

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | Study protocol for assessing knowledge, attitudes and belief toward HPV vaccination of parents with children aged 9-14 years in rural communities of North West Cameroon: a qualitative study |
| <b>AUTHORS</b>             | Elit, Lorraine; Ngalla, Calvin; Afugchwi, Glen; Tum, Eric; Fokom-Domgue, Joël; Nouvet, Elysée                                                                                                 |

### VERSION 1 - REVIEW

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| <b>REVIEWER</b>        | Bardou, Marc<br>Centre Hospitalier Universitaire de Dijon, CIC-P INSERM 1432 |
| <b>REVIEW RETURNED</b> | 30-May-2022                                                                  |

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| <b>GENERAL COMMENTS</b> | <p>This is a presentation of a protocol aimed at evaluating the determinants of low HPV vaccination coverage in Cameroon. The authors recall the importance of HPV vaccination in the fight to eradicate cervical cancer, and the extent to which the vaccination coverage rate in this country is far below the objectives set by the WHO.</p> <p>The approach is classic and qualitative research is certainly an indispensable element in informing public policy, and in guiding actions to address these vaccination policy failures, rather than leaving it to policymakers or researchers to test interventions in a trial-and-fail approach.</p> <p>The authors hypothesise that there are no organisational problems with the campaign that could explain its failure and that the failure is therefore probably due to parents' and adolescents' understanding of the benefits of vaccination.</p> <p>This may be true, but it would be very informative for the readers of the article to have a more detailed presentation of the practical organisation of this HPV vaccination in Cameroon.</p> <p>The survey proposes to survey the parents of adolescents, but there is no survey of those, health professionals or other stakeholders, involved in the vaccination.</p> <p>Without knowing precisely how this campaign is organised, it is difficult to know whether a qualitative survey of those involved in vaccination can be done without.</p> <p>On another note, the authors indicate that the willingness of adolescents to be vaccinated, or not, may have an impact on the extent of vaccination coverage. However, it is not envisaged to survey adolescent girls.</p> <p>This must be clearly justified, or it will be necessary to amend the protocol to survey adolescents.</p> <p>The approach in qualitative surveys is generally to ensure a certain</p> |
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|  | <p>heterogeneity in the situations of the people surveyed in order to ensure the most general representativeness possible of the situations encountered. This may include, for example, different geographical locations (urban or rural), life paths (native or migrant) and socio-economic levels.</p> <p>The authors indicate that the sampling will be based on the quota method for parents, but it would be useful if this were better described.</p> <p>The way in which the interviews will be conducted and transcribed should be described (audio recording and verbatim transcription?).</p> <p>The data analysis strategy should be better described.</p> |
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| <b>REVIEWER</b>        | <p>Singh, Jasjit<br/>Children's Hospital of Orange County, Pediatric Infectious Diseases</p> <p>I am the site PI for a multi-center NIH grant evaluating HPV vaccination given at 9 years vs. 11-12 years.</p> |
| <b>REVIEW RETURNED</b> | 08-Jun-2022                                                                                                                                                                                                    |

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| <b>GENERAL COMMENTS</b> | <p>The researchers of this proposed study in Cameroon note that HPV related cervical cancer is a significant health problem, and that despite HPV vaccine being incorporated into the National Immunization Program in 2019, uptake in girls has been only 5%. The reasons for this have not been well studied. They propose a qualitative descriptive study using semi-structured interviews with about 40 parents of girls 9-14 years from 3 health districts, 10 of whom agreed to vaccination, the rest who declined. These interviews are to be recorded and analyzed to evaluate the knowledge and attitudes of parents regarding HPV vaccination, in order to better inform educational and other interventions to increase vaccination rates.</p> <p>Overall, it is clear that the researchers have experience with this methodology, as well as a knowledge of the local beliefs and culture, which would be crucial to this work. Specific suggestions to strengthen this proposal are as noted below:</p> <ol style="list-style-type: none"> <li>1. In the abstract, the word "like" should be replaced with "approximately" 40 participants. ATLAS.ti should be defined/ explained</li> <li>2. In the background, there should be some discussion of the relative number of HPV cancers in Cameroon, cervical vs. oropharyngeal. In the US, oropharyngeal cancers related to HPV now outnumber cervical cancers.</li> <li>3. Likewise, this discussion should include the relative contribution HPV related cancers in males in Cameroon, and why focus of this study is in females only. It is not clear whether Gardisil 4 in 2019 was incorporated into the national (EPI) system for females only, or for males and females. It would be helpful to clarify this.</li> <li>4. It would also be helpful to have some idea of the baseline vaccination rates for other vaccines in the national schedule, in order to have a comparison with HPV vaccine rates.</li> <li>5. In the method section, the fact that the interviews will be conducted in English or pidgin English is mentioned twice.</li> <li>6. Since the inability to converse in English / pidgin English is an exclusion, it would be helpful to know what % of people speak these languages, as this could skew the study population.</li> <li>7. The interviews are relatively long, and with additional travel time, is this felt to be a barrier to participation? Would less affluent people (e.g., laborers) be automatically precluded from participating?</li> </ol> |
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|  | 8. Possible limitations should be discussed as above – whether results will apply to males in this age group as well as generalizability in terms of language, time commitment, etc. |
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## VERSION 1 – AUTHOR RESPONSE

### Reviewer 1

1. The reviewer states that “the authors hypothesise that there are no organizational problems with the campaign that could explain its failure and that the failure is therefore probably due to parents’ and adolescents’ understand of the benefits of the vaccination.”

Response: This statement is not true and is not in the protocol. We explicitly state, “We wish to understand from a public perspective the reasons for this low uptake. While there are many stakeholders involved in the process of HPV vaccination (like Ministry of Health, Ministry of Education, Hospitals, Pharmaceutical companies, Schools, community leaders (like Fons, Chiefs, quarter heads, pastors, public, girls aged 9-14yo), understanding the perspectives of parents with girls aged 9-14yo who may or may not provide consent for vaccination is essential to improve HPV vaccine uptake.” In fact the perspective of the research team is that we need to understand the parental perspective first before moving toward understanding systemic issues. Thus a second step that comes out of this work could be a survey of those involved in vaccination locally, regionally and/or nationally. To clarify the reviewer’s misconception re have altered the statement to say:

“Our hypothesis is that the uptake of the HPV vaccine depends **in part** on the public’s comprehension of implications of an HPV infection and their understanding of the benefits of the HPV vaccine in preventing lower genital tract and oral cancer.”

2. The reviewer raises the issue of surveying adolescents.

Response: While this may be part of a future expanded worked, this protocol focuses on understanding the perspectives of parents of daughters 9-14 yo. We have noted this as a limitation in the protocol and added the following sentence prior to our hypothesis to further rationalize our decision to focus on parents:

“Parents conventionally play a key role in non-adults’ healthcare decision-making in the part of Cameroon.”.

3. The reviewer asked about sampling and whether our study would include parents of different perspectives ie., socioeconomic.

Response: We clearly stated that our study would include 1) parents of daughters who were and were not vaccinated; 2) parents of different occupations, 3) parents of varying educational strata, and 4) regions (Mbingo, Njinikom, and Fundong).

“Given a study objective is to clarify motivations driving HPV vaccination or its avoidance in this district, sampling will include purposively seeking a balance between parents who have at the time of interview opted in or out of HPV vaccination for their girl(s) with maximum variation (e.g., level of parental education, occupation). We will include up to 10 parents of girls who received HPV vaccine and 30 parents of girls who did not receive the HPV vaccine.”

The process for this maximum variation sampling will involve close review of those recruited and purposefully sampling through the community health workers parents that in addition represent a spectrum of genders, religions and the like.

4. The reviewer asked about the conduct of the interviews (audio recording and verbatim transcription)

Response: The manuscript says, "The interviews will last between 45 to 60 minutes and will be **audio recorded**. The interviewer will use an electronic tablet with recording application. All the interviews will be transcribed into English."

We have added that the interviews will be "verbatim" transcribed.

5. The reviewer asks about the analysis strategy

Response: The manuscript is explicit that, "Data will be analyzed concurrently with the interviews. A four step thematic content analysis will be conducted including data familiarization, theme identification, data coding and organization of codes and themes using the framework method. Through an iterative process, transcripts will be coded and analyzed for description and interpretive themes. All transcribed interviews will be inputted into ATLAS Ti. Two study personnel (CN, GMA) will code each of the first 2 interviews, with the goal of identifying key beliefs and attitudes that could clarify a participant's or wider society hesitancy to seek out HPV vaccination. Codes will be compared and discrepancies resolved in dialogue with the study co-leads (LE, JFD, EN). Sequential groups of 2 interviews will be double coded until agreement is achieved. Thereafter, an interview will only need to be coded by one member of the study team. An individual external to the team (EH) will conduct an audit coding of all the coded content once all the interviews have been coded, towards verifying the accuracy and coherence of the coding process. The research team will meet regularly to discuss and reach consensus on the themes identified and their implications in relation to the study question."

Reviewer 2

1. In the abstract, the word "like" should be replaced with "approximately".

Response: this has been done

Explain ATLAS. Ti

Response: We have added the following detail in the abstract and Analysis section of the manuscript:

"a program widely used by social scientists to facilitate organization and analysis of qualitative data".

2. Reviewer: In the background, discuss the relative number of HPV cancers.

Response: We have added a statement to the introduction that, "While other HPV related cancers include oro-pharyngeal (ASI/ASM per 100,000 is 2.21/1.55 (men), 0.38/0.14 (women)), anal (0.62/0.46 (men), 0.70/0.49 (women)), and other male or female lower genital tract sites (0.67/0.44 (vulva), 0.63/0.38 (vaginal), 0.14/0.06 (penile)), disease specific incidence and mortality rates are low or lacking for Cameroon [6]. "

3. Reviewer: Discuss whether Gardasil 4 in 2019 was incorporated into the national (EPI) system for females only or for males and females.

Response: we have amended the wording to say "In 2019, Gardasil 4 was incorporated into the national (EPI) vaccine program for Cameroon for girls age 9 years old."

4. Baseline vaccination rates

Response: According to UNICEF the measles vaccination coverage is 8% (Cameroon Humanitarian Situation Report no 6, 30Jun 2021)

A research study from Fouban health district which is in French Cameroon (not the area where our study took place) showed immunization coverage as follows: In 1430 children aged 0-59mos, BCG (28.6%), DPT-Hi + HB (22.8%), and measles/rubella (14.3%). Ateudjieu J et al. EPI immunization coverage, timeliness and dropout rate among children in a West Cameroon health district: a cross sectional study. BMC Public Health 2020;20:228 Pg 1-11.

We have added this section to the Introduction: “This is lower than reports for other childhood vaccinations like measles (8%) [7] and in Fouban (neighbouring province), 28.6% for BCG, 22.8% for DPT-Hi+Hb3 and 14.3% for measles/rubella [8].”

Pertinent references have been address and as a result, all subsequent references have been renumbered.

5. Interviews will be conducted in English or pidgin English is mentioned twice.  
Response this has been amended to only appear once.
6. Reviewer: What percent of the population speak pidgin English or English?  
Response: We have amended the sentence to read: “Pidgin English otherwise known as Cameroonian Creole or Kamtok is the main language spoken in the North and South West regions of Cameroon. There is a small percent of the population who only communicate in Arabic. Also an older segment of the population (beyond the age of the parents on whom we focus here) who have not been exposed to an education may only speak their tribal language. We do not anticipate exclusion of these linguistic minorities impacting on our ability to recruit sufficient participants.
7. Reviewer: the interviews are long and with the additional travel time, is this felt to be a barrier to participation? Would less affluent people (labourers) be automatically precluded from participating?  
Response: As noted in the protocol, travel and meal costs will be reimbursed. A small token will be provided for participation. That said, the reviewer makes a good point that where there is travel, this may still act as a barrier to participation for some. We have added an acknowledgement of this in the description of participant recruitment as follows:  
  
“We understand that this may limit participation of some individuals but by allowing participants to dictate their preferred timing for the interview and by reimbursing transportation and meal costs and by offering a small token (in the form of soap), we have tried to optimize participation.”
8. Limitations.  
Response: The following statement has been added to the limitation bullets “Cameroon is a unique country setting and the region where the study was conducted is in a conflict zone. This may limit generalizability.”

## VERSION 2 – REVIEW

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| <b>REVIEWER</b>        | Bardou, Marc<br>Centre Hospitalier Universitaire de Dijon, CIC-P INSERM 1432 |
| <b>REVIEW RETURNED</b> | 25-Jul-2022                                                                  |

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| <b>GENERAL COMMENTS</b> | Authors have considered comments from the reviewers, including mine, and have modified their manuscript accordingly. I wish them good luck for the conduct of their study and will be interested in reading the publication of their findings. |
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| <b>REVIEWER</b>        | Singh, Jasjit<br>Children's Hospital of Orange County, Pediatric Infectious Diseases |
| <b>REVIEW RETURNED</b> | 29-Jul-2022                                                                          |

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| <b>GENERAL COMMENTS</b> | The authors have adequately addressed the points and queries in my review, and have amended the submission appropriately. |
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