Social Networks and Sexual Activity among Unmarried Young Women: The Role of School Environment

Michelle Poulin, Ph.D., Brown University

Background and Significance

In sub-Saharan Africa, increasing interest amongst researchers is being generated on the role that social environments, such as schools, have on sexual behavior. Schools identified as "gender-neutral", for instance, have been found to reduce the likelihood of premarital sex among schoolgirls (e.g. Mensch et al. 2001). This line of inquiry is, however, nascent, and in general, we know little about the mechanisms through which schooling and education may affect the transition to sexual activity. Moreover, given the AIDS pandemic in the region, profound concerns about acquiring HIV have become a rationale for taking certain sexual actions, with the disease and its related subject matter having become a common conversational topic amongst peers and others (e.g. Kohler et al. 2006).

In the U.S., extensive work on peer group influence on the sexual behavior of young people has found that friendship cliques and peer acquaintances have substantial sway during the teen years, a formative time of development when "belonging" is especially important, and where some sexual norms and beliefs are reinforced but others disparaged (eg., Bearman and Brückner 2001; Bearman et al. 2004). Likewise, new ethnographic information collected in rural Malawi—a setting that differs in many ways from the settings of these studies in the West—strongly suggests that friends weigh heavily on the behaviors of adolescents and young adults. In the following excerpt, for instance, a female respondent provides a depiction of her friends' actions to account for her own:

> **R:** Usually I always chat with my friends. Since I was young, I chatted with friends in groups, with almost five of us in our groups. We liked chatting both day and night. During the night, we went to entertainments like dances in our villages. Time changed, when all of my friends had their boy-friends/lovers, and so now I decided to have one too, in order to be like my friends.
>
> (*Out of school Malawian girl, 18 years*)

In this paper, we explore the key characteristics of the social networks of young Malawian women on the brink of sexual maturity in greater depth. We examine how these interactions are similar or varied across current school participants, and how school-distinct peer interactions are additionally linked with sex relation patterns. We finally consider how personal aspirations interrelate with formal education, social networks, and sexual activity. Specifically, we use data from a survey population in rural Malawi of unmarried young women (N=258), and address the following two questions: (1) Are schoolgirls less likely to have sex than are girls no longer attending?, and, if yes, then (2) To what degree can concomitant, school-related differences in social networks account for it?

Data and Methods

Data for this research are both survey and qualitative in type, and come from the 3rd wave of the Malawi Diffusion and Ideational Change Project (MDICP). The MDICP is an ongoing, four-phase panel study with 125 villages in total and generally aims to investigate the role of social processes in modern family planning and HIV/AIDS. Investigators at the University of Pennsylvania and the University of Malawi began the MDICP in 1998 with an initial sample of approximately 1500 ever-married women and their spouses (see www.malawi.pop.upenn.edu). In 2004 (Wave 3), the project added a sample of 973 adolescents and young women and men aged 15-24, both never-married and ever-married. For the present analyses, we use a restricted sample of never-married women (N=258), divided into school-goers (N=170) and non (N=88). We take advantage of the MDICP survey's detailed modules on social networks and sexual behavior. To guide interpretation of the survey data and to provide "on the ground" insight to the interactions between young women, the paper will draw on a rich collection of in-depth interviews, drawn randomly from the survey sample in two of the MDICP's three study sites and main regions of the country. Analyses show the qualitative sample to match well with the survey sample on

key background characteristics. For instance, two-thirds of the South sample is Muslim in both the qualitative (67.1%) and the survey (66.4%) samples (results not shown). The total number of in-depth interviews is 141, consisting of young unmarried and married women and men ages 15 to 24; for the purposes of this paper, we draw on the set of never-married young women. Experienced local interviewers were matched according to the sex, age, and ethnicity of the respondent, and were trained by the author and a Malawian supervisor experienced in both qualitative and adolescent research. Interviews lasted an average of one and a half hours in length, were conducted in the local language of the respondent, and then immediately translated into English by the interviewer under the guidance of a Malawian supervisor and the author. The interviews focused on six general topics including the following three that are relevant for the current paper: 1) school-related topics (e.g. why still in school or why left, what the teacher said the last time attended), 2) sexual behaviors (having had sex, condom use, how many partners, frequency of sex), and 3) discussions with friends. The ordering of the topics was left up to the trained interviewer, so as to circumvent an atmosphere of formality, considered important given the sensitivity of the subject of sexual behavior. All interviews were systematically coded using the software program Nvivo, with a total of 33 broad themes identified.

The analytic method will toggle back and forth between the survey data and text from the qualitative interviews. The survey data will first describe key characteristics pertinent to this research but by school-attendance status for girls. Table 1 presents bivariate analyses of several background characteristics for school-goers and non, and shows that school-attendees are significantly less likely to report having ever had sex than are girls no longer attending school (30% vs. 64%, respectively, $p<.001$).

The main dependent variable to be used in the multivariate analyses is whether respondents report having ever had sex (for example, see Table 3). A second dependent variable is total number of sexual partners, which will be analyzed separately for all women in the sample as well as conditional upon having ever had sex. The main predictor variables will be measures of social networks; social network partners are AIDS-related conversation partners, as named by respondents, and include anyone the respondent has "ever chatted with about AIDS". Respondents were asked about up to four named social network partners, including about characteristics such as partners' sex, schooling status, age, frequency of interactions, and partners' perceived risk of their own HIV infection. Several social network measures were created for initial comparisons between in school and out of school girls, and are presented in Table 2. The survey data also show that school-going girls and non-going girls exhibit similar characteristics in their named network partners, including the proportion reported to be kin, friends, and other women, but a key difference is the proportion of school-going network partners. Girls in school report that about half of their network partners are also in school (52% of network partners are still in school). Conversely, among girls no longer in school, less than a fifth (16%) of girls have network partners still in school. Level of AIDS-related knowledge will also be examined for girls attending school and no-longer attending. Interestingly, preliminary results show that on several measures both in-school and out-of-school girls have high-levels of awareness (results not shown), perhaps a positive effect of AIDS-related programs that have infiltrated Malawi for several years.

Ethics approval was received by both the University of Pennsylvania, and the University of Malawi's College of Medicine's Review and Ethics Committee. During the data collection, careful attention was paid to maintaining the privacy and comfort of respondents. In addition, interviews were held in private, secluded locations in order to maintain the comfort of the respondents and to ensure their anonymity. Signed consent was received from all respondents, and for those under 18, from their parents as well.

Preliminary Results

Table 3 shows that in-school girls are significantly less than are out-of-school girls to report having ever had sex, even after controlling for age, a quadratic function of age, wealth, and region. The in-school coefficient in Model 1 is strongly and negatively correlated. Conditional upon having at least two network partners (meaning, respondents said they've talked to two other people about AIDS recently),

Model 2 indicates that greater levels of perceived risk (partners' are worried about being infected) is positively associated with respondents' likelihood of having ever had sex. While results are not presented here, other analyses show a significant, positive relationship between respondents' own perceived risk and their likelihood of having ever had sex, suggesting that worried partners, too, may be more likely to have transitioned to sexual intercourse; future analyses will explore this finding further.

Future work with the survey data will further examine the relationship between network partners and outcomes of sexual behavior, including number of lifetime partners. Additional checks for robustness of the findings will include (1) right-censoring to account for the possibility of biased estimates for women who've yet to have sex; and (2) use of the Heckman model. The Heckman selection model is appropriate for these data since it controls for self-selection of a sample for women attending school or not; for instance, if the sample of women no longer schooling is not random, then the sample will be biased, and the Heckman model can account for this.

However, in this paper we take advantage of the qualitative data to add depth to these survey findings, but also to elucidate the direction of causality (e.g. Short et al. 2002): Is it the case that the school environment, via the formation of particular types of social networks, fosters delayed sexual debut? Preliminary analyses from the qualitative data suggest that it does. The in-depth interviews show there are qualitatively different conversations amongst schoolgirl friends as compared to their non-going counterparts. For many remaining in school, continuing the pursuit of an education mattered greatly for personal aspirations. But when schoolgirls expressed the personal value of education to the interviewers, they often did so in relation to perceived, similar values held by their friends. Moreover, while decisions about sexual activity were intertwined with personal schooling aspirations and values, these decisions are based on socially-constructed beliefs. These beliefs appear to be formed and reinforced within social network composed of homophilic, school-going friends, as demonstrated by this excerpt from a conversation had between one schoolgirl and an interviewer:

> **I:** Joyce, have you ever been proposed? **R:** Yeah, I have been proposed but I did not accept the proposal because of what I have said before, that I want to go on with my education and see what I will have in future after school. So there are many but I do refuse them. **I:** What do your friends say about this, do they also refuse or do they accept? **R:** Mm, I can truly say for the friends I have I know nobody with boyfriend because our ambitions are somehow similar and we want to reach our goal in the future. (*Schoolgirl, 15 years*)

In sum, these initial findings suggest that there are a number of individual and social factors which influence sexual choices, but these factors differ for girls who are in school versus girls who are not. School-goers' networks are primarily composed of other girls who are also in school, and they encourage each other to avoid boyfriends or sex partners. In contrast, school-leavers' social networks are primarily composed of other, non-school-going girls, who seek marriage and are thereby more likely to have had sex. Policy implications and recommendations will be discussed, but of central importance is that a non-negligible fraction of young, not-yet-married women but no longer attending school exist and may be at increased risk for HIV infection.

References

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Table 1. Background Characteristics and Sexual Activity by School Status

	Unmarried Women		
	In School *N*=170	Out School *N*=88	Difference
Background Characteristics			
Age	**16.4 (.12)**	**17.8 (.24)**	**'-1.34*** **
Housing Score (1-3)[a]	**2.2 (.07)**	**1.94 (.96)**	**.26****
Orphaned[b]	.22	.33	-.11
Northern Region (Rumphi)	**.42**	**.25**	**.17****
Central Region (Mchinji)	**.27**	**.46**	**-.19****
Southern Region (Balaka)	.31	.30	.01
Ever Had Sex	**.30**	**.64**	**-.31*** **
Mean Social Desirability[c]	1.13 (.11)	1.19 (.08)	-.06

Source : Data are from the 2004 Malawi Diffusion and Ideational Change Project

Notes : **Boldface** are significant based on t-test equality of means.** p<.05, ***p<.001

[a]Created on a three point scale: 1=mud house, 2=sun-burnt brick, 3=fire-burnt brick

[b]At least one deceased parent

[c]Created on a four point scale (0-3), where a score of 3=highest desirability, and 0=no desire to give socially acceptable responses

Table 2. Social Network Characteristics by School Status

	Unmarried Women		
	In School *N*=170	Out School *N*=88	Difference
Social Network Characteristics			
Number of social network partners (uncensored)[a]	3.69 (.28)	3.58 (.44)	.11
Size of social networks (censored)[b]	2.11 (.13)	1.76 (.19)	.35
Proportion talked to at least one partner	.81	.76	.05
Proportion of network partners who are[c]:			
Female	.92	.90	.02
Friends	.54	.48	.06
Sister or other female relative	.12	.11	.01
Brother or other male relative	.04	.04	.00
Non-friend and non-kin	.06	.08	-.02
In school	**.52**	**.16**	**.37*** **
Confidants	**.20**	**.26**	**-.06****
Worried about getting AIDS	**.28**	**.18**	**.10***
Closeness Scale (1-3)[d]	**2.14 (.03)**	**2.25 (.06)**	**-.11***

Source : Data are from the 2004 Malawi Diffusion and Ideational Change Project

Notes : Scores in **boldface** indicate significant difference based on t-test equality of means. *p<.10, ** p<.05, ***p<.001

[a]Uncensored network size is for responses about the number of people ever talked to about AIDS.

[b]Censored network size is used for all subsequent network measures, and limits the number of partners to four.

[c]Proportions presented are for respondents with a network size of one or more

[d]Closeness of partners: 1=met once or twice or acquaintence, 2=friends, 3=confidants

Table 3. School Participation and Worry of Network Partners on Sexual Activity: Logit Model for Never-Married Women with at least 2 network partners.

	Ever Had Sex	
	Model 1	Model 2
Constant	-30.966**	-30.689**
	(13.075)	(11.933)
Age	3.474**	3.440***
	(1.445)	(1.303)
Age Squared	-0.090**	-0.090**
	(-0.039)	(0.035)
North[a]	-1.069**	-1.247***
	(0.428)	(0.449)
South	0.015	0.051
	(0.471)	(0.469)
Housing Material[b,c]	-0.367*	-0.337
	(0.210)	(0.212)
In School	-1.195***	-1.400***
	(0.380)	(0.392)
% of Network Partners Worried about AIDS		1.128**
		(0.497)
N	183	183

Notes: Robust standard errors are in parentheses.
All models are for women with a network size of 2-4
[a]The reference category for region is Balaka.
[b]Created on a three point scale: 1=mud house, 2=sun-burnt brick, 3=fire-burnt brick
[c]Fourteen missing 'housing material' cases were recoded to the mean, 2.11
*p <.10; ** p <.05; ***p <.01