HIV Prevention Social Vaccine in Cameroonian Educational Communities

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Odile Estelle Grâce A. Beloumou[1,2,*], Joseph Fokam[1,3,4,5,*], Collins A. Chenwi[1,2,5], Nadine Fainguem[1], **Nelson Sonela[1]**, Samuel M. Sosso[1], Nelly Kamgaing[1], Sylvie A. Moudourou[1], Georgia Ambada[1], Thomas M. A. Betilene[11;] Carlo F. Perno[1,9] Alexis Ndjolo[1,3]

[1]Chantal Biya International Reference Centre for Research on HIV and AIDS Prevention and Management, Yaoundé, Cameroon; [2]Faculty of Medicine and Surgery, University of Rome Tor Vergata, Rome, Italy; [3]Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon; [4]National AIDS Control Committee, Ministry of Public Health, Yaoundé, Cameroon; [5]National working HIV Drug Resistance Working Group, Ministry of Public Health, Yaoundé, Cameroon;

BACKGROUND

- Despite a decline in HIV prevalence in Cameroon from 5.5% to 2.6% in the general population, HIV incidence remains worrying among adolescents and young people, comprising students attending primary and higher schools.
- This necessitates innovative community-based interventions to improve prevention among these target populations.
- We herein report on HIV-prevention, HIV prevalence, and associated factors in Cameroon.

METHODS

- A mixed qualitative and quantitative study using Risk Communication and Community Engagement (RCCE) was carried out between 2019 and 2023, targeting primary/secondary school pupils, teachers, tutors, and community leaders.
- HIV/AIDS education was carried out, and HIV testing was performed following the national algorithm
- Establishment of multimedia centers in each community.
- Multivariate analysis was used to identify potential independent factors associated with HIV acceptance/positivity.

RESULTS

Benefits of the "Social Vaccine" campaigns with RCCE

- Enabled strong engagement in schools and communities.
- 34 campaigns were conducted, guided by regional prevalence (Fig. 1), with the highest number in the South and East regions (Fig. 2).
- 24 multimedia/videoconference centers were installed in the Center (06), East (05), North (01), Northwest (04), West (03),

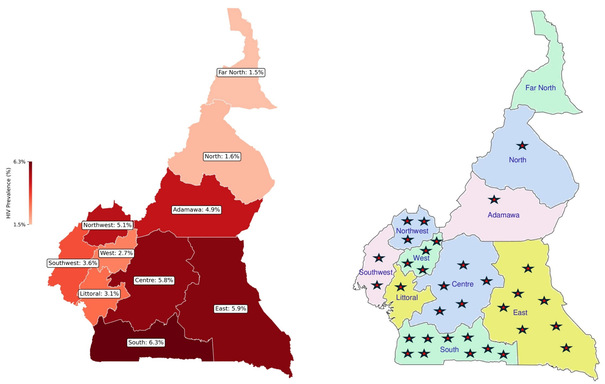


Fig. 1: Regions where the Social Vaccine has been implemented to date. The figure shows the regions in which the Social Vaccine has been implemented to date (right), chosen primarily based on regional HIV prevalences (left) during the implementation phases of the social vaccine. The number of stars in the right image represents the number of social vaccine campaigns (that is one star for one social vaccine campaign).

The Risk Communication and Community Engagement framework (RCCE), operationalized through the "social vaccine" model, played a critical role in enhancing HIV prevention efforts and towards achieving the UNAIDS first 95 objective in Cameroon.

Population characteristics

- 1,203 participants were enrolled, across 45 localities.
- The median age [IQR] was 18 [16-28] years, with adolescents (10-19 years) being the most represented (n=721, 60.1%). Table 1 summarizes the characteristics of study participants.

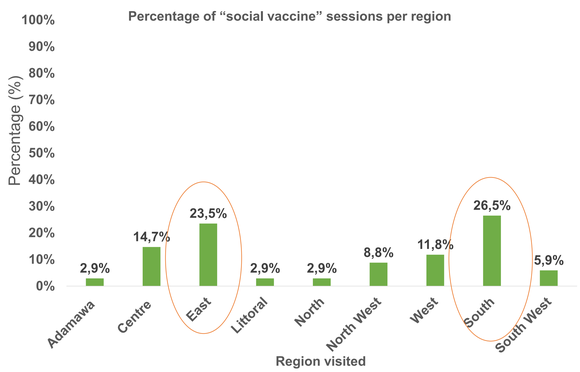


Fig. 2: Percentage of "Social Vaccine" visits in each region. Regions with the highest visits are encircled.

Table 1: Socio-demographic characteristics of all participants

Variable	Category	n (%)
Age[a]	10-19	721 (60.3)
	20-29	202 (16.9)
	30-39	90 (7.5)
	40-49	81 (6.8)
	≥50	105 (8.8)
Sex[b]	Female	613 (51.0)
	Male	588 (49.0
Region of origin	Adamawa	7 (0.6)
	Centre	148 (12.3)
	East	121 (10.1)
	Far North	18 (1.5)
	Littoral	5 (0.4)
	North	15 (1.3)
	North-West	9 (0.8)
	West	706 (58.7)
	South	174 (14.5)
Zone of residence	Rural	395 (32.8)
	Urban	808 (67.2)

[a]Total number of individuals available for these analyses were 1199; [b]Total number of individuals available for these analyses were 1201.

HIV testing uptake

- Overall, HIV test acceptance was high, 98% (95% CI: 97.9%-99.2%).
- Acceptance rates were similar rates between males (98.6%) and females (98.7%), p=1.000, and higher
- in adolescents (99.6%) as compared to adults (96.7%), p=0.008.
- All individuals 30-39 years old accepted the test (100%)
- Test acceptance was lower in individuals residing in rural areas (96.7%) as compared to urban areas (99.6%, p<0.0001), and lowest in individuals originating from the Far North region (88.9%, p<0.0001)

HIV seropositivity rates

- Overall HIV positivity rate was 1.4% (95% CI: 0.9%-2.3%), and was similar in males (1.6%) and females (1.3%), p=0.7
- Individuals with positive tests were older (median [IQR]; 34 [17-42] years) than those with a negative test (18 [16-27] years), p=0.02, with the highest positivity rates in those ages 30-39 years (6.7%, p=0.0004)
- Participants from the South, East, and Center regions had the highest positivity rates (3.7%, 2.6%, and 2.3% respectively)

Table 2: HIV test acceptance and HIV positivity according to study variables

Variable	HIV test acceptance N (%)	OR, P value	Multivariate aP value	HIV positivity N (%)	OR, P value	Multivariate aP value
Overall	1187 (98.7)	NA	NA	17 (1.4)	NA	NA
Age range						
- *10-19*	717 (99.6)	NA,	0.913	5 (0.7)		0.596
- *20-29*	196 (97.0)		0.260	1 (0.5)	NA,	0.470
- *30-39*	90 (100.0)	***0.0025***	0.213	6 (6.7)		***0.003***
- *40-49*	77 (95.1)		0.149	3 (3.9)	***0.0004***	0.290
- *≥50*	103 (98.1)		Reference	2 (1.9)		Reference
Sex						
- *Female*	605 (98.7)	0.959,	0.743	8 (1.3)	1.178,	0.886
- *Male*	580 (98.6)	1	0.768	9 (1.6)	0.810	0.901
Region of origin						
- *Adamawa*	7 (100.0)		Reference	0 (0.0)		Reference
- *Centre*	148 (100.0)		0.783	3 (2.3)		0.849
- *East*	117 (96.7)		0.316	3 (2.6)		0.841
- *Far North*	16 (88.9)	NA,	***0.014***	0 (0.0)	NA,	0.923
- *Littoral*	5 (100.0)		0.793	0 (0.0)	0.134	0.702
- *North*	15 (100.0)	***<0.0001***	0.890	0 (0.0)		0.680
- *North West*	9 (100.0)		0.861	0 (0.0)		0.879
- *West*	706 (100.0)		0.867	5 (0.7)		0.967
- *South*	164 (98.7)		0.131	6 (3.7)		0.580
Zone of residence						
- *Rural*	382 (96.7)	0.12,	0.594	10 (2.6)	3.061,	0.787
- *Urban*	805 (99.6)	***<0.0001***		7 (0.9)	***0.032***	

HIV, Human Immunodeficiency Virus; N, frequency; %, percentage; OR, Odds ratio; aOR, adjusted odds ratio; NA, not applicable. Only age, sex and variables with p<0.2 on bivariate analyses were included for multivariate analyses. For multivariate analyses, Significant p values are represented in bold

CONCLUSIONS

- HIV seroprevalence among school-aged children and educators is low (under 5%), although elevated prevalence rates are observed in rural areas and among adults, particularly those aged 30-39 years.
- These findings highlight the need for integrated strategies that combine surveillance with targeted, community-based interventions to address both students and teaching personnel, particularly in underserved rural regions.
- The RCCE approach, functioning as a form of *"social vaccine,"* plays a pivotal role in strengthening HIV prevention efforts in low- and middle-income settings such as Cameroon

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Presenting author contacts: ***nelsonela@yahoo.fr*** ***and*** ***graceangong12@yahoo.fr***

PLAIN LANGUAGE SUMMARY

HIV prevalence among school children and teachers is low (below 5%), but higher rates are seen in rural areas and among adults. This indicates the need for targeted, community-based prevention efforts, especially in underserved rural settings. Strengthening surveillance alongside Risk Communication and Community Engagement a "social vaccine" could improve HIV prevention in countries like Cameroon.