

Intentional COVID-19 messaging for women with more non-traditional gender views and COVID-19 radio messages for men could improve COVID-19 vaccine acceptance and uptake.

The role of gender and media exposure for COVID-19 vaccine acceptance and prevention among female and male adolescents in Liberia

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INTRODUCTION

COVID-19 vaccines were introduced in Liberia in March 2021 to an initial slow uptake. This study examines potential social and behavioral determinants of COVID-19 vaccine acceptance and prevention behaviors among adolescents to inform effective COVID-19 programs/policies.

METHODS

1. Bong: 385 female, 388 male adolescents. Bomi: 203 female, 190 male adolescents. Gbarpolu: 193 female, 296 male adolescents
2. Quantitative, cross-sectional household health survey among married/in union adolescent girls and unmarried adolescent boys and girls (ages 15–19 years)
3. One model for participation in more than one COVID-19 prevention behavior and one model for vaccine acceptance were estimated to assess predictors of these outcomes while controlling for potential confounders.

RESULTS

Table 1. Multivariate Analysis of Sociodemographic, Cognitive, Behavioral, and Social Predictors of Vaccine Acceptance

	FEMALE ADOLESCENTS			MALE ADOLESCENTS		
	Adjusted OR	95% CI	P>z	Adjusted OR	95% CI	P>z
Education level						
No formal education	1.00			1.00		
Primary	0.60	(0.31, 1.15)	0.12	1.31	(0.75, 2.29)	0.34
Secondary or higher	0.46	(0.22, 0.97)	0.04*	1.68	(0.90, 3.14)	0.10
County of residence						
Gbarpolu	1.00			1.00		
Bomi	1.12	(0.56, 2.26)	0.74	0.61	(0.37, 1.00)	0.05*
Bong	1.53	(0.89, 2.64)	0.13	0.80	(0.55, 1.17)	0.25
GEM scale: Domestic chores and daily life						
Low	1.00			—		
Medium	1.98	(1.19, 3.28)	0.01*	—		
High	1.43	(0.82, 2.49)	0.21	—		
Practice more than one COVID-19 prevention behavior						
No	1.00			1.00		
Yes	2.10	(1.12, 3.93)	0.02*	0.79	(0.57, 1.08)	0.14
Constant	0.30	(0.05, 1.79)	0.19	1.16	(0.34, 3.89)	0.81

* Female adolescents: Number of observations=428, LR $\chi^2(19)=30.41$, Prob > $\chi=0.0841$, Log likelihood=-273.94358, pseudo R=0.0526, controlled for couple communication and reproductive health GEM subscale (not significantly associated with outcome);
 * Male adolescents: Number of observations=757 LR $\chi^2(22)=17.55$, Prob > $\chi=0.2281$, Log likelihood=-513.78975, pseudo R=0.0168;
 * Both models controlled for age group, religion, residence (urban/rural), vulnerability index, standard of living index. None were significantly associated with outcome.



Table 2. Multivariate Analysis of Sociodemographic, Cognitive, Behavioral, and Social Predictors of COVID-19 Prevention Behaviors

	FEMALE ADOLESCENTS			MALE ADOLESCENTS		
	Adjusted OR	95% CI	P>z	Adjusted OR	95% CI	P>z
Education level						
No formal education	1.00			1.00		
Primary	1.86	(0.64, 2.56)	0.49	1.84	(1.06, 3.28)	0.03*
Secondary or higher	5.08	(0.64, 3.11)	0.40	4.95	(2.54, 10.13)	0.00***
Vulnerability index						
Low	1.00			1.00		
Moderate	4.15	(1.50, 11.47)	0.01**	1.01	(0.46, 2.21)	0.98
High	3.22	(1.06, 9.84)	0.04*	1.06	(0.46, 2.46)	0.89
Standard of living index						
Low	1.00			1.00		
Moderate	3.13	(1.33, 7.39)	0.01**	1.21	(0.75, 1.94)	0.44
High	2.94	(0.33, 25.81)	0.33	0.14	(0.01, 1.38)	0.09
Radio exposure						
Never	1.00			1.00		
Once a week or less	2.45	(1.44, 4.17)	0.00***	1.87	(1.19, 2.95)	0.01**
More than once a week/every day	1.42	(0.87, 2.33)	0.17	1.49	(0.94, 2.37)	0.09
GEM scale: domestic chores and daily life						
Low	1.00			1.00		
Medium	2.20	(1.33, 3.64)	0.00***	1.30	(0.86, 1.97)	0.21
High	2.17	(1.28, 3.69)	0.00***	0.97	(0.64, 1.47)	0.89
GEM scale: reproductive health						
Low	—			1.00		
Medium	—			1.41	(0.95, 2.09)	0.09
High	—			1.57	(1.00, 2.45)	0.05*
Constant	0.54	(0.10, 2.98)	0.48	0.53	(0.13, 2.13)	0.37

* Female adolescents: Number of observations=781, LR $\chi^2(23)=57.61$, Prob > $\chi=0.0000$, Log likelihood=-297.58044, pseudo R=0.0882; controlled for marital status (not significantly associated with outcome)
 * Male adolescents: Number of observations=774, LR $\chi^2(24)=86.22$, Prob > $\chi=0.0000$, Log likelihood=-446.73355, pseudo R=0.0880; controlled for social media use (not significantly associated with outcome);
 * Both models controlled for age group, residence (urban/rural), religion, county of residence. None were significantly associated with outcome.

Table 3. COVID-19 Vaccine Uptake and Hesitancy for Female and Male Adolescents

	FEMALE ADOLESCENTS			MALE ADOLESCENTS			
	Intervention	Control	Total	Gbarpolu	Bomi	Total	Gbarpolu
Have you received a COVID-19 vaccine yet?	Bong n=385 %	Bomi n=203 %	Total N=89 %	Gbarpolu n=193 %	Bomi n=375 %	Total N=565 %	Gbarpolu n=192 %
No	(385) 95.8 %	(203) 95.6 %	(588) 95.7 %	(193) 96.4 %	(375) 84.8 %	(565) 84.2 %	(192) 93.8 %
Yes	4.2 %	4.4 %	4.3 %	3.6 %	15.2 %	15.8 %	6.3 %
If a vaccine to prevent COVID-19 were offered to you today, would you choose to get vaccinated?	(369) %	(194) %	(563) %	(186) %	(375) %	(565) %	(192) %
No, definitely not	41.8 %	35.8 %	37.8 %	37.6 %	55.2 %	59.0 %	56.5 %
No, probably not	24.7 %	24.1 %	24.3 %	29 %	9.6 %	14.7 %	11.3 %
Yes, probably	15.5 %	22.5 %	20.1 %	11.8 %	16.3 %	5.8 %	12.7 %
Yes, definitely	18 %	17.6 %	17.8 %	21.5 %	18.9 %	20.5 %	19.5 %

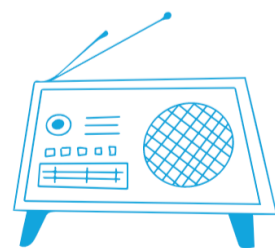
Table 4. COVID-19 Prevention Behaviors for Female and Male Adolescents

	FEMALE ADOLESCENTS			MALE ADOLESCENTS			
	Intervention	Control	Total	Gbarpolu	Bomi	Total	Gbarpolu
Clean hands with soap/sanitizer more often	(385) %	(203) %	(588) %	(193) %	(375) %	(565) %	(192) %
Most times	38.4 %	49.8 %	42.3 %	47.2 %	17.9 %	42.1 %	26.0 %
Sometimes	54.3 %	40.9 %	49.7 %	47.2 %	60.8 %	47.9 %	56.5 %
Never	7.3 %	9.4 %	8 %	5.7 %	21.3 %	10.0 %	17.5 %
Wear a face mask when outside	(385) %	(203) %	(588) %	(193) %	(375) %	(565) %	(192) %
Most times	20.3 %	24.6 %	21.8 %	34.2 %	10.7 %	21.6 %	14.3 %
Sometimes	67.3 %	63.1 %	65.8 %	43 %	51.2 %	53.7 %	52.0 %
Never	12.5 %	12.3 %	12.4 %	22.8 %	38.1 %	24.7 %	33.6 %
Avoid shaking hands/hugging people	(385) %	(203) %	(588) %	(193) %	(375) %	(565) %	(192) %
Most times	14.5 %	4.4 %	11.1 %	32.1 %	8.3 %	19.5 %	12.0 %
Sometimes	42.1 %	55.2 %	46.6 %	38.3 %	36.5 %	34.2 %	35.8 %
Never	43.4 %	40.4 %	42.3 %	29.5 %	55.2 %	46.3 %	52.2 %
Keep 2 m (6 ft) from people	(385) %	(203) %	(588) %	(193) %	(375) %	(565) %	(192) %
Most times	12.5 %	2 %	8.8 %	17.7 %	5.6 %	18.4 %	9.9 %
Sometimes	30.6 %	49.3 %	37.1 %	36.3 %	35.5 %	33.7 %	34.9 %
Never	56.9 %	48.8 %	54.1 %	45.1 %	58.9 %	47.9 %	55.2 %

DISCUSSION



Persuasive messaging around COVID-19 vaccination and prevention is critical. Gender is a cross-cutting issue that should be included in all adolescent programming.



Radio programming might prove effective for COVID-19 prevention behavior messaging targeted at male adolescents.



Female adolescents with the lowest vulnerability and male adolescents with no formal training and with the lowest standard of living were less likely to participate in at least one COVID-19 prevention behavior, suggesting a need to target COVID-19 prevention messaging to these groups to increase prevention behaviors.



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