

Perkins JM, Kakuhikire B, Baguma C, et al. Overestimation of alcohol consumption norms as a driver of alcohol consumption: a whole-population network study of men across eight villages in rural, southwestern Uganda. *Addiction*. 2021;117(1):68-81.

Supplementary Material (Tables S1-S5)

Table S1. Modified Poisson regression models estimating associations between perceived norms and frequent and heavy alcohol consumption among men in eight villages in rural Uganda -- excluding 39 men who identified as Muslim, Born-again Pentecostal, and Seventh Day Adventist.

	Frequent alcohol consumption (n=669)			Heavy alcohol consumption (n=669)		
	aRR	(95% CI)	p-value	aRR	(95% CI)	p-value
Perceived norm						
Incorrectly thought that most men in own village engage in this behavior	3.99	(1.67, 9.57)	0.002	4.65	(2.35, 9.18)	<0.001
Correctly thought that most men did not engage in this behavior	REF			REF		
Exposure to alcohol consumption behavior by men in personal network						
At least one male alter reported this alcohol consumption behavior	2.31	(1.44, 3.70)	<0.001	1.49	(0.87, 2.57)	0.146
No male alters reported this alcohol consumption behavior	REF			REF		
Personal attitudes about intoxication						
Thought intoxication was okay	3.42	(2.36, 4.96)	<0.001	2.12	(1.91, 2.35)	<0.001
Did not think intoxication was okay	REF			REF		
Number of male alters in personal social network						
Childhood exposure to adult who consumed alcohol excessively or who misused drugs	1.01	(0.99, 1.04)	0.354	0.99	(0.98, 1.01)	0.526
Had exposure	1.17	(0.75, 1.82)	0.493	1.29	(0.91, 1.85)	0.158
Did not have exposure	REF			REF		

Self-reported HIV serostatus						
HIV serostatus unknown	1.87	(1.51, 2.32)	<0.001	1.57	(1.39, 1.78)	<0.001
HIV positive	1.58	(1.01, 2.47)	0.044	0.93	(0.59, 1.47)	0.758
HIV negative	REF			REF		
Depression status						
Symptoms indicate probable depression	0.98	(0.50, 1.92)	0.950	1.26	(0.90, 1.76)	0.174
Symptoms did not indicate probable depression	REF			REF		
Age (in years)	1.01	(1.00, 1.02)	0.015	1.00	(1.00, 1.01)	0.216
Marital status						
Married / cohabiting	0.83	(0.68, 1.03)	0.087	0.93	(0.74, 1.18)	0.544
Divorced/separated/single	REF			REF		
Education level						
Completed primary education	0.95	(0.69, 1.30)	0.755	1.08	(0.76, 1.53)	0.681
Did not complete primary education	REF			REF		
Household asset wealth						
1st quintile (poorest)	2.31	(1.38, 3.89)	0.002	1.54	(1.20, 1.98)	0.001
2nd quintile	1.49	(0.97, 2.28)	0.067	1.40	(1.00, 1.97)	0.051
3rd quintile	1.33	(0.94, 1.88)	0.112	1.05	(0.77, 1.43)	0.757
4th quintile	1.90	(1.02, 3.51)	0.042	1.41	(1.03, 1.92)	0.032
5th quintile (least poor)	REF			REF		
Religion						
Protestant	REF			REF		
Catholic	1.10	(0.63, 1.92)	0.742	1.24	(0.99, 1.54)	0.062
Other religion	0.00	(0.00, 0.00)	<0.001	0.00	(0.00, 0.00)	<0.001

Notes: Each column represents one multivariable Poisson regression model fitted to the data. aRR = adjusted relative risk ratio. CI = confidence interval. REF = reference category for dichotomous and categorical variables. Frequent alcohol consumption was defined as ≥ 4 times per week. Heavy alcohol consumption was defined as reporting consumption of ≥ 6 drinks on one occasion at least once in the past 12 months, spending excessive money on alcohol in the past 30 days, or being intoxicated 3 or more times in the past 30 days. In these analyses, there are 3 participants in the “Other” religion category.

Table S2. Modified Poisson regression models estimating associations between perceived norms and frequent and heavy alcohol consumption among men in eight villages in rural Uganda -- excluding men who were not married or cohabiting.

	Frequent alcohol consumption (n=455)			Heavy alcohol consumption (n=455)		
	aRR	(95% CI)	p-value	aRR	(95% CI)	p-value
Perceived norm						
Incorrectly thought that most men in own village engage in this behavior	4.70	(2.38, 9.26)	<0.001	8.48	(3.26, 22.03)	<0.001
Correctly thought that most men did not engage in this behavior	REF			REF		
Exposure to alcohol consumption behavior by men in personal network						
At least one male alter reported this alcohol consumption behavior	2.28	(1.16, 4.47)	0.017	2.12	(0.98, 4.60)	0.057
No male alters reported this alcohol consumption behavior	REF			REF		
Personal attitudes about intoxication						
Thought intoxication was okay	3.38	(2.32, 4.92)	<0.001	2.24	(1.86, 2.69)	<0.001
Did not think intoxication was okay	REF			REF		
Participant reported partner alcohol consumption						
Participant reported spouse/partner to have consumed alcohol in past 12 months	1.17	(0.80, 1.70)	0.411	1.32	(0.92, 1.89)	0.138
Participant did not report spouse/partner alcohol consumption in past 12 months	REF			REF		
Number of male alters in personal social network						
Childhood exposure to adult who consumed alcohol excessively or who misused drugs	1.05	(1.01, 1.08)	0.010	1.00	(0.98, 1.02)	0.920
Had exposure	1.21	(0.93, 1.59)	0.160	1.06	(0.82, 1.38)	0.653
Did not have exposure	REF			REF		
Self-reported HIV serostatus						

HIV serostatus unknown	2.03	(0.79, 5.24)	0.144	1.98	(1.51, 2.59)	<0.001
HIV positive	1.17	(0.52, 2.65)	0.707	0.75	(0.35, 1.62)	0.462
HIV negative	REF			REF		
Depression status						
Symptoms indicate probable depression	0.86	(0.31, 2.37)	0.777	1.16	(0.82, 1.64)	0.390
Symptoms did not indicate probable depression	REF			REF		
Age (in years)	1.01	(0.99, 1.02)	0.478	1.00	(0.99, 1.01)	0.803
Education level	1.06	(0.52, 2.14)	0.876	1.25	(0.87, 1.80)	0.236
Completed primary education						
Did not complete primary education						
Household asset wealth						
1st quintile (poorest)	2.66	(1.53, 4.63)	0.001	1.60	(0.95, 2.69)	0.075
2nd quintile	1.82	(0.91, 3.67)	0.092	1.47	(1.17, 1.85)	0.001
3rd quintile	2.07	(1.28, 3.34)	0.003	1.17	(0.91, 1.51)	0.224
4th quintile	3.26	(2.31, 4.59)	<0.001	1.49	(1.28, 1.74)	<0.001
5th quintile (least poor)	REF			REF		

Notes: Each column represents one multivariable Poisson regression model fitted to the data. aRR = adjusted relative risk ratio. CI = confidence interval. REF = reference category for dichotomous and categorical variables. Frequent alcohol consumption was defined as ≥ 4 times per week. Heavy alcohol consumption was defined as reporting consumption of ≥ 6 drinks on one occasion at least once in the past 12 months, spending excessive money on alcohol in the past 30 days, or being intoxicated 3 or more times in the past 30 days.

Table S3. Modified Poisson regression models estimating associations between perceived norms and frequent alcohol consumption among men in eight villages in rural Uganda -- using an alternative threshold for defining frequent alcohol consumption (≥ 2 days per week).

	Frequent alcohol consumption (n=708)		
	aRR	(95% CI)	p-value
Perceived norm			
Incorrectly thought that most men in own village engage in this behavior	4.12	(1.82, 9.29)	0.001
Correctly thought that most men did not engage in this behavior	REF		
Exposure to consuming alcohol ≥ 2 times per week by men in personal network			
At least one male alter reported consuming alcohol ≥ 2 times per week	3.04	(1.29, 7.13)	0.011
No male alters reported consuming alcohol ≥ 2 times per week	REF		
Personal attitude about intoxication			
Thought intoxication was okay	3.73	(2.59, 5.37)	<0.001
Did not think intoxication was okay	REF		
Number of male alters in personal social network	1.03	(1.01, 1.04)	<0.001
Childhood exposure to adult who consumed alcohol excessively or who misused drugs			
Had exposure	1.24	(0.87, 1.78)	0.237
Did not have exposure	REF		
Self-reported HIV serostatus			
HIV serostatus unknown	1.85	(1.36, 2.51)	<0.001
HIV positive	1.47	(1.01, 2.15)	0.047
HIV negative	REF		
Symptoms indicate probable depression	0.96	(0.50, 1.83)	0.898
Age (in years)	1.01	(1.00, 1.02)	0.036
Marital status			
Married / cohabiting	0.85	(0.69, 1.03)	0.104
Divorced/separated/single	REF		

Education level			
Completed primary education	0.92	(0.61, 1.39)	0.703
Did not complete primary education	REF		
Household asset wealth			
1st quintile (poorest)	2.23	(1.45, 3.43)	<0.001
2nd quintile	1.57	(1.06, 2.31)	0.024
3rd quintile	1.46	(1.01, 2.10)	0.045
4th quintile	2.03	(1.14, 3.61)	0.016
5th quintile (least poor)	REF		

Notes: Each column represents one multivariable Poisson regression model fitted to the data. aRR = adjusted relative risk ratio. CI = confidence interval. REF = Reference category for dichotomous and categorical variables.

Table S4. Modified Poisson regression models estimating associations between perceived norms and frequent and heavy alcohol consumption among men in eight villages in rural Uganda -- using an alternative measure of exposure to alcohol consumption by men in one's personal network.

	Frequent alcohol consumption (n=708)			Heavy alcohol consumption (n=707)		
	aRR	(95% CI)	p-value	aRR	(95% CI)	p-value
Perceived norm						
Incorrectly thought that most men in own village engage in this behavior	3.71	(1.56, 8.83)	0.003	4.53	(2.22, 9.24)	<0.001
Correctly thought that most men did not engage in this behavior	REF			REF		
Number of male alters in personal social network who report this alcohol consumption behavior	1.39	(1.26, 1.52)	<0.001	1.25	(1.11, 1.42)	<0.001
Personal attitudes about intoxication						
Thought intoxication was okay	3.53	(2.46, 5.08)	<0.001	2.12	(1.91, 2.35)	<0.001
Did not think intoxication was okay	REF			REF		
Number of male alters in personal social network	0.99	(0.96, 1.03)	0.649	0.94	(0.91, 0.98)	0.002
Childhood exposure to adult who consumed alcohol excessively or who misused drugs						
Had exposure	1.16	(0.80, 1.69)	0.425	1.31	(0.92, 1.84)	0.130
Did not have exposure	REF			REF		
Self-reported HIV serostatus						
HIV serostatus unknown	1.68	(1.21, 2.34)	0.002	1.64	(1.42, 1.89)	<0.001
HIV positive	1.38	(0.80, 2.37)	0.243	0.82	(0.49, 1.38)	0.456
HIV negative	REF			REF		
Depression status						
Symptoms indicate probable depression	1.04	(0.54, 2.01)	0.908	1.26	(0.84, 1.89)	0.270
Symptoms did not indicate probable depression	REF			REF		
Age (in years)	1.01	(1.00, 1.02)	0.070	1.00	(1.00, 1.01)	0.360
Marital status						

Married / cohabiting	0.92	(0.76, 1.11)	0.375	0.95	(0.74, 1.23)	0.713
Divorced/separated/single	REF			REF		
Education level						
Completed primary education	0.94	(0.61, 1.47)	0.799	1.08	(0.74, 1.57)	0.694
Did not complete primary education	REF			REF		
Household asset wealth						
1st quintile (poorest)	2.24	(1.29, 3.86)	0.004	1.42	(1.10, 1.84)	0.008
2nd quintile	1.55	(1.03, 2.33)	0.035	1.38	(0.98, 1.95)	0.065
3rd quintile	1.38	(0.95, 2.01)	0.091	0.97	(0.72, 1.31)	0.848
4th quintile	1.78	(0.98, 3.21)	0.057	1.24	(0.91, 1.69)	0.176
5th quintile (least poor)	REF			REF		

Notes: Each column represents one multivariable Poisson regression model fitted to the data. aRR = adjusted relative risk ratio. CI = confidence interval. REF = reference category for dichotomous and categorical variables. Frequent alcohol consumption was defined as ≥ 4 times per week. Heavy alcohol consumption was defined as reporting consumption of ≥ 6 drinks on one occasion at least once in the past 12 months, spending excessive money on alcohol in the past 30 days, or being intoxicated 3 or more times in the past 30 days.

Table S5. Linear probability model estimating associations between perceived norms and frequent and heavy alcohol consumption among men in rural Uganda -- adjusting for social network autocorrelation.

	Frequent alcohol consumption (n=708)			Heavy alcohol consumption (n=707)		
	β	Standard error	p-value	β	Standard error	p-value
Perceived norm						
Incorrectly thought that most men in own village engage in this behavior	0.08	0.02	0.001	0.19	0.03	<0.001
Correctly thought that most men did not engage in this behavior	REF			REF		
Exposure to alcohol consumption behavior by men in personal network						
At least one male alter reported this alcohol consumption behavior	0.14	0.06	0.015	0.01	0.04	0.796
No male alters reported this alcohol consumption behavior	REF			REF		
Personal attitudes about intoxication						
Thought intoxication was okay	0.16	0.02	<0.001	0.20	0.03	<0.001
Did not think intoxication was okay	REF			REF		
Number of male alters in personal social network						
Childhood exposure to adult who consumed alcohol excessively or who misused drugs	0.00	0.00	0.635	0.00	0.00	0.416
Had exposure	0.01	0.02	0.628	0.08	0.03	0.010
Did not have exposure	REF			REF		
Self-reported HIV serostatus						
HIV serostatus unknown	0.07	0.04	0.060	0.15	0.05	0.004
HIV positive	0.07	0.04	0.089	-0.05	0.06	0.365
HIV negative	REF			REF		
Depression status						

Symptoms indicate probable depression	-0.01	0.03	0.702	0.07	0.05	0.123
Symptoms did not indicate probable depression	REF			REF		
Age (in years)	0.00	0.00	0.291	0.00	0.00	0.750
Marital status						
Married / cohabiting	-0.03	0.03	0.273	-0.02	0.04	0.606
Divorced/separated/single	REF			REF		
Education level						
Completed primary education	-0.04	0.02	0.048	-0.01	0.03	0.712
Did not complete primary education	REF			REF		
Household asset wealth						
1st quintile (poorest)	0.05	0.04	0.230	0.08	0.05	0.114
2nd quintile	-0.01	0.03	0.770	0.06	0.05	0.206
3rd quintile	-0.01	0.03	0.814	-0.01	0.05	0.849
4th quintile	0.02	0.03	0.470	0.04	0.04	0.364
5th quintile (least poor)	REF			REF		
Village						
1	REF			REF		
2	-0.07	0.04	0.059	-0.09	0.06	0.119
3	0.03	0.04	0.506	-0.07	0.06	0.298
4	-0.07	0.04	0.067	-0.11	0.06	0.060
5	-0.08	0.05	0.095	-0.14	0.07	0.038
6	-0.09	0.03	0.011	-0.15	0.06	0.012
7	-0.11	0.04	0.016	-0.02	0.07	0.825
8	-0.09	0.04	0.013	-0.19	0.06	0.001

Notes: Each column represents one linear probability model fitted to the data. REF = reference category for dichotomous and categorical variables. Frequent alcohol consumption was defined as ≥ 4 times per week. Heavy alcohol consumption was defined as reporting consumption of ≥ 6 drinks on one occasion at least once in the past 12 months, spending excessive money on alcohol in the past 30 days, or being intoxicated 3 or more times in the past 30 days.