



My Africa

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Measurement of Education as Analytic Variable in HIV Research in Africa

Education as a research variable is favored by researchers because, in part, it is easy to get a response about it from study participants. Editors, reviewers, and readers of articles also expect that researchers report at least something on the “education” of study participants. It is also customary that the first table of an article presents the socio-demographic characteristics of the study participants, in which the variable “education” is included. In epidemiologic modeling, it is almost always expected that the “effect” of education or control for this variable is included. Authors who do not describe their study participants with regard to their education, stand the risk of being queried as to why they missed such an important variable. Furthermore, in the discussion sec-

tion, the educational differences are discussed as they may explain the differences or lack of differences in outcome measures between the groups.

The presentation of the education variable in articles is a standard; study participants are described as having attended or completed so many years of education (as a continuous variable) or having attained education defined as a categorical variable (eg, primary, secondary, and post-secondary education). What may not be clearly stated in manuscripts and articles is that difference between “attending” primary education vs “completing” primary education. In many situations, researchers do not specifically state whether the variable refers to a completion of a particular phase or stage of education

or as an alternative just attended school up to that level.

Role of education in HIV in Africa

Many authors have shown that education may be associated, either positively or negatively, with HIV infection in Africa (1-3). Bärnighausen et al (4) reported that in South Africa, the hazard of HIV infection was 7% lower for each year of grade educational attainment. This finding is perhaps expected as educated people are likely thought to be health-conscious and adhere to public health messages and other interventions. Education may also accord an individual the opportunity to access health information. Furthermore, the educated may be more likely to look at the future with

hope and not be satisfied with transient life benefits (such as gratification from excess alcohol use, smoking, or sexual pleasure) than the uneducated. Results on the positive effects of education on HIV have not always been consistent, though. There is evidence suggesting that the finances and exposure to other social environment that education may accord may also open up a wider network of potential sexual partners (5). Since having concurrent and multiple sex partners is a risk factor for HIV, the educated at least theoretically stand in harm's way as their education may potentially open up possibility of them accessing sex partners.

The education variable has also been usually taken as potentially influencing behavior that may be relevant for the situation at hand. In terms of HIV, the main issue is whether educational level is associated with HIV infection. Many researchers do not have the resources to explore the mechanisms as to why a high level of education, so variously measured, could be associated with HIV. As an example, education is not just a measure of an individual's current potential cognitive capabilities. Nkya et al (6) have shown that increased knowledge on HIV may not always translate into positive or protective behaviors.

Education, especially in South Africa, may be a robust

indicator of the socio-economic situation of the family of origin (ie, parental socio-economic status). Individuals who received high levels of education are likely to have come from wealthier households. There are certainly exceptions but the general trend may be this. Furthermore, some women may have dropped out of school because they had gotten pregnant and needed to take care of the child or were expelled from school on disciplinary grounds. As opposed to this, people who achieved higher levels of education were maybe less sexually active or were able to prevent pregnancy.

Then, there is the problem of assessing the "effect" of education in different settings, since school systems, their objectives, and expectations are not the same. As an example, is it reasonable to assume that the "effect" of education on cardiovascular mortality will be the same in Malawi as in Croatia? Is primary education in Croatia the same as in Malawi? Do students have to pass the national examinations hurdle in Croatia as they are expected to in Malawi? Are the objectives of the primary educational system the same in Croatia and Malawi? Even within the same country, the quality of education and the school system may differ. These considerations and many other questions should prevent researchers from making unsubstantiated claims

on the value and roles of education in health and disease.

Measuring education as a research variable

As stated above, it is easy to ask a research participant which is the highest level of education they have attended or completed. The number of years spent in education, although often reported in articles, may not be that intuitive for a research participant to guess what the researcher is asking for. How many years have you spent in school? In settings where grade repetition is common, an individual who has attained eighth-grade education may have spent 10 or even more years in school. I would doubt, though, that when the question is asked that individuals would correctly classify themselves. There is also a validity problem here. If what matters is the number of years of education – is the level of knowledge, skills, and employment the same for someone who went to high school when 11 years old as for someone who spent 11 years trying to finish primary school?

Way forward

It may be enough to use the education variable to describe the study population, so that readers have an idea of the social position of the study group. But as scientists, I believe we need

to go beyond just reporting the description of the sample or including education as variable to control for in multivariate analysis. If the issue is that highly educated people have high knowledge on a subject, it may be better to try quantifying this. As a minimum though, we need to be clear why we want to collect data on number of years spent in school, or grade level achieved.

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