



Southern and Eastern Africa Consortium
for Monitoring Educational Quality

Pupil and Teacher Knowledge about HIV and AIDS in Tanzania

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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 Tanzania was diagnosed in 1983. In 2009 around 1.4 million Tanzanians 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 Tanzania rose from 840,000 in 2001 to 1.3 million in 2009 (UNAIDS, 2010: 186).

There has been a reported slight decrease in the overall prevalence of HIV infection among Tanzanian adults aged 15-49 years – from 7.1% in 2001 to 5.6% in 2009 (UNAIDS, 2010: 181).

However, it is difficult to evaluate the significance of this small improvement in prevalence rates because of changes that were made in the methodology used to estimate HIV infection rates (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 Tanzanian Ministry of Education has responded to this message by implementing education initiatives that aim to ensure that all young people possess the basic knowledge that is required to make informed decisions about behaviors related to HIV and AIDS that will protect and promote their health.

The primary school level is 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 by decision makers to plan and improve 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 has 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 14.6 years in Tanzania) 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 covered 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 Tanzania the HAKT was administered to 4,194 Standard 6 pupils and 629 teachers in 196 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 Tanzania, the SACMEQ III Project data collection covered 11 "education zones": North East, Eastern, Kagera, South Western, Southern, Southern Highland, Central, Mwanza, Northern, Kilimanjaro, and Western.

The performance of pupils and teachers on the HAKT in these education zones, 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 11 Tanzanian education zones 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 Tanzania's North East Zone: (a) the average HAKT Scores for pupils and teachers were 605 and 742, respectively, and (b) the percentages of pupils and teachers that reached the minimal level of knowledge on the HAKT were 79% and 100%, respectively.

Table 2 contains the average HAKT Scores for groups of Tanzania'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 (586.8) than pupils from low socioeconomic status families (566.7), and that the difference between these averages (20.1) exceeded two standard errors of sampling (14.6).

Note that SACMEQ Projects use pupils as the units of analysis. Therefore, teacher statistics such as means 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 Tanzania pupil average of 576 was well 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 Tanzania were excellent because the average score for Tanzania (576) was the highest 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 percent in Mauritius to 70 percent in Tanzania. That is: (a) not a single SACMEQ country came close to satisfying the expectation that 100% of Standard 6 pupils should reach the minimum knowledge benchmark, and (b) in Tanzania almost one third of the Standard 6 pupils (30%) did not reach the SACMEQ minimal knowledge benchmark.

These results indicated that major alarm bells should be ringing in Tanzania 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 their health.

(b) Tanzania's Education Zones

The figures for Tanzania's education zones presented in the first column of **Table 1** showed large zonal variations in Standard 6 pupil knowledge about HIV and AIDS. For example, the very high average HAKT Scores for Northern Zone (605) and Eastern Zone

(602) placed them far above the average HAKT Scores for Western Zone (546) and Kilimanjaro Zone (548).

The average HAKT Minimal Knowledge Scores for Tanzania's education zones in the second column of **Table 1** also highlighted zonal variations in Standard 6 pupil knowledge about HIV and AIDS. The highest percentages of pupils to reach SACMEQ's minimal HIV and AIDS knowledge benchmark were in the North East and Eastern Zones (79% each), and these percentages were 18 percentage points higher than the lowest percentages observed in Western Zone (61%) and Kilimanjaro Zone (61%).

Teacher Knowledge Levels

In the third and fourth columns of **Table 1** the average HAKT Scores and average HAKT Minimal Knowledge Scores have been presented for teachers in SACMEQ countries and Tanzania's education zones. 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 score points above the Standard 6 pupil average of 500.

In Tanzania, the average HAKT Score for teachers was 724 at the national level, and exceeded 700 for all education zones. In addition, the percentages of teachers that reached SACMEQ's minimal knowledge benchmark of mastering at least one half of the official school curriculum were around 100 percent for all SACMEQ countries and all Tanzania education zones.

In some Tanzanian zones (such as Western, Kilimanjaro, and Northern) the gap between teachers and students reaching the minimal knowledge level was around 35 to 40 percentage points. These research results came as a surprise to the Tanzanian 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 close to 15 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 some supplementary data analyses indicated that around one third (33%) of Tanzania's Standard 6 pupils 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 Tanzania'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 (that is, greater than two standard errors) were noted for the Socioeconomic Status and Location variables – with pupils from wealthier backgrounds and pupils from urban locations demonstrating much greater knowledge about HIV and AIDS. No significant differences were observed for pupil groups defined by Gender and Age.

Research-Based Conclusions and Policy Suggestions

1. Low Pupil Knowledge Levels

Knowledge levels about HIV and AIDS among almost one third (30%) of Tanzania'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. Zonal Differences in Knowledge

There were differences in Standard 6 pupil knowledge levels about HIV and AIDS across education zones in Tanzania. The Ministry of Education should: (a) investigate the reasons for these differences, and (b) find out why knowledge levels were lower in Kilimanjaro and Western.

3. A Pupil-Teacher "Knowledge Gap"

There was a substantial HIV and AIDS "knowledge gap" between Tanzania'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 a considerable proportion of their pupils.

4. Demographic Differences in Knowledge

There were significant differences in knowledge about HIV and AIDS between groups of Tanzania's Standard 6 pupils defined by Socioeconomic Status and Location. The Ministry of Education should expand and intensify the delivery of HIV and AIDS prevention education programmes in 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 their health. However, it is clear from the SACMEQ III Project research results that during 2007 around one third of the Standard 6 pupils in Tanzania did not have this minimal level of knowledge.

This was indeed alarming because Standard 6 pupils in Tanzania (with an average age of 14.6 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 more effective HIV and AIDS prevention education programmes that focus on the upper levels 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 (%)
Tanzania: North East	605	79	742	100
Tanzania: Eastern	602	79	712	96
Tanzania: Kagera	597	76	717	100
Tanzania: South Western	594	80	750	100
Tanzania: Southern	594	73	723	100
TANZANIA	576	70	724	99
Tanzania: Southern Highland	574	70	738	100
Tanzania: Central	571	67	715	93
Tanzania: Mwanza	559	66	716	100
Tanzania: Northern	558	65	716	100
Tanzania: Kilimanjaro	548	61	739	100
Tanzania: Western	546	61	700	95
SWAZILAND	531	52	759	100
MALAWI	512	43	714	99
KENYA	509	39	793	100
MOZAMBIQUE	507	40	741	99
SOUTH AFRICA	503	35	781	100
NAMIBIA	502	36	764	99
ZANZIBAR	501	38	657	94
BOTSWANA	499	32	782	100
UGANDA	489	33	708	98
ZAMBIA	488	35	744	98
SEYCHELLES	488	25	789	99
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 Tanzania Pupils
across Four Demographic Variables

DEMOGRAPHIC VARIABLE	1st Group	2nd Group	Diff (SE)
Socioeconomic Status (Low/High)	566.7	586.8	20.1 (7.3)**
Location (Isolated-Rural-Town/City)	566.6	619.2	52.6 (8.3)**
Gender (Males/Females)	581.1	570.8	-10.3 (6.7)
Age (Younger/Older)	574.4	577.5	3.1 (7.2)

Diff = Difference

Figure 1
Variation in pupil knowledge about HIV and
AIDS among SACMEQ school systems
and among zones in Tanzania

