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Perspectives of HPV vaccination among young adults: a qualitative systematic review and evidence synthesis protocol

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ABSTRACT

Introduction Human papillomavirus (HPV) is the causative agent of nearly all cervical cancers. Despite the proven safety and efficacy of HPV vaccines in preventing HPV-related cancers, the global vaccine coverage rate is estimated to only be 15%. HPV vaccine coverage rates are more actively tracked and reported for adolescents 17 years and younger but there is still a critical window of opportunity to intervene and promote HPV vaccination among young adults aged 18–26 years who are still eligible to be vaccinated. This protocol for a qualitative evidence synthesis aims to review perspectives of HPV vaccination among young adults (18–26 years) and identify facilitators and barriers that influence HPV vaccination uptake and decision-making.

Methods and analysis Seven databases will be searched from 1 January 2006 to the date of final search. For inclusion, studies must report HPV vaccination perspectives of young adults aged 18–26 years and use qualitative study methods or analysis techniques. Studies will be screened in a two-stage process guided by the eligibility criteria. Final included studies will be evaluated for methodological strengths and limitations using the Critical Appraisal Skills Programme quality assessment tool for qualitative studies. After data extraction, framework analysis will be used to analyse the data applying the socioecological model. Finally, the Grading of Recommendations Assessment, Development and Evaluation - Confidence in the Evidence from Reviews of Qualitative research will be applied to evaluate the confidence in synthesised qualitative findings. The methodology of this review follows the Cochrane Handbook guidelines on qualitative evidence syntheses.

Ethics and dissemination Formal ethical approval is not required for this study. Findings will be disseminated through peer-reviewed publications, conference presentations and professional networks.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This systematic review protocol will be the first qualitative evidence synthesis to understand human papillomavirus vaccination update among young adults (18–26 years).
⇒ This qualitative evidence synthesis will adhere to a rigorous approach as informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and Cochrane Handbook guidelines on qualitative evidence syntheses.
⇒ Assessment of methodological limitations and confidence in synthesised qualitative findings will be conducted, enhancing the trustworthiness and confidence in the review process and reported findings.
⇒ This qualitative evidence synthesis will search journals from interdisciplinary fields to maximise heterogeneity in the results and findings.
⇒ This review may miss studies published outside of journals (eg, book chapters, reports, conference abstracts and other grey literature).

BACKGROUND

Human papillomavirus (HPV) is estimated to cause 4.5% of all cancers worldwide and is the causative agent of nearly all cervical cancers, the fourth most common type of cancer in women globally.[1 2] The Centers for Disease Control and Prevention recommends the two-dose HPV vaccine series be initiated in adolescents aged 11–12 years but it can be started as early as 9 years old; a three-dose series is available for teens and young adults initiating vaccination at ages 15 through 26 years.[3] In December 2022, the WHO updated its recommendation for the HPV vaccine, adding an alternative single-dose scheduling for girls and women 9–20 years old.[4] Despite the proven safety and efficacy of HPV vaccines in preventing HPV-related cancers[5 6] the global vaccine coverage rate is estimated to only be 15%.[7] From a prevention perspective, it is understandable that HPV intervention efforts primarily target parents and providers[8] to get adolescents vaccinated as early as they are eligible. This is also mirrored in the fact that HPV vaccine coverages rates are more actively tracked and reported for adolescents 17 years and younger.[9] Unfortunately, not all adolescents get vaccinated and there are gaps and disparities in adolescent HPV vaccinations rates given the variation in vaccine coverage rates across regions.[7 10]

This creates a critical window of opportunity to intervene and promote HPV vaccination among young adults aged 18–26 years who are still eligible to be vaccinated and have increased autonomy to make healthcare decisions for themselves as they shape their health behaviours.[11]

While several systematic reviews on HPV vaccination interventions and promotion have included young adults, more work is needed in this area to better understand HPV promotion among this demographic. One review evaluating interventions to promote HPV vaccination globally found that only 25% of interventions conducted between 2015 and 2020 focused on young adults aged 18–34 years.[12] One of the challenges faced in this current work is that many reviews include a wide age range of participants when they include young adults. Two reviews investigating the effectiveness of HPV interventions targeted adolescents to young adults aged 9–26 years.[13 14] Another review that aimed to identify effective strategies that optimised HPV vaccine uptake included adolescents and young adults aged 11–26 years.[15] Young adulthood (or emerging adulthood as it may also be referred to) is a unique developmental and transitional stage in the life course that is distinguished from adolescence.[16] To successfully promote HPV vaccination uptake in this population, it is important to understand the unique factors associated with this demographic. Only one review identified exclusively focused on young adults (age 17–26 years) and their evaluation of interventions found that interventions with educational components that increase HPV vaccination knowledge and intention were associated with increased vaccination initiation and completion.[17] Notably, all the aforementioned reviews have followed the traditional quantitative systemic review format. There is no current systematic qualitative evidence synthesis on HPV vaccination in young adults ages 18–26 years. The one identified article of a qualitative systematic review on HPV vaccination focused on adolescent girls aged 9–18 years in high-income countries[18]; however, their review protocol was not registered which hinders transparency and increases the risk of bias and research duplication.[19 20]

OBJECTIVE

Qualitative research is well-positioned for investigating the nuances and complexities that influence vaccination behaviour, and decision-making and facilitating an understanding of the interplay between different factors.[21] The objective of this qualitative evidence synthesis is to review perspectives of HPV vaccination among young adults aged 18–26 years and identify facilitators and barriers that influence HPV vaccination uptake and decision-making for this age group. This review will specifically focus on qualitative studies that report views of young adults and not those of other relevant stakeholders (eg, parents or healthcare professionals) in order to elucidate factors considered important and meaningful to the target demographic who have the agency to make the vaccination decision for themselves.

METHODS AND ANALYSIS

The design of this systematic review protocol adheres to the reporting guidelines of the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) and Preferred Reporting Items for Systematic Review and Meta-Analysis Protocol (PRISMA-P) statement.[22 23] Given the qualitative nature of this review, it is also informed by the qualitative evidence synthesis guidelines detailed by Cochrane.[24] The PRISMA-P checklist is provided as online supplemental file 1.

This study protocol was registered with the International Prospective Register of Systematic Reviews on 30 April 2023. Any significant amendments to the protocol will be documented and reported in the full review.

Review team reflexivity

This qualitative evidence synthesis brings together a multidisciplinary and diverse review team in terms of social identities, and training, and these experiences will help facilitate analyses of findings. Discipline backgrounds represented on the review team include epidemiology (PM, FNM), health promotion sciences (NMM, JS) and medical anthropology (PAM). The review team also has global cultural representation from Africa, South Asia and Europe. NMM, FNM, PAM, PM have lived and/or have personal experiences in global health. PM provides extensive content knowledge in cancer research. The protocol authors are aware and mindful of the varying assumptions, biases, presuppositions and positionality that may influence each review members' perspectives and subsequent interpretation of the data. The review team will engage in continual dialogue to facilitate reflexive considerations throughout the review process to minimise the risk of bias in the analysis and interpretations of the findings. Details of our reflexivity process and matters that may contribute to the understanding of the review findings will be described in the full review.

Eligibility criteria

This review will include studies that report on the views, experiences and decision-making factors regarding HPV vaccination among young adults aged 18–26 years. We will exclude studies that only report what other stakeholders (eg, parents, healthcare providers, policymakers) say about the views of young adults regarding HPV vaccination uptake.

The primary studies that will be included in this review are:

- Studies that use qualitative study designs such as but not limited to ethnography, case studies and grounded theory studies.
- Studies that use qualitative methods for data collection such as focus group discussions, individual

interviews, participant observation and open-ended survey questions.
- Studies that use qualitative data analysis methods such as thematic analysis, framework analysis, grounded theory.
- Mixed methods studies where it is possible to extract the data that were collected and analysed using qualitative methods.

Primary studies will be included whether or not they are linked to an intervention and irrespective of the vaccination setting or mode of delivery, that is, whether vaccination was obtained/delivered at a healthcare facility, community outreach setting or mobile clinic.[25] We will also include studies from any geographical region in the world. There will be no language restrictions in the search strategy; however, when translating non-English studies, the review team will be sensitive to the nature of qualitative data, endeavouring to preserve the meaning of concepts as they are understood in their primary contextual settings. Where translation will occur, we will attempt to translate the core meaning of relevant themes or concepts into English; we acknowledge that some phrases or concepts may be difficult to translate from one language to another and any decision regarding what the most appropriate translation will be a subjective judgement call. Discussion about any translation decisions or considerations will be provided in the full review.

We will exclude studies that collect data using qualitative methods but do not analyse these data using qualitative analysis methods (eg, open-ended survey questions where the response data are analysed using descriptive statistics only). If multiple vaccines are evaluated, we will exclude studies that do not report on HPV or it is not possible to separate out data specific to HPV. Similarly, we will also exclude studies if it is not possible to separate out the data on views of HPV vaccination specific to young adults from views of vaccination in other age groups (eg, adolescents under 18 years, adults over 30 years). We will exclude articles that are protocols, reviews, conference proceedings and opinion reports.

Information sources

The following electronic databases will be searched to identify potential studies: PubMed, the Cochrane Library (Wiley), Scopus (Elsevier), PsycINFO (EBSCOhost), Embase (Elsevier), CABI Global Health (EBSCOhost) and CINAHL (EBSCOhost). We will search all databases from 2006 (when the HPV vaccine was made available) to the date of the search. No restrictions will be imposed on geographical location. To ensure comprehensiveness, the reference lists from all eligible studies will be hand searched to identify additional studies to consider for inclusion.

Search strategy

A comprehensive search strategy will be developed with the assistance of a medical research librarian. As needed, we will develop and adapt search strategies for each database. The strategy will include a combination of text words and Medical Subject Headings (MeSH) terms such as 'young adults', 'HPV' and 'vaccination'. We will include a methodological filter for qualitative studies such as 'focus group', 'qualitative' or 'interview'. A sample of the search strategy is detailed in table 1. The anticipated search end date will be 12 October 2023. The final terms and keywords used for the search will be detailed in the appendices of the full review.

Selection of studies

Studies identified through the electronic databases search will be exported into citation manager software EndNote (Clarivate, London, UK), and duplicate records removed. The citation manager file will then be imported to literature review software DistillerSR (Evidence Partners, Ontario, Canada). Studies will be screened in a two-stage process—title and abstract review as first screen, and full-text review as second screen—guided by the eligibility criteria. In each stage, each study will be independently screened by two reviewers. Any disagreements during the screening stages will be resolved by discussion and consensus between the two reviewers; if consensus cannot

Table 1 Draft search strategy for PubMed database

	Concept 1: HPV	Concept 2: Young adults	Concept 3: Vaccination	Concept 4: Qualitative
Controlled vocab	'human papillomavirus viruses'(MeSH) OR	'young adult'(MeSH) OR	vaccination(MeSH) OR vaccines(MeSH) OR	'qualitative research'(MeSH) OR 'interviews as topic'(MeSH) OR 'focus groups'(MeSH) OR
Key words	'human papillomavirus*' OR 'human papilloma virus*' OR 'hpv'	'young adult*' OR 'emerging adult*' OR 'legal adult*' OR 'older adolescen*' OR 'late adolescen*' OR youth* OR student* OR 'young person' OR 'young people'	vaccin* OR immunis* OR immuniz*	'mixed method*' OR qualitativ* OR 'focus group*' OR interview* OR conversation* OR observation* OR photovoice OR Themes OR Thematic OR narrative* OR 'grounded theory' OR 'content analysis' OR ethnography OR 'phenomenolog*'
Results 10.05.2023:	65 543	1 635 617	629 582	2 203 241
Filter(s)	Date: 2006/01/01:3000/12/31(date - publication)			

HPV, human papillomavirus; MeSH, Medical Subject Heading.

be reached, a third reviewer will be consulted. In instances where multiple primary articles reference the same study, these articles will be collated to represent a single study unit in the review. The results of the screening process will be reported in a PRISMA flow diagram.

In qualitative evidence synthesis, it is important to control the amount of data reviewed to not diminish the analysis quality.[26] While an exhaustive evaluation of every possible study is not the goal of qualitative evidence syntheses, it is important to maximise heterogeneity of identified themes or concept to facilitate a deeper understanding of the issue at hand.[27] Following the model set by other qualitative review authors, when all eligible studies have been identified and we are more familiar with the data, we will evaluate the quantity and scope of data we have from the included studies.[21] If the review team determines we have too much data that could impact the quality of the review, we will review different sampling strategies of the eligible studies and select one that best aligns with the review objective; sampling strategies include theoretical sampling or maximising heterogeneity[28] or a purposive sampling approach.[29]

Data management and extraction

A data extraction form created specifically for this review will be created in DistillerSR to ensure consistency and standardisation of data extraction. Two reviewers will independently extract data for each study using the form. Any discrepancies or inconsistencies in data extraction will be resolved by discussion and consensus between the two reviewers; if consensus cannot be reached, a third reviewer will be consulted. Two reviewers will pilot the DistillerSR database on a subsample of eligible studies and make any appropriate adjustments to the data collection fields as necessary before continuing with the remaining studies.

Data to be extracted from eligible studies will include:

- Context (study country; rural vs urban).
- Participants (number of participants; demographic characteristics, eg, age, gender, race/ethnicity, occupation).
- Study design (objective/research question, sample recruitment, data collection methods, theory frameworks or conceptual models used, analysis methods, funding).
- Vaccination setting and mode of delivery.
- Verbatim participant quotes provided.
- Themes or constructs developed by the primary study authors.
- Publication year.

Assessment of methodological limitations

Assessing the methodological strengths and limitations of includes studies is essential in qualitative evidence synthesis to evaluate the trustworthiness and relevance of included studies.[24] We plan to use the Critical Appraisal Skills Programme quality assessment tool for qualitative studies to assess methodological limitations for each study.[30] The tool consists of 10 questions. Two reviewers (at minimum) will independently assess methodological limitations. Any disagreements will be resolved through discussion between the two authors, and if consensus cannot be reached, a third reviewer will be consulted. The tool will be piloted on a subset of the included studies to assess feasibility of using the tool and integrity of the assessment.

Data analysis and synthesis

Once all the data has been extracted, thematic analysis will be used to analyse the data and identify key themes across the included studies.[31] Thematic analysis does not require extensive prior expertise in qualitative research and is therefore appropriate for the interdisciplinary team involved in this review. We will follow the Braun and Clark's methodological process[32] that includes the following five stages: (1) familiarisation (2) generating initial codes (3) searching for themes (4) reviewing themes (5) defining and naming themes. Details of each step will be documented and reported in the full review. As thematic analysis is not attached to a particular theoretical or epistemological perspective,[32] it provides the flexibility needed for this qualitative evidence synthesis that may be reviewing studies across different theoretical or epistemological perspectives. To report our findings, the themes generated from the thematic analysis will be considered in relation to the socioecological model (SEM), which posits an interplay between intrapersonal, interpersonal, organisational and public policy factors that influence behaviour.[33] Using the SEM is aimed to aid with organising the themes and facilitate a better understanding of the factors at play at different levels that are influential in HPV vaccine decision-making and uptake. Organising the findings in this manner will help illuminate areas for future studies and interventions to focus their efforts in promoting HPV vaccination among young adults. We recognise that not all inductively generated themes from the thematic analysis may neatly fit into the constructs of the SEM; we will still discuss those findings in the full review.

Assessment of confidence in synthesised findings

The GRADE-CERQual (Grading of Recommendations Assessment, Development and Evaluation - Confidence in the Evidence from Reviews of Qualitative research)[34] will be used to evaluate the confidence in synthesised qualitative findings as recommended by Cochrane.[24] The four components of the CERQual that are used to facilitate an overall assessment of confidence in findings are methodological limitations, coherence, adequacy and relevance.[34] Two reviewers will use the GRADE-CERQual to evaluate the confidence in each individual review finding. Overall confidence in each finding will then be judged starting at 'high' and then rated down to 'medium', 'low' or 'very low' based on any concerns arising from the CERQual components.[35] All review findings and their associated

confidence ratings will be presented in a 'Summary of Qualitative Findings' table.

Patient and public involvement

None.

ETHICS AND DISSEMINATION

Approval from human research ethics committee is not required for this study as it does not involve human participants or unpublished secondary data. The findings from this qualitative evidence synthesis will be disseminated through professional networks, conference presentations and publication in a scientific journal.

Contributors NMM and PM designed the concept of the study. NMM drafted the initial version of the manuscript. JS and FNM provided revisions to the manuscript and feedback on the methodological review procedures. NMM and DJM developed the search strategy, with input from PAM. PAM provided guidance on the qualitative analysis processes. NMM, FNM, JS, PAM, DJM and PM all reviewed and approved the final draft of the manuscript for publication.

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Patient consent for publication Not applicable.

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