactory” because the average score for Kenya was slightly higher than the average for all SACMEQ countries. However, an examination of average HAKT Minimal Knowledge Scores suggested the need for a different conclusion!

The average HAKT Minimal Knowledge Scores for Standard 6 pupils provided a means of making normative comparisons of knowledge levels among SACMEQ countries. (*NOTE: It was expected that 100% of pupils in all SACMEQ countries should reach the minimal knowledge level.*)

The results presented in the second column of **Table 1** showed that the percentages of pupils with minimal knowledge ranged from 17% in Mauritius to 70% in Tanzania. That is, not a single SACMEQ country came close to satisfying the expectation that 100% of Standard 6 pupils should reach the minimum knowledge benchmark. In addition, a majority of the Kenyan Standard 6 pupils (61%) did not reach the SACMEQ minimal knowledge benchmark.

These results indicated that major alarm bells should be ringing in Kenya and all other SACMEQ countries – because it is not acceptable that such large numbers of Standard 6 pupils should lack the minimal knowledge about HIV and AIDS that is required for protecting and promoting health.

(b) Kenya’s Education Provinces

The figures for Kenya’s education provinces presented in the first column of **Table 1** showed large provincial variations in Standard 6 pupil knowledge about HIV and AIDS. For example, the very high average HAKT Score for Nairobi Province (579) placed this province

far above the average HAKT Scores for Western Province (481) and Rift Valley Province (492).

The average HAKT Minimal Knowledge Scores for Kenya’s education provinces in the second column of **Table 1** also highlighted large provincial variations in Standard 6 pupil knowledge about HIV and AIDS. The percentage of pupils in Nairobi Province (68%) that reached SACMEQ’s minimal HIV and AIDS knowledge benchmark was around two and a half times greater than the percentage observed for the Western Province (26%).

Teacher Knowledge Levels

In the third and fourth columns of figures in **Table 1** the average HAKT Scores and average HAKT Minimal Knowledge Scores have been presented for teachers in SACMEQ countries and Kenya’s education provinces. The figures showed that the average HAKT Score for teachers exceeded 700 for most SACMEQ countries, and for SACMEQ overall it reached 746 – almost 250 points above the Standard 6 pupil average of 500. In Kenya, the average HAKT Score for teachers was 793 at the national level, and the provincial averages ranged from around 760 to 820.

The percentages of teachers that reached SACMEQ’s minimal knowledge benchmark of mastering at least one half of the official school curriculum were 100% for all of Kenya’s education provinces, and in the range of 98% to 100% for most SACMEQ countries. In some Kenyan provinces (Western, Rift Valley, and Coast Provinces) the gap between the percentages of teachers and pupils reaching the minimal knowledge level was around 65 to 75 percentage points.

These research results came as a surprise to the Kenyan SACMEQ III Project Research Team because they had assumed that teachers with high levels of knowledge about HIV and AIDS should be able to transmit this important information to their pupils (whose average age was 13.8 years). This assumption was obviously faulty and certainly warrants further research in order to provide an explanation for the substantial “knowledge gap” between pupils and teachers.

One area of enquiry should focus on the opportunity that pupils have to learn about HIV and AIDS – because around one in every six Standard 6 pupils in Kenya (15.1%) reported that they had “never attended classes/lessons on HIV and AIDS during the current school year”.

Demographic Differences in Knowledge

In **Table 2** some research results have been presented in order to examine demographic differences in the HIV and AIDS knowledge of Kenya's Standard 6 pupils. Four variables were used to generate groups of pupils for making comparisons of average HAKT Scores. Significant differences in group averages were noted for the Socioeconomic Status, Location, and Age variables – with pupils from wealthier backgrounds, pupils from urban locations, and younger pupils demonstrating much greater knowledge about HIV and AIDS. No significant difference was observed for pupil groups defined by Gender.

Four Research-Based Conclusions

1. Low Pupil Knowledge Levels

Knowledge levels about HIV and AIDS among a majority (61%) of Kenya's Standard 6 pupils during 2007 were below SACMEQ's "minimal" knowledge benchmark (which was defined as mastery of at least half of the official school curriculum). The Ministry of Education should acknowledge that HIV and AIDS prevention education programmes need to be monitored and evaluated to ensure they are working effectively.

2. Large Provincial Differences in Knowledge

There were large differences in Standard 6 pupil knowledge levels about HIV and AIDS among education provinces in Kenya. The Ministry of Education should: (a) investigate the reasons for these differences, and (b) find out why knowledge levels were so low in Western and Rift Valley.

3. A Pupil-Teacher "Knowledge Gap"

There was a large HIV and AIDS "knowledge gap" between Kenya's Standard 6 pupils and their teachers. The Ministry of Education should investigate why well-informed teachers were not able to transmit this important knowledge to many of their pupils.

4. Demographic Differences in Knowledge

There were significant differences in knowledge levels about HIV and AIDS within groups of Kenya's Standard 6 pupils defined by Socioeconomic Status, Location, and Age. The Ministry of Education should expand the delivery of HIV and AIDS prevention education programmes for older pupils, poor communities, and non-urban schools.

A Concluding Comment

All children need to have the basic knowledge about HIV and AIDS that is required to protect and promote health. However, it was clear from the SACMEQ III Project findings that the knowledge levels of nearly two thirds of the Standard 6 pupils in Kenya during 2007 were not sufficient to satisfy the SACMEQ minimal knowledge benchmark.

This was indeed alarming because Standard 6 pupils (with an average age of 13.8 years) are entering a stage of mental and physical development where they may become sexually active, and/or may choose to become involved in high-risk behaviours.

The Ministry of Education should therefore take immediate action to (a) address the research-based conclusions presented above, and (b) facilitate the development and implementation of new (and more effective) HIV and AIDS prevention education programmes that focus on the upper standards of primary school.

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Table 1
Pupil and Teacher Scores on the
SACMEQ HIV-AIDS Knowledge Test (HAKT)

	PUPILS		TEACHERS	
	HAKT Score	Reached Minimal Level (%)	HAKT Score	Reached Minimal Level (%)
Kenya: Nairobi	579	68	822	100
TANZANIA	576	70	724	99
Kenya: North-Eastern	543	52	807	100
Kenya: Central	540	55	829	100
SWAZILAND	531	52	759	100
Kenya: Eastern	516	42	788	100
MALAWI	512	43	714	99
Kenya: Nyanza	510	40	803	100
KENYA	509	39	793	100
MOZAMBIQUE	507	40	741	99
SOUTH AFRICA	503	35	781	100
Kenya: Coast	502	34	807	100
NAMIBIA	502	36	764	99
ZANZIBAR	501	38	657	94
BOTSWANA	499	32	782	100
Kenya: Rift Valley	492	32	762	100
UGANDA	489	33	708	98
ZAMBIA	488	35	744	98
SEYCHELLES	488	25	789	99
Kenya: Western	481	26	785	100
ZIMBABWE	477	30	785	99
LESOTHO	465	19	751	98
MAURITIUS	453	17	698	98
SACMEQ	500	36	746	99

Table 2
Average HAKT Scores for Kenya Pupils
across Four Demographic Variables

DEMOGRAPHIC VARIABLE	1st Group	2nd Group	Diff (SE)
Socioeconomic Status (Low/High)	488.9	535.8	46.9 (7.1)**
Location (Isolated-Rural-Town/City)	500.5	575.6	75.1 (10.8)**
Gender (Males/Females)	513.9	504.5	-9.3 (6.9)
Age (Younger/Older)	524.8	491.0	-33.8 (7.2)**

Diff = Difference

Figure 1
Variation in pupil knowledge about HIV and
AIDS among SACMEQ school systems
and among provinces in Kenya

