Family Environment and Sexual Risk Behavior among Young Women in Rakai, Uganda.

Michael Koenig and Esther B. Kaggwa

INTRODUCTION

Young people aged 15-24 are at increasing risk for HIV infection. In 2006, adolescents and young adults accounted for 40% of new infections world wide (AIDS Epidemic Update, United Nations Programme on HIV/AIDS, 2006). However, evidence on factors which influence adolescent's sexual risk behavior remains limited in settings characterized by high HIV/AIDS prevalence, despite their clear importance for HIV/STD policy and program formulation. In particular, while young people in the developing world spend a considerable amount of time at home, research is lacking on the effect of the family environment on sexual risk among young people. Most existing research on the issue has focused on young people in the developing world. Further, due to the scarcity of such research, instruments used to assess different family processes have only been tested in the developed world.

As a result, our understanding of the interaction between individual characteristics and the family environment in influencing sexual experiences among adolescents and young adults in the developing world is limited. Because the definition of the family and family expectation in many parts of the world, particularly in Africa differ significantly from those in the West, findings from research conducted in the West may have little relevance to youth based programming in the developing world. An examination of the effect of the family on sexual risk is particularly critical in Africa due to the tremendous changes that the family system is facing in this part of the world. As urbanization and a higher focus on education have spread through many parts of the continent, there has been a shift from reliance on the extended to the nuclear family. Increasingly, family members are separated, as some migrate to cities for work and higher education. In addition, increased education and modernization has challenged existing moral norms and has created a world in which parents and other elders are loosing their moral authority. As a result, young people are not only left without mentors but they also need to re-define sexually related norms in a world that is fast changing.

This study examined the influence of family and other factors on sexual initiation, age at first sex and coercive first sex among a cohort of young people in Rakai district, Uganda.

METHODOLOGY

Data for the present study are derived from the Rakai Health Sciences Programme, an on-going-prospective cohort in the Rakai District of Southwestern Uganda. The programme conducts HIV/STD epidemiological, behavioral and intervention research in 56 rural communities in the district. Field studies include collection of data from all consenting adults aged 15-59 years at 10-month intervals. This study is limited to 1884 15-24 year old young people who completed the survey from September 2003 to November 2004(round 10). The study used logistic regression analysis to examine the risk and

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protective factors associated with the age at sexual initiation, experience of coercive sex and having used a condom at last sex. Because a significant number of participants (467) couldn't provide information on the male guardian's alcohol consumption and many (468) did not know their male guardian's education level, two different models were run to maximize the sample. Model one includes all variables of interest with the exception of those variables related to the father/male guardian, while in model two the male guardian's characteristics are added. Early sexual intercourse was defined as having sex before age15 (Yes/No). The analysis considered initiation of sex before age 15 as early sex. Young people who answered yes to the question "Was force used on you the first time you had sex" were determined to have experienced coerced first sex.

RESULTS
The mean age was 20.9 years. A majority(79.8%) of participants initiated sex at or above 15 years of age with 32.9% reporting sexual initiation after 16. As many as 30.7% of young people reported not using a condom at last sex and 9.3% reported having coerced first time sex. The study population was predominantly Christian (83.4%) and most (53.8%) were raised by both parents (table 1).

Multivariate regression analysis showed that family environment influenced a young person's sexual experiences. Examination of the protective and risk factors associated with early sexual initiation revealed that young people living with only the mother were 1.57 times as likely to report sex before age15 as those living with both parents (Table 1, Model 1), those living with only the father, other relatives and in other arrangements were 1.67 times more likely to report early sex. Parent-child connectedness was found to be protective of early sex. Participants who reported that their parents did not care for them were two times as likely to have experienced sexual intercourse before age 15 as compared to those who thought their parents/guardians cared for them very much (p=0.000). Respondents who felt somewhat cared for were 1.43 times more likely to have experienced early sexual initiation (p=0.009). The female guardian's consumption of alcohol also increased the odds of early sexual intercourse (OR; 1.49), although those who reported alcohol consumption by the male guardian experienced lower odds of early sex (OR; 0.68). Parental education was not associated with initiation of sex before age 15.

Table 3 indicates that not living with both parents or with a mother was associated with a 1.44 increment in the risk for coercive first sexual intercourse (p=0.041) while living with a mother was protective (OR; 0.47). Poorer children also were less likely to experience first coercive sex. Parental alcohol consumption, parent-child connectedness and parental education did not predict having first forced sex.

Maternal possession of more than seven years of education increased the odds of having used a condom at last sex two fold (table 4). Additionally, young people whose mothers or female guardians did not consume any alcohol were more likely to have used a condom at last sex than those whose mother sometimes or often consumed alcohol (OR; 1.37). Parent-child connectedness also was associated with use of protection and participants who felt that their guardians "somewhat "cared for them were 30% less

likely to report condom use than those who thought that guardians cared for them very much(OR;0.71).

The above analysis has shown strong effects of the family environment on adolescent/young adult sexual experiences. Family processes and characteristics were particularly protective from early sexual initiation. These findings have strong implications for policy and program development. They underscore the need to target the family as a whole in efforts seeking to reduce adolescent sexual risk.

Table 1: Distribution of Dependent and Independent Variables: among females aged 15-24 years: Rakai District, Uganda

	Model One(n=1884)	Model Two(n=1417)
	Percent(n)	
Dependent Variables		
Sexual Initiation		
At or above 15	79.8(1504)	81.2(1,150)
Before 15	19.0(357)	17.9(253)
Missing	1.2(23)	1.0(14)
Condom Use at First Sex		
Condom Not Used	61.1(1,152)	62.7(889)
Condom Used	30.7(578)	29.4(417)
Missing	8.2(154)	7.8(111)
Independent Variables		
Age at First Sex		
<15	18.9(357)	17.9(253)
15-16	39.1(736)	39.8(564)
17+	32.9(619)	33.8(479)
Missing	9.1(172)	8.5(121)
Alcohol Influence at First Sex		
One or both partners under the influence	4.3(81)	4.6(65)
Neither partner under the influence	87.3(1,645)	87.3(1,237)
Missing	8.4(158)	8.1(115)
Relationship type of first sex		
Boyfriend	48.3(910)	48.1(682)
Husband/Consensual Partner	20.1(378)	21.4(303)
Other	23.7(446)	22.9(324)
Missing	8.0(150)	7.6(108)
Consensual Sex		
Non-Consensual	9.3(176)	9.7(138)
Consensual	82.8(1559)	82.7(1,172)
Missing	7.9(149)	7.6(107)
Childhood Living Arrangement		
With both parents	53.8(1,014)	71.4(1,011)
With mother only	13.2(248)	1.6(23)
Other arrangement	32.3(608)	27.0(383)
Missing		0.0

Mother's Education(yrs)		
<5 years	18.2(343)	19.4(275)
5-7 years	33.3(628)	33.8(479)
>7 years	15.3(288)	14.3(202)
Don't Know	32.4(610)	32.5(461)
Missing	0.8(15)	0.0(0)
Religion		
Non-Muslim	83.4(1,571)	83.4(1,181)
Muslim	16.3(307)	16.4(233)
Missing	0.3(6)	0.2(3)
Female Guardian's Alcohol Consumption		
None	68.1(1,282)	68.2(966)
Sometimes/often	29.7(560)	29.2(424)
Missing	2.2(42)	1.9(27)
Family Socioeconomic Status		
Well-off	9.8(184)	10.6(150)
Average	71.7(1,351)	72.3(1,024)
Poor	17.8(335)	17.2(243)
Missing	0.7(14)	0.0(0)
Felt Cared for by parents/guardians		
Very Much	47.0(885)	46.4(658)
Somewhat	41.8(787)	42.8(607)
Not very much/not at all	10.5(198)	10.7(152)
Missing	0.7(14)	0.0(0)
School attendance		
Never/rarely missed	42.4(799)	41.5(588)
Sometimes missed	47.1(888)	48.5(687)
Frequently missed/never attended	9.6(181)	10.0(141)
Missing	0.9(16)	0.1(1)
Male Guardian's alcohol consumption		
Never		39.9(566)
Sometimes/often		60.1(851)
Missing		0.0(1)
Father's education		

< 5 years		10.7(152)
5-7 years		31.1(440)
> years		25.2(537)
Don't know		33.0(468)
Missing		0.0

Table 2. Logistic regression of risk and protective factors for early sexual intercourse among females aged 15-24 years: Rakai District

	Model 1			Model 2		
	Odds Ratio	95%CI	P value	Odds Ratio	[95%CI]	P value
Consensual Sex						
Consensual(RC)	1.00			1.00		
Non-Consensual	1.61	[1.12,2.32]	0.010	1.75	[1.15,2.67]	0.009
Childhood Living Arrangement						
With both parents(RC)	1.00			1.00		
With mother only	1.57	[1.09,2.27]	0.016	1.41	[0.49,4.10]	0.525
Other arrangement	1.67	[1.26,2.17]	0.000	1.58	[1.14,2.18]	0.006
Mother's Education(yrs)						
> 7years(RC)	1.00			1.00		
5-7 years	1.41	[0.95,2.09]	0.087	1.57	[0.96,2.58]	0.072
<5 years	1.09	[0.70,1.71]	0.698	1.06	[0.59,1.91]	0.836
Don't Know	1.27	[0.85,1.88]	0.242	1.09	[0.64,1.86]	0.738
Religion						
Muslim(RC)	1.00			1.00		
Non-Muslim	0.74	[0.54,1.03]	0.072	0.95	[0.62,1.46]	0.811
Female Guardian's Alcohol Consumption						
None(RC)	1.00			1.00		
Sometimes/often	1.49	[1.15,1.93]	0.003	1.73	[1.24,2.40]	0.001
Family Socioeconomic Status						
Well-off(RC)	1.00			1.00		
Average	0.92	[0.61,1.39]	0.702	0.76	[0.48,1.20]	0.236
Poor	1.19	[0.74,1.91]	0.476	1.12	[0.65,1.94]	0.671
Felt Cared for by parents/guardians						
Very Much(RC)	1.00			1.00		
Somewhat	1.43	[1.09,1.86]	0.009	1.51	[1.09,2.08]	0.012
Not very much/not at all	2.02	[1.37,2.97]	0.000	2.34	[1.50,3.66]	0.000
School attendance						
Never/rarely missed(RC)	1.00			1.00		
Sometimes missed	1.04	[0.80,1.35]	0.784	1.26	[0.92,1.73]	0.158
Frequently missed/never	1.51	[1.00,2.28]	0.047	1.73	[1.06,2.81]	0.027

attended				
Male Guardian's alcohol consumption				
Never(RC)		1.00		
Sometimes/often		0.68	[0.48,0.97]	0.036
Father's education				
>7 years(RC)		1.00		
5-7 years		0.98	[0.65,1.48]	0.915
<5 years		0.98	[0.56,1.74]	0.956
Don't know		1.30	[0.85,2.00]	0.225
n=1680		n=1270		
LR X2(df,14)=73.38		LR X2(df,19)=76.93		
Prob X2=0.0000		Prob X2=0.0000		
Pseudo R2=0.0427		Pseudo R2=o.0612		

Table 3: Logistic regression of risk and protective factors for coercive first sexual intercourse among females aged 15-24: Rakai District, Uganda

	Model 1			Model 2		
	Odds Ratio	95%CI	P value	Odds Ratio	[95%CI]	P value
Age at first sex						
17+(RC)	1.00			1.00		
15-16	1.48	[1.00,2.19]	0.048	1.16	[0.75,1.79]	0.508
<15	2.04	[1.31,3.17]	0.002	1.88	[1.15,3.07]	0.012
Childhood Living Arrangement						
With both parents(RC)	1.00					
With mother only	0.47	[0.25,0.91]	0.024			
Other arrangement	1.44	[1.02,2.05]	0.041			
Childhood living arrangements						
With both parents/mother only(RC)				1.00		
Other				1.42	[0.94,2.14]	0.097
Mother's Education(yrs)						
> 7years(RC)	1.00			1.00		
5-7 years	0.96	[0.57,1.62]	0.892	0.87	[0.47,1.60]	0.661
<5 years	1.38	[0.79,2.42]	0.256	1.03	[0.52,2.06]	0.928
Don't Know	1.10	[0.66,1.84]	0.717	0.97	[0.51,1.85]	0.926
Religion						
Muslim(RC)	1.00			1.00		
Non-Muslim	1.30	[0.81,2.07]	0.278	1.86	[0.99,3.50]	0.056
Female Guardian's Alcohol Consumption						
None(RC)	1.00			1.00		
Sometimes/often	1.29	[0.92,1.82]	0.139	1.11	[0.74,1.68]	0.614
Family Socioeconomic Status						
Well-off(RC)	1.00			1.00		
Average	0.55	[0.35,0.88]	0.012	0.59	[0.35,1.01]	0.054
Poor	0.52	[0.29,0.93]	0.029	0.50	[0.25.0.99]	0.046
Felt Cared for by parents/guardians						
Very Much(RC)	1.00			1.00		
Somewhat	0.57	[0.40,0.83]	0.003	0.58	[0.39,0.89]	0.011
Not very much/not at all	1.11	[0.67,1.83]	0.679	1.21	[0.69,2.11]	0.511

School attendance						
Never/rarely missed(RC)	1.00			1.00		
Sometimes missed	0.89	[0.63,1.25]	0.496	0.98	[0.66,1.46]	0.919
Frequently missed/never attended	1.09	[0.63,1.89]	0.763	1.40	[0.76,2.57]	0.276
Male Guardian's alcohol consumption				1.00		
Never(RC)				1.08	[0.69,1.68]	0.741
Sometimes/often						
Father's education						
>7 years(RC)				1.00		
5-7 years				1.04	[0.61,1.78]	0.891
<5 years				1.71	[0.87,3.37]	0.123
Don't know				1.25	[0.72,2.18]	0.422

n=1680	n=1270
LR X2(df,15)=51.25	LR X2(df=18)=37.81
Prob X2=0.000	Prob X2=0.0041
Pseudo R2=0.0460	Pseudo R2=0.0440

Table 4. Logistic regression of risk and protective factors for condom use at first sexual intercourse among females aged 15-24 years: Rakai District, Uganda

	Model 1			Model 2		
	Odds Ratio	95%CI	P value	Odds Ratio	[95%CI]	P value
Age at first sex						
<15(RC)	1.00			1.00		
15-16	1.83	[1.34,2.50]	0.000	2.02	[1.38,2.96]	0.000
17+	2.49	[1.80,3.45]	0.000	2.91	[1.95,4.33]	0.000
Type of relationship at first sex						
Boyfriend(RC)	1.00			1.00		
Husband/consensual partner	0.03	[0.01,0.05]	0.000	0.02	[0.01,0.04]	0.000
Other	0.85	[0.65,1.11]	0.232	0.83	[0.60,1.15]	0.267
Consensual Sex						
Non-Consensual(RC)	1.00			1.00		
Consensual	2.53	[1.63,3.91]	0.000	2.72	[1.60,4.61]	0.000
Childhood Living Arrangement						
Other arrangements	1.00			1.00		
With mother only	1.40	[0.96,2.02]	0.080	0.71	[0.23,2.18]	0.555
With both parents	1.18	[0.90,1.53]	0.230	1.38	[0.99,1.91]	0.056
Mother's Education(yrs)						
< 5 years(RC)	1.00			1.00		
5-7 years	1.22	[0.88,1.71]	0.239	1.15	[0.77,1.73]	0.490
> 7 years	2.10	[1.42,3.10]	0.000	2.50	[1.51,4.12]	0.000
Don't Know	0.88	[0.62,1.26]	0.494	0.87	[0.55,1.37]	0.538
Religion						
Muslim(RC)	1.00			1.00		
Non-Muslim	0.95	[0.70,1.31]	0.769	0.97	[0.64,1.48]	0.900

Female Guardian's Alcohol Consumption						
Sometimes(RC)	1.00			1.00		
None	1.37	[1.06,1.76]	0.016	1.25	[0.91,1.73]	0.170
Family Socioeconomic Status						
Poor(RC)	1.00			1.00		
Average	1.09	[0.79,1.48]	0.605	1.11	[0.76,1.62]	0.604
Well-off	1.18	[0.74,1.88]	0.474	0.90	[0.51,1.56]	0.697
Felt Cared for by parents/guardians						
Very Much(RC)	1.00			1.00		
Somewhat	0.71	[0.55,0.90]	0.006	0.65	[0.48,0.87]	0.004
Not very much/not at all	1.12	[0.74,1.68]	0.590	1.10	[0.69,1.78]	0.684
School attendance						
Never/rarely missed(RC)	1.00			1.00		
Sometimes missed	1.38	[0.87,2.18]	0.166	1.37	[0.79,2.38]	0.269
Frequently missed/never attended	1.30	[0.81,2.07]	0.276	1.28	[0.72,2.26]	0.395
Male Guardian's alcohol consumption						
Never(RC)				1.00		
Sometimes/often				1.27	[0.91,1.78]	0.161
Father's education						
< 5 years				1.00		
5-7 years				1.26	[0.74,2.14]	0.387
>7 years				1.65	[0.95,2.87]	0.075
Don't know				1.38	[0.79,2.40]	0.257

n=1674
LRX^2(d.f16)=397.58
Prob X^2=0.0000
Pseudo R^2=0.1860

n=1265
LRX2(df=24)=354.91
ProbX^2=0.0000
Pseudo R$^{2=}$ 0.2239