



Are literacy skills associated with young adults' health in Africa? Evidence from Malawi[☆]



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ABSTRACT

This study investigates whether literacy skills are a distinct dimension of education that influences young adults' health in the southeast African context of Malawi. It uses new data from Tsogolo la Thanzi, a study of young adults in southern Malawi, to achieve three aims. The first is descriptive: to demonstrate a direct assessment for measuring literacy in a population-based survey, and show that it captures variability in skills among young adults, including those with comparable levels of educational attainment. The second aim is to identify whether literacy influences young adults' health – net of their educational attainment and other confounding factors. Multivariate analyses reveal that literacy is associated with two measures of physical health: self-rated health and prolonged sickness. Because literacy is a key determinant of health, the third aim is to provide insight into how to measure it: can commonly used indirect approaches to estimating literacy (e.g., based on educational attainment or self-reports), accurately capture its prevalence and relationship with health? In a second set of analyses, bivariate results show whether, and the extent to which, indirect measures of literacy overestimate literacy's prevalence, and multivariate models assess whether indirect estimates of literacy capture its relationship with health. The findings support future efforts to incorporate literacy assessments into population surveys to accurately estimate literacy's prevalence and health benefits, particularly in contexts like Malawi where access to high-quality schools remains limited.

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1. Introduction

During the last thirty years, evidence from multiple social science disciplines has reached a consensus: education is a key

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determinant of individuals' health and survival (for reviews, see [Cutler et al., 2008](#); [Mirowsky and Ross, 2003](#)). Across diverse contexts, individuals with more formal education are healthier and live longer ([Baker et al., 2011](#)).

The vast evidence of a relationship between education and health has galvanized a large body of research seeking to explain how even a few years of school can protect individuals', and their children's, health over the life course. To date, research has focused primarily on the economic benefits ([Desai and Alva, 1998](#)) and the positive social and psychological consequences ([Caldwell, 1979](#); [Joshi, 1994](#); [Levine, 1993](#)) of education as the most probable pathways linking it to health. Much less is known about the health salience of basic educational skills, including literacy, that are the central goal of going to school (see [Baker et al., 2011](#) for review).

Population researchers often discuss literacy, but only rarely measure or study it in its own right. The lack of research on literacy is due, at least in part, to the assumption that educational attainment is an accurate reflection of these skills ([Rowe et al., 2005](#)). In fact, researchers and policymakers commonly use educational attainment to approximate adults' literacy, reflecting the assumption that the two indicators are synonymous. However, in low-income settings

like sub-Saharan Africa, where delayed school entry and frequent absenteeism are widespread (Grant and Behrman, 2010), and access to high-quality schools is limited (Lee et al., 2005), educational attainment is likely a poor proxy for even rudimentary literacy skills. A recent study leveraging data from direct literacy assessments confirms this, at least in the context of Nigeria: merely one-half of women who attended five years of primary school – a common international standard for classifying individuals as literate – could read (Smith-Greenaway, 2013).

Despite the fact that low literacy levels are likely a prominent feature of Africa's educational contexts, with few exceptions, there has been little investigation of whether literacy influences health in the region, or other low-income settings. The handful of studies that analyze literacy's health salience have focused on the mother-child dyad (Glewwe, 1999; Khandke et al., 1999; LeVine, 2012; Smith-Greenaway, 2013). As a result, questions of whether literacy is associated with adults' own health remain outstanding.

This paper uses data from a study of young adults (Tsogolo la Thanzi) in southern Malawi to explore whether literacy is a key aspect of education that influences health in a low-income context. Malawi, a southeast African country, is at a unique historical period when the transition to mass education is rapidly unfolding and increasing opportunities to acquire literacy, but there continues to be sizeable variability in even the most basic skills. At the same time, health risks are pervasive in Malawi and mortality rates remain at some of the world's highest levels; thus, in conjunction with its educational context, its epidemiological profile makes it an interesting place to study literacy's potential to protect adult health.

The study is motivated by three aims. The first is descriptive: to demonstrate a direct assessment for measuring literacy in a population-based survey, and show that it captures variability in skills among young adults, including those with comparable levels of educational attainment. The second aim is to determine whether literacy influences young adults' health, net of their educational attainment and other confounding factors. Multivariate analyses reveal that literacy is associated with two measures of young adults' physical health: self-rated health and prolonged sickness. These findings confirm that literacy should be incorporated into future demographic research; however, questions of how to best measure it remain. Thus, the third aim is to determine whether direct assessments are necessary, or if two commonly used indirect measures are sufficient for capturing literacy's prevalence and health benefits. Bivariate results determine whether, and the extent to which, two indirect measures of literacy – educational attainment (grade five and above = literate) and self-reports – accurately reflect its prevalence. I then use multivariate models to analyze whether these indirect measures capture literacy's association with young adults' health.

2. Measuring literacy in population research

Literacy is a common theme in academic and policy discourse on the social determinants of population health. Researchers and policymakers agree that literacy enhances individuals' economic opportunities (Benhabib and Spiegel, 1994), quality of life (Egbo, 2000), and overall well-being (Grosse and Auffrey, 1989).

Despite theoretical recognition of literacy's relevance to individuals' health and well-being, there is little population research on literacy in and of itself. The research that has been done suffers from measurement problems. Literacy is typically measured indirectly, relying on one of two standard approaches: (1) educational attainment or (2) self-reports. In terms of the former, despite having no data on literacy, recent studies in top population journals commonly label individuals with no formal education as "illiterate" and those with some or complete primary education as "literate"

(Basu and Stephenson, 2005; Bhat and Zavier, 2003; Burchi, 2012; Lavelly, 2007; Turra et al., 2005). This practice is not specific to academic circles – inferring literacy based on educational attainment has also been the de facto approach of international policy organizations such as the United Nations Education, Scientific, and Cultural Organization (UNESCO). UNESCO currently has literacy assessment projects underway (see, for example, the Literacy Assessment and Monitoring Program [LAMP]); historically, however, the organization has estimated literacy rates by assuming that all adults with five or more years of school can read (Schnell-Anzola et al., 2005).

Inferring literacy based on educational attainment may not be problematic in high-income world regions where educational institutions are well-established. In settings where school attendance is compulsory and – at least relative to low-income countries – school quality is high, standards of education are generally enforced, and basic educational resources (e.g., textbooks and writing supplies) are available, educational attainment may be a reasonable proxy for very basic literacy skills. However, in low-income regions like sub-Saharan Africa, assuming that literacy is universally achieved during primary school is more problematic.

Two factors are likely to contribute to low but variable levels of literacy across educational attainment in sub-Saharan Africa. First, there is considerable focus on getting children enrolled in school in the region, however, even among those who are technically enrolled, it is common for students to spend long periods of time away from school due to financial or family demands (Lewin, 2009). School is compulsory in only some African countries, and even in these settings, economic and infrastructural shortcomings make it difficult to enforce attendance policies (Lewin, 2009). As a result, issues like delayed school entry, frequent absenteeism, and years spent entirely out of school remain common in the region (Grant and Hallman, 2008) – each of which are known to interfere with academic success (Zuze and Reddy, 2011).

Second, even if African children consistently attend school, in many contexts, the lack of educational resources may pose an additional hurdle to literacy education. In fact, as school enrollment has increased across the region, in many countries, educational spending has either stagnated or declined, leading to lower spending per pupil in recent decades (Barro and Jong, 1996). As a result, issues like overly crowded classrooms, limited school supplies, and underpaid teachers are commonplace concerns, each of which interfere with students' ability to master basic educational skills. Moreover, because public schools tend to have significantly fewer resources than private ones, disparities in school quality are likely to lead to striking inequality in literacy skills among privately versus publically educated individuals (Jimenez et al., 1991).

Recognizing that literacy is unlikely to be universally achieved at a given level of education, some census and survey projects use a different indirect measure of literacy: self-reports. Respondents are typically asked whether they are able to read a standard text, such as a newspaper. Literacy data collected via self-reports could be viewed as an improvement over inferring literacy from educational attainment; however, research suggests that this technique vastly overestimates literacy at both the individual- and population-levels. At the individual-level, research has shown that anywhere from 17 percent of respondents in Bangladesh (Greaney et al., 1999) to 28 percent of respondents in Nepal (LeVine et al., 2004) report that they are able to read when a direct assessment later confirms that they cannot. At the population-level, Schaffner (2005) shows that self-reported literacy data overestimate true literacy rates by approximately seven percentage points among primary-educated women in Nicaragua and Ethiopia. These studies highlight the need for continued research to assess the accuracy of self-reported literacy data in other low-income contexts.

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