

# HPV Vaccination Determinant in Cameroon: A Cross-Sectional Nationwide Health Workers Survey

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## Introduction

- Cervical cancer is the fourth most common cancer among women [1].
- Only 6% of Cameroon's women have ever screened for this cancer, causing 1,600 deaths in 2019 [2]
- HPV related cancers are preventable by vaccination [3, 4].
- Vaccination coverage remained <20% in Cameroon till 2023.
- With a single-dose gender-neutral vaccination and PIRI, Cameroon significantly improved coverage, reaching 60% for girls [5].
- This study assessed health workers' willingness to vaccinate and the promoters of HPV vaccination in Cameroon.

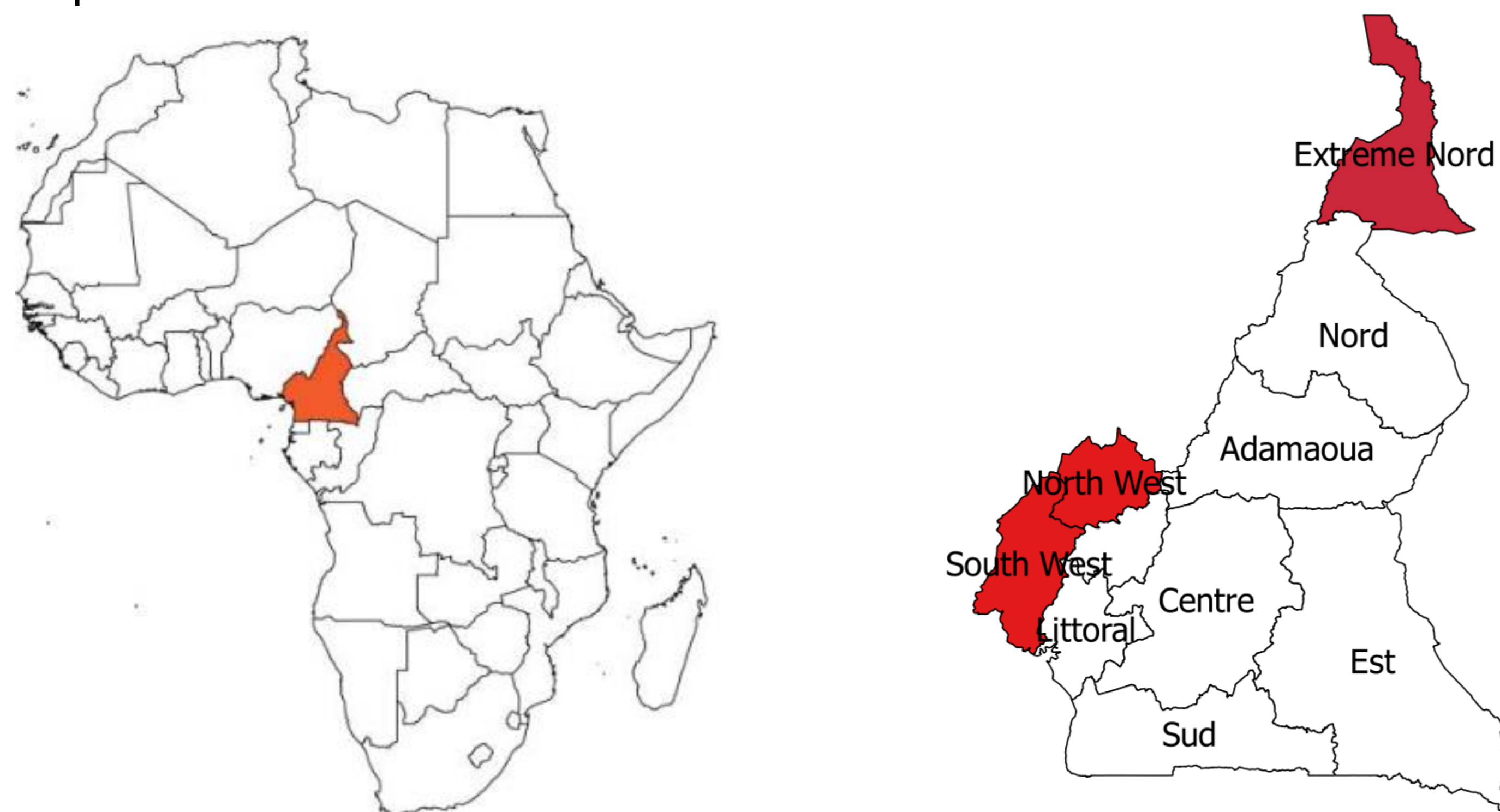


Figure 1: Cameroon's location in Africa. Figure 2: Cameroon's three regions in insecurity

## Methods

**Nationwide Cross-Sectional Study: Aug 2023 to July 2024**

**Health workers survey**

- **Online form** (KoboToolbox)
- **Sample size: 385** (Raosoft calculator)
- **Health workers** assessed in the country's ten regions

**Data analysis (SPSS)**

- The chi-square test identified vaccination-favoring elements
- Multiple logistic regression depicted the determinants.
- Results were reported with a 95% confidence interval and 5% significance level.

## Results

- 1225 health workers were interviewed, with 83% willing to vaccinate

Table 1: Population characteristics and the willingness to vaccinate

		HPV Vaccination			p-value
		No	Yes	Total	
Gender	Female	7%	30%	37%	0.1
	Male	10%	53%	63%	
Knowledge of cervical cancer	No	1%	2%	3%	0.07
	Yes	16%	81%	97%	
HPV knowledge	No	2%	3%	5%	<0.01*
	Yes	15%	80%	95%	
Staff in vaccinating unit	No	5%	11%	16%	<0.01*
	Yes	12%	72%	84%	
	Region	1%	5%	6%	
Health pyramid level	District	3%	23%	25%	<0.01*
	Health facility	13%	55%	69%	
	Nurse	13%	64%	76%	
	Medical Doctor	1%	7%	8%	
Function	Admin Staff	1%	8%	9%	0.7
	Pharmacist	0%	0%	1%	
	Laboratory staff	0%	1%	2%	
	CHW	1%	3%	4%	
<b>Total</b>		<b>17%</b>	<b>83%</b>	<b>100%</b>	

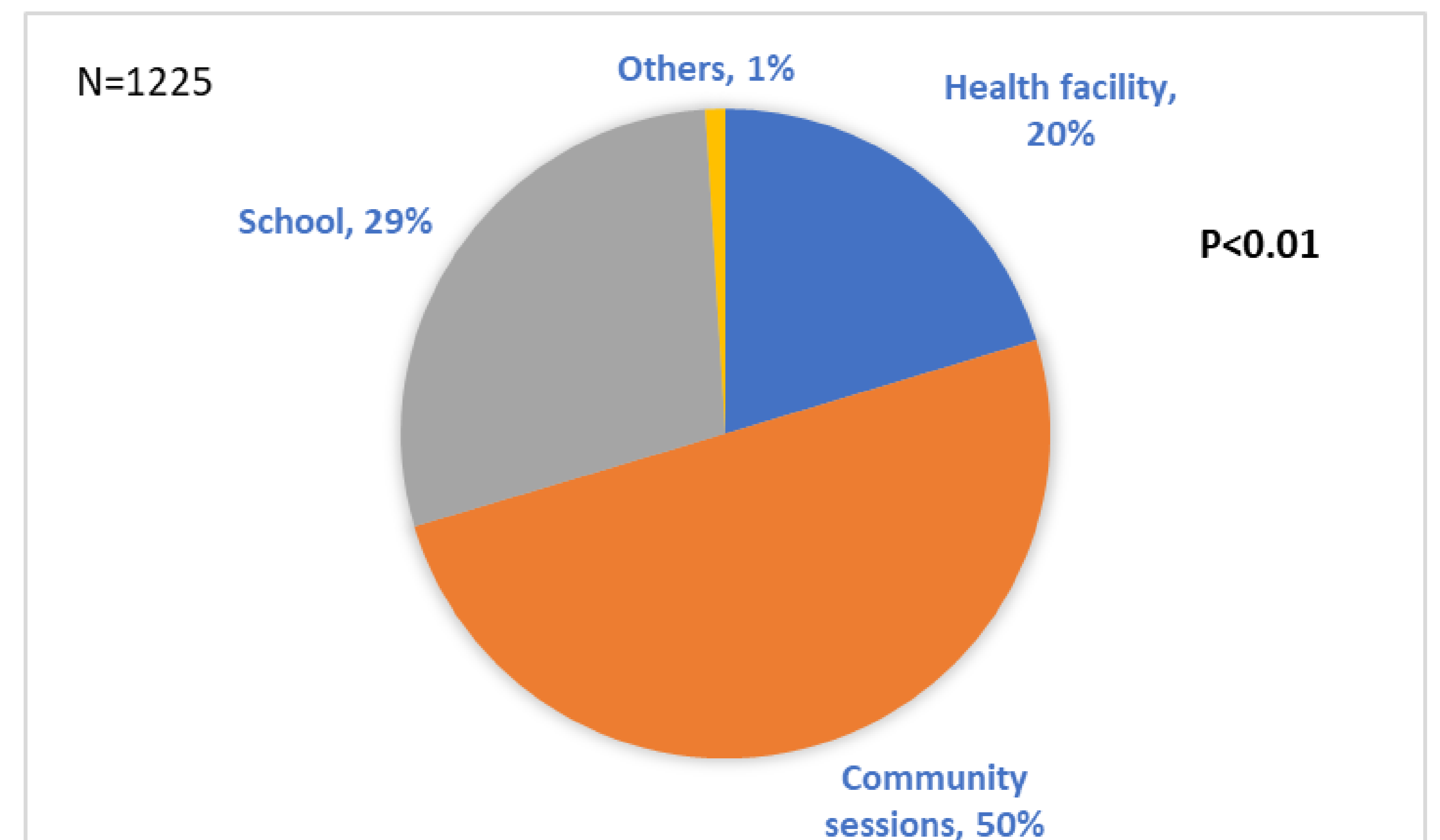


Figure 1: Key delivery strategies

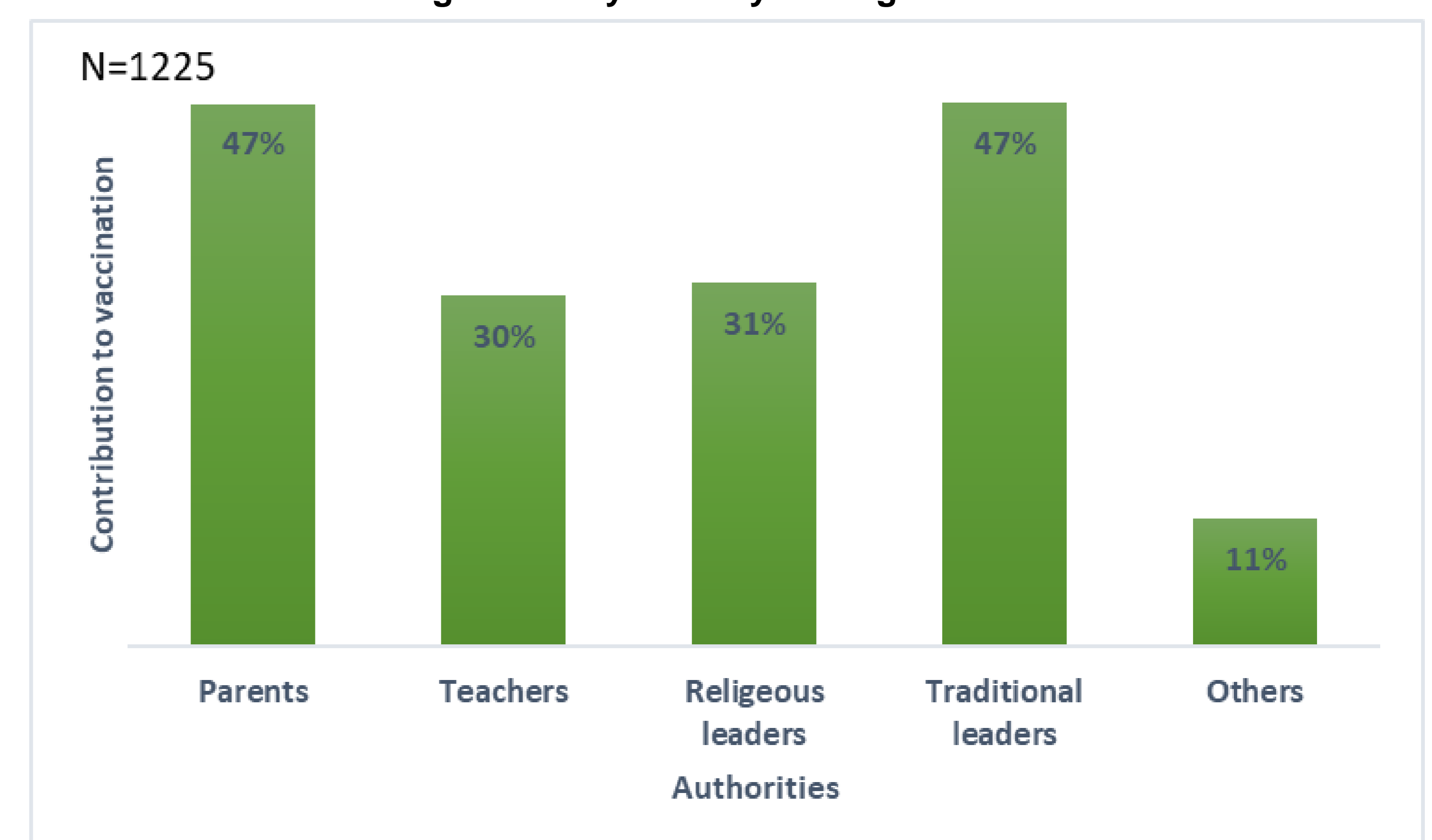


Figure 2: Stakeholders' contribution to vaccination

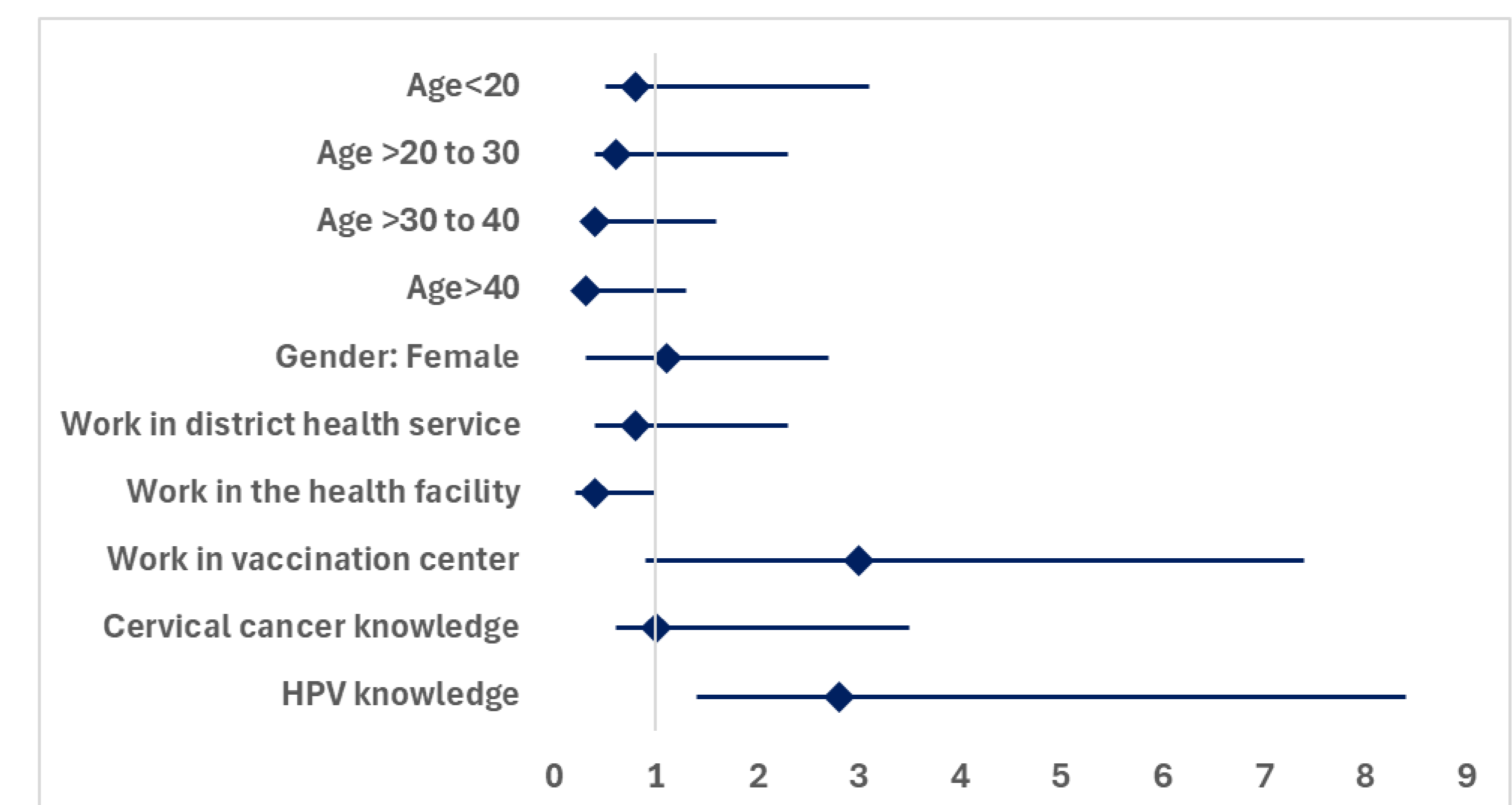


Figure 3: Multiple logistic regression of factors associated with HPV vaccination

## Conclusion

- Health workers willingly vaccinated against HPV in Cameroon.
- Strengthening awareness of the risk of HPV and engaging key community leaders will improve vaccine uptake.
- Leveraging community and school strategies is crucial

## References

1. WHO (2022) Cervical cancer. <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>. Accessed 26 Jul 2023
2. WHO (2021) Cervical cancer Cameroon 2021 country profile. <https://www.who.int/publications/m/item/cervical-cancer-cmr-country-profile-2021>. Accessed 11 Aug 2023
3. CDC (2024) Cancers Associated with Human Papillomavirus. In: United States Cancer Statistics. <https://www.cdc.gov/united-states-cancer-statistics/publications/hpv-associated-cancers.html>. Accessed 4 Nov 2024
4. CDC (2022) STD Facts - Human papillomavirus (HPV). <https://www.cdc.gov/std/hpv/stdfact-hpv.htm>. Accessed 11 Aug 2023
5. Njoh AA, Waheed D-E-N, Kedakse TSNJ, et al (2025). Overcoming challenges and achieving high HPV vaccination uptake in Cameroon: lessons learned from a gender-neutral and single-dose program and community engagement. BMC Public Health 25:1696

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## Facteurs déterminants de la vaccination contre le HPV au Cameroun

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### Résumé :

Le cancer du col de l'utérus est le quatrième cancer chez la femme au Cameroun et la couverture vaccinale HPV y restait inférieure à 20 % jusqu'en 2023. L'introduction d'un schéma monodose neutre en termes de genre et des stratégies de vaccination périodique intensifiée ont permis de porter la couverture à environ 60 %. Cette étude transversale nationale (août 2023 – juillet 2024) a interrogé 1 225 agents de santé dans les dix régions via un formulaire en ligne et a analysé les déterminants de la volonté de vacciner à l'aide de tests du chi-carré et d'une régression logistique. Au total, 83 % des répondants se déclaraient prêts à vacciner contre le HPV. La volonté de vacciner était associée à la connaissance du cancer du col de l'utérus et du HPV, au fait de travailler dans une unité de vaccination et au niveau du système de santé. Les femmes ayant reçu une formation et les travailleurs informés présentaient des proportions de volonté nettement plus élevées. Les auteurs concluent que les agents de santé camerounais sont globalement favorables à la vaccination et soulignent l'importance d'intensifier la sensibilisation aux risques liés au HPV, d'impliquer les leaders communautaires et de renforcer les stratégies communautaires et scolaires pour améliorer la couverture vaccinale.