

## **Gender, Absenteeism and Menstruation: Evidence from Rural Malawi**

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## Introduction

Over the past two decades, girls' schooling has expanded in less developed countries in response to both national and international efforts. Not only have a higher proportion of girls enrolled in school across most regions of the less developed world, but girls are completing more years of schools than in the recent past (National Research Council 2005). As more girls remain in school past menarche, new social, cultural and physical issues emerge as young women's status as students come into conflict with other social statuses and expectations. Researchers have devoted substantial effort to the issues of early marriage and childbearing, particularly as determinants of premature school dropout (c.f. Lloyd and Mensch 2008). However, less attention has been given to the effect that menarche itself and the management of monthly menstrual periods may have on school attendance, learning outcomes, and continued school enrollment.

The management of menstruation has recently emerged as a promising domain for international interventions with the ultimate goal of increasing and reinforcing girls' schooling. Public discourse, such as a recent article by Nicholas Kristoff and Sandra WuDunn in the *New York Times*, focuses on issues such as toilet availability and access to feminine hygiene supplies as factors in female absenteeism. Furthermore, a new body of literature addresses the impact of menstrual management on adolescent girls and their identity development during the transition to adulthood (e.g. Sommer 2009). Yet, none of these studies has provided evidence for a causal relationship between menstruation and girls' schooling disadvantage. While menstruation may negatively impact girls' quality of life in particular cultural and physical environments, it is unclear whether or not girls' schooling outcomes can be attributed directly or indirectly to the inconveniences and discomforts of menstruation.

As a starting point, there is little evidence for a gender difference in absenteeism in sub-Saharan Africa or in other less developed regions. A recent analysis of the 2005-06 MICS data from 12 African countries found similar rates of absence from school for boys and girls (Loaiza and Lloyd 2008). Furthermore, a recent experimental intervention in Nepal provided girls with menstrual cups as a sanitary alternative for dealing with their menstrual periods. Although the menstrual cups had high levels of uptake in the experimental communities, there were no significant changes in girls' school attendance or test scores (Oster and Thornton 2009), suggesting that the management of menstruation may be less promising as an intervention than the policy community hopes.

In this paper, we use cross-sectional data from rural Malawi to examine gender differences in school absenteeism. These data allow us to examine the factors that are associated with absenteeism and to evaluate the interaction of these factors with gender. In particular, we focus on the availability

and quality of toilet facilities in relation to girls' attendance patterns. Given that toilet facilities and hygiene issues have been given substantial attention in the policy domain, our analysis will provide insights into current patterns of gender disadvantage and the potential impact of such interventions.

## **Data**

This paper uses data from the first round of the Malawi School Quality Survey (MSQS), a longitudinal study of adolescents conducted by the Population Council in southern Malawi, the region of the country with the highest prevalence of HIV. The first round of data was collected in Spring 2007, with a one-year follow-up completed in 2008. The original sample consists of 1,675 14-16 year old students who were randomly sampled from the enrollment rosters at 59 randomly selected primary schools in Machinga and Balaka districts. An additional sample of 845 adolescents who were not enrolled in school was drawn from the communities surrounding the selected primary schools; however, data from these respondents are not included in this analysis, given our focus on the school attendance patterns of currently enrolled respondents.

The MSQS focuses on the role of school quality and experience in shaping the transition to adulthood. The main survey module collected extensive information regarding the respondent's schooling history, experiences, aspirations, and attitudes, in addition to questions regarding socio-demographic characteristics and transitions to adulthood. A module of sensitive questions—sexual behavior, domestic violence, school-based violence and abuse—was asked through an Audio-Computer Assisted Survey Instrument (ACASI) that provided greater privacy for the respondent. Furthermore, at each school a survey of school facilities was conducted and teachers in grades 4-8 were interviewed regarding their qualifications and experience.

This analysis examines factors associated with the likelihood that respondents reported an absence on the last school day prior to the interview. In this sample, absenteeism is very high; almost 20 percent of all students reported having been absent on the last school day. The most frequent cause of absenteeism was illness; approximately one third of respondents missed the last school day because they were sick (Table 1). An additional 21 percent of respondents were absent due to either the need to do work at home or to run errands elsewhere. In contrast, only 2.4 percent of female absences were attributed to menstruation.

The preliminary analysis uses logistic regression models to identify characteristics associated with absence on the prior school day. In addition to socio-demographic variables, the preliminary models incorporate information from the school facilities survey, notably data on the availability of

single-sex toilets and toilet cleanliness. The regression is first run on the full sample, and then separately for males and females. Future analyses will take advantage of the multi-level structure of the data. Furthermore, we will examine survey questions that directly ask female respondents about menstruation-related absences.

### **Preliminary Findings**

The preliminary analysis (Table 2) finds no statistically significant difference in absenteeism by the sex of the respondent. When the regression is run separately by sex, several important gender differences emerge. Males are less likely to be absent from school if they are fostered but not orphaned; these respondents are likely to be living with relatives or other adults in order to attend school, and these living arrangements reinforce school attendance patterns. Boys are also less likely to be absent if they report studying at home. In contrast, female students are less likely to be absent if they respect their teacher or if they report that their parents talk to their teacher.

The central interest of this analysis is in the relationship between absenteeism and toilet facilities. The policy literature hypothesizes that inadequate toilet facilities will discourage regular female school attendance. However, based on these preliminary analyses, we do not find evidence that this is the case in southern Malawi. There was no association between girls' school attendance and female toilet availability. Boys, on the other hand, were more likely to be absent if there was no male-designated toilet available at the school, an unexpected finding, suggesting that toilet facilities may be proxying for some unobserved factors. Female students were more likely to be absent if the girls' toilets at their school were "filthy." However, cleaning the toilets is often the responsibility of the students themselves, suggesting that this association is endogenous.

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**Table 1. Distribution of causes of absence on the last school day, 14-16 year old students, Malawi School Quality Survey, 2007.**

<b>Reason</b>	<b>Total (N=360)</b>	<b>Male (N=190)</b>	<b>Female (N=170)</b>
Sick	34.4	34.2	34.7
Family member sick	5.5	4.7	6.5
Market day	1.9	2.6	1.2
Work home	13.1	11.1	15.3
Errands	8.3	12.6	3.5
Uniform dirty	10.8	12.1	9.4
Problem w/teachers	0.6	1.1	0.0
<b>Menstruation</b>	<b>n/a</b>	<b>n/a</b>	<b>2.4</b>
Rather play	1.4	2.6	0.0
Watch siblings	1.7	2.1	1.2
Attended funeral	2.8	3.2	2.4

**Table 2. Logistic regression results (odds ratios), absent on prior school day, 14-16 year old students, Malawi School Quality Survey, 2007**

	All	Males	Females
Female (vs Male)	1.02		
Standard 5 (vs 4)	1.23	1.40	1.19
Standard 6 (vs 4)	0.97	1.14	0.94
Standard 7 (vs 4)	0.75	0.74	0.75
Standard 8 (vs 4)	0.70	0.50+	0.91
Currently works for pay	1.32	1.24	1.31
Toilet	0.82	0.79	0.81
Tin roof	0.96	0.77	1.06
Bicycle	0.72*	0.76	0.67
Books	0.93	0.92	0.99
Muslim (vs Catholic)	1.23	1.50	0.98
CCAP (vs Catholic)	0.91	1.07	0.80
Other religion (vs Catholic)	0.96	0.93	0.92
Single orphan (vs both parents)	0.79	0.85	0.71
Fostered (vs both parents)	0.65	0.28*	1.05
Double orphan (vs both parents)	0.71	0.53	0.99
Number of younger siblings	1.09*	1.10+	1.10
Number of older siblings	1.07+	1.10	1.05
Thinks school is important	1.93+	1.93	2.50
Respects teacher	0.48*	1.81	0.35**
Thinks teacher would notice absence	0.72+	0.70	0.72
Studies at home	0.80	0.46*	1.17
Parents discouraged attendance	1.00	1.00	1.18
Parents talk to teacher	0.60**	0.62	0.61*
Has passed puberty	1.11	1.38	0.83
Health in past month (10=great health)	0.94*	0.92*	0.97
Skipped meals in the past week	1.50*	1.34	1.61+
No toilet (vs standard pit latrine)	1.56	1.91*	1.26
VIP toilet (vs standard pit latrine)	1.52	1.17	1.62
Traditional latrine (vs standard pit)	1.15	1.20	1.06
Quite dirty toilet (vs clean)	1.08	0.64+	1.51
Filthy toilet (vs clean)	1.64+	1.21	2.24+
Number of obs =	1563	807	756
Wald chi2(29)	143.02	115.97	58.07
Prob > chi2	0	0	0.0023
Log pseudolikelihood	-736.371	-361.362	-357.378