Barriers and facilitators to HIV and viral hepatitis testing in healthcare settings in Kyrgyz Republic: Protocol for a mixed-methods study

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Abstract

Background: In Kyrgyz Republic, it is estimated that 18% of people living with HIV (PLHIV) are undiagnosed, and more than half are diagnosed late (CD4 count <350 cells/mm3). For viral hepatitis, before 2023, free testing was only available to PLHIV, which has led to a low testing uptake. A new national programme on the elimination of HIV and viral hepatitis infection for the years 2023-2027 recognizes the need to scale up testing to reduce the gap in undiagnosed people in the country.

Objective: Our aim is to identify and describe the most important barriers and facilitators to HIV and viral hepatitis B, C and D testing from the perspective of HCWs working in primary healthcare settings in Kyrgyz Republic.

Methods: A cross-sectional, mixed-methods study will be conducted in two phases. A purposive sampling approach will be applied to recruit HCWs in primary healthcare settings. In Phase I, in-depth, semi-structured interviews will be conducted with up to 20 participants to gather detailed information about the key barriers and facilitators for testing. We will apply a thematic approach for qualitative analysis. Themes identified will inform the development of a short questionnaire with main barriers and facilitators for Phase II. The questionnaire will be distributed electronically, and the target sample size is 400 participants. We will perform descriptive analyses of the questionnaire data reporting the most frequently reported barriers and facilitators for HIV and viral hepatitis testing.

Results: The study received financial support in the framework of the Global Health Protection Programme by the Federal Government of Germany. Ethics approval was obtained from the institutional review board in Kyrgyzstan. The results of the study are expected by the end of 2024.

Conclusions: The study will improve the understanding of existing barriers and facilitators to HIV and viral hepatitis testing in order to increase testing offers and uptake in primary healthcare settings in Kyrgyz Republic. Importantly, the findings will inform steps to improve the implementation of the new testing strategy and ultimately increase the number of people diagnosed and treated in the Kyrgyz Republic. Clinical Trial: Not applicable

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KEYWORDS
HIV, viral hepatitis, testing, barriers, healthcare workers, Kyrgyz Republic, primary healthcare

Abstract

Introduction: In Kyrgyz Republic, it is estimated that 18% of people living with HIV (PLHIV) are undiagnosed, and more than half are diagnosed late (CD4 count <350 cells/mm^3). For viral hepatitis, before 2023, free testing was only available to PLHIV, which has led to a low testing uptake. A new national programme on the elimination of HIV and viral hepatitis infection for the years 2023-2027 recognizes the need to scale up testing to reduce the gap in undiagnosed people in the country.
Aim: Our aim is to identify and describe the most important barriers and facilitators to HIV and viral

hepatitis B, C and D testing from the perspective of HCWs working in primary healthcare settings in Kyrgyz Republic.

Methods: A cross-sectional, mixed-methods study will be conducted in two phases. A purposive sampling approach will be applied to recruit HCWs in primary healthcare settings. In Phase I, in-depth, semi-structured interviews will be conducted with up to 20 participants to gather detailed information about the key barriers and facilitators for testing. We will apply a thematic approach for qualitative analysis. Themes identified will inform the development of a short questionnaire with main barriers and facilitators for Phase II. The questionnaire will be distributed electronically, and the target sample size is 400 participants. We will perform descriptive analyses of the questionnaire data reporting the most frequently reported barriers and facilitators for HIV and viral hepatitis testing.

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Introduction

Viral hepatitis and HIV remain large public health challenges in the World Health Organization (WHO) European Region. An estimated 3 million people are living with HIV (PLHIV), 10.6 million with hepatitis B and 8.6 million people with hepatitis C (1-3). In the European region, the public health burden of HIV and hepatitis B and C is particularly high in the Eastern European and Central Asian countries (4).

HIV and viral hepatitis share similar modes of transmission, and co-infections are common (5). For both diseases, a large proportion of those infected remain undiagnosed due to the often asymptomatic nature of the diseases (5, 6). For HIV, around 77% are aware of their HIV status in the WHO European region (7). For viral hepatitis, an estimated 16% and 29% were diagnosed with hepatitis B and hepatitis C by the end of 2022, respectively (3, 5). There is a large need to scale up testing offer and uptake to reduce the number of people who are undiagnosed and people who are diagnosed late (CD4 count <350 cells/mm^3). This is important not only to facilitate linkage to care and improve individual health, but also public health by reducing onward transmission.

The WHO has published regional action plans for ending AIDS and the epidemics viral hepatitis and sexually transmitted infections for the period 2022-2030 (8) to reach elimination by 2030. While some progress has been made, challenges and gaps in reaching elimination remain. Strategic direction 1 in the strategy emphasizes a people-centred approach, and importantly integration and decentralisation of services for HIV and viral hepatitis (and other sexually transmitted diseases) in primary health care (PHC) settings where appropriate. A people-centred approach and offering testing for more than one disease has the potential to increase testing uptake, for example by implementing rapid point-of-care multiplex test for HIV and viral hepatitis. The strategy also defines testing targets needed to reach elimination by 2030. For HIV, 95% of those living with HIV should know their status by 2030, and 90% of those living with hepatitis B or hepatitis C should be diagnosed(8).

In Kyrgyz Republic, it is estimated that 18% of PLHIV have not yet been diagnosed with HIV (9), and more than half are diagnosed late. For viral hepatitis, before 2023, free testing was only available to PLHIV, which has led to a low testing uptake, further worsened during the COVID-19 pandemic (9). During the HIV and viral hepatitis programme review in Kyrgyz Republic in April 2022 (9) one priority recommendation was to make use of the experience and structure of the HIV programme to optimize synergies, human resources and the infrastructure for both HIV and viral hepatitis and move away from vertical programme structures. It was also recommended to scale-up screening for HIV in healthcare settings by testing patients presenting with conditions that are either AIDS-defining or associated with an undiagnosed HIV prevalence of >0.1% (HIV indicator conditions) (9-11). HIV and viral hepatitis are political priorities in the Kyrgyz Republic, and a programme of the Cabinet of Ministers on the elimination of HIV and viral hepatitis infection for the years 2023-2027 has been adopted (9). The programme recognizes the need to scale up testing, and that stigma and discrimination are large barriers, in particular for key populations, for coming forward for testing. The programme outlines several steps to improve testing uptake in the Kyrgyz Republic. For HIV, the testing algorithm and clinical treatment guidelines have been revised to be in accordance with WHO guidelines, and services have been brought closer to the population in primary healthcare facilities. Moreover, rapid tests have been implemented in hospitals. For viral hepatitis, testing is implemented in hospitals for healthcare workers (HCWs), pregnant women, patients (before surgery) and PLHIV and testing was paid out of pocket until 2023. Rapid testing for viral hepatitis is also partially implemented, but coverage and uptake is unknown. As part of the programme, awareness-raising of the importance of testing for the general population and key populations is planned, as well as an assessment of current practices. The political commitment is there along with the newly signed off strategy with targets for improving testing. However, although a strategy and guidelines exist,

offer and uptake of HIV and viral hepatitis testing remain insufficient to reach the elimination targets and reduce the burden of disease in the country. While the opportunities are there, also for integrated HIV and viral hepatitis testing (12), more knowledge and data on barriers and facilitators are needed to facilitate implementation.
Barriers are often described on three levels; system level, provider level, and patient level (13-15). This study will focus on outlying the barriers and facilitators on the provider level among HCWs to offer HIV and viral hepatitis testing in healthcare settings. This will be the first systematically collected overview and analysis of the most important barriers and facilitators to testing from the perspective of HCWs in Kyrgyz Republic.

Aim and research question

The overall aim of the study is to identify and describe the most important barriers and facilitators to HIV and viral hepatitis B, C and D testing in primary healthcare settings in Kyrgyz Republic.
This study aims to answer the following research question:

- ***What are the main barriers and facilitators for HIV and viral hepatitis testing in primary health care settings from the perspective of HCWs in Kyrgyz Republic?***

Study methodology

Study population

The target study population includes a broad range of HCWs from primary healthcare settings including, but not limited to, physicians, nurses, and allied HCWs involved in the provision of HIV and viral hepatitis testing in primary healthcare settings.

Study design

A cross-sectional, mixed-methods study will be conducted to explore the views of HCWs working in primary healthcare settings in Kyrgyz Republic on barriers and facilitators to HIV and viral hepatitis testing. This study uses multiple data collection methods and triangulation which includes an overview of the current testing landscape, data collected through in-depth interviews with HCWs and survey data collected through a questionnaire distributed among HCWs. The study is divided into two main phases (Figure 1).

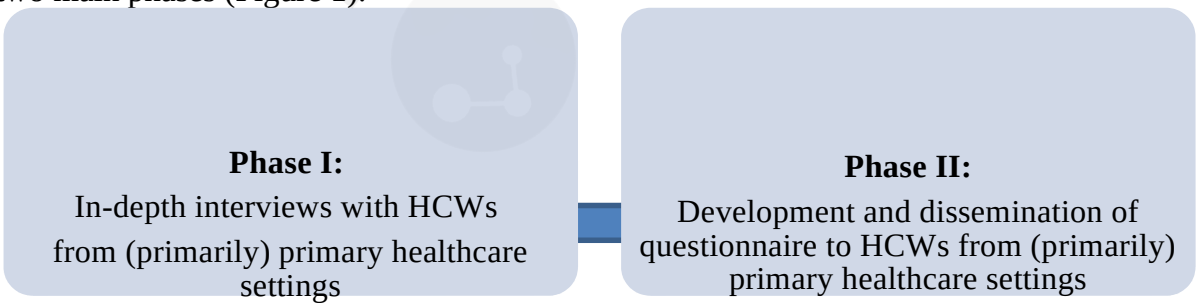

Figure 1: The two data collection phases of the study

Phase I includes qualitative data collection and analysis by exploring the main barriers and facilitators perceived by HCWs in their testing roles. By conducting in-depth, semi-structured interviews with a selected group of HCWs, we aim to gather detailed information and their perspectives on the key barriers and facilitators to HIV and viral hepatitis testing in PHC settings.

The method was chosen because it is particularly effective in exploring possibly sensitive topics such as HIV and viral hepatitis infection and service delivery practices, where personal experiences, attitudes, knowledge and social contexts are crucial. The details obtained can provide insights into personal behaviours and motivations - information that is often not accessible through quantitative methods. In addition, in-depth interviews allow us to maintain a degree of flexibility while probing more deeply into important areas that emerge during the interview (16-18). The strength of Phase I lies in its ability to uncover deeper, potentially overlooked insights by engaging directly with HCWs. This allows a more detailed understanding of the complex dynamics of factors that influence testing practices (16-18).

Following Phase I, the study will move to Phase II, where a short questionnaire will be developed and distributed among HCWs in primary healthcare settings. This questionnaire will be designed based on the data from Phase I, and will thereby collect more evidence from a wider range of HCWs from more geographical areas in Kyrgyz Republic to increase the diversity of perspectives collected. The goal of this phase is to supplement and quantify the findings from Phase I and to increase our understanding of the facilitators and barriers to testing.

Study sites

The study sites from which HCWs will be recruited include PHC centres and a few large specialized medical centres across Kyrgyz Republic. There are in total nine regions (seven oblasts and two independent cities) in Kyrgyz Republic, with 44 districts (Figure 2).

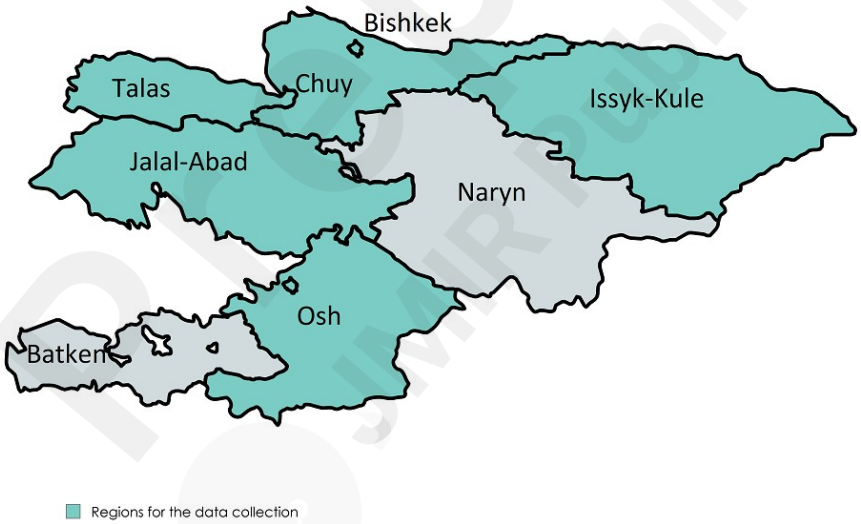

Figure 2: Overview of regions in Kyrgyz Republic for data collection (Phase 1 marked with green)

For Phase I, up to 15 sites will be contacted that are located in different geographic areas, as well as sites located in both urban and rural settings from these seven regions: Bishkek, Chui, Issyk-Kul, Jalal-Abad, Osh city, Osh oblast and Talas.

For Phase II, HCWs from all primary healthcare services in all of the seven regions (Figure 2) will be invited to take part in the questionnaire. The selection of participants is explained in more detail in the chapter on Sampling and recruitment.

Sample size

Phase I – In depth interviews

The target sample size in Phase I is up to 20 respondents. This size is considered a standard sample for qualitative studies of medium size (16, 19). However, the final number of participants in this study will be defined by the data saturation moment, which is the point where no new insights on the research topic are received from our participants (16, 19, 20). Data saturation will be determined during the team meeting of the research group and data collectors. This approach ensures that the research process remains both efficient and focused by adjusting the scope of the study to match the quality of information collected, up to the point where further interviews will not add to the understanding of the research question (16, 20).

Phase II - Questionnaire

By using 95% confidence level and 5% margin error, the sample should be 385. Accounting for potential non-response, our target sample size in Phase II is 400 participants.

Sampling and recruitment

Phase I – In-depth interviews

A purposive sampling of HCWs for Phase I will be conducted. A list will be provided by the partners in Kyrgyz Republic with important PHC settings in which HIV and viral hepatitis testing is offered. From this list, we will select up to 20 HCWs from up to 15 primary healthcare facilities that are located in different geographic areas and represent both urban and rural areas. The identified study sites will be asked to inform of the study by distributing a general information letter to their HCWs. The invitation letter will include information about the study and ensure anonymity of the participants (that the name and personal details will not be shared along with the interview contents). Interviews will be scheduled at a convenient time for the participants in a safe place where they can express their opinions.
HCWs taking part in the in-depth interviews will be asked to get acquainted with a study information sheet and provide written informed consent, and offered a token of appreciation for their participation in the form of 20 Euro after the interview.

Phase II – questionnaire

For the questionnaire, all healthcare services from the list provided by the partners in Kyrgyz Republic will be invited to take part in the survey online and asked to distribute the link to their HCWs. Probability-based sampling will not be possible, as the exact number of HCWs in the different regions is unknown. However, due to the exhaustive content in the list of pre-selected healthcare services (N=77) covering all geographic areas, it is anticipated that the included study population will to a large extent be representative of HCWs in primary healthcare services in the regions. The electronic questionnaire will be available through a link and a QR code, and will be distributed per e-mail, posters and other preferred social and online communication channels among the target population.

Data collection

Data collection will consist of a qualitative (Phase I) and a quantitative (Phase II) part, which is described in more detail below. Prior to the development of the semi-structured interview guide and the following questionnaire, an overview of the testing landscape in the Kyrgyz Republic will be conducted to understand by whom and where testing takes place. This context will help inform the development of the interview guide and questionnaire.

Phase I – In-depth interviews

Data collection for Phase I is planned to take place during 1.5 weeks in June 2024. The semi-structured interviews will be conducted in both Russian and Kyrgyz depending on the preference of the participant (Annex 1).
Three interviewers will be involved in the data collection phase, but only one interviewer will be present at each individual interview. The interviews will last approximately one hour, and will take place face-to-face at a location chosen by the participant for their convenience and privacy. The interviews will be audio recorded only when permitted by the participants. To maintain confidentiality, interviews will be recorded on a password-protected audio recorder. Recordings are immediately transferred to a secure storage solution and after processing for study purposes deleted from the device.
A professional transcription service, contracted prior to data collection, will transcribe the recordings using specialized software. To protect the anonymity of the participants, pseudonyms chosen by the participants will be used in the transcripts. Finally, a certified translator will translate the transcripts from Russian and Kyrgyz to English to ensure that high quality data are accessible for analysis and reporting. The transcript as well as the translation of the transcript will be proof-read by the interviewer for data validation.

Phase II – questionnaire

The questionnaire will be developed on the basis of the material and insights collected in Phase I. Based on the most frequently reported barriers and facilitators in Phase I, a Likert scale (strongly agree, agree, disagree, strongly disagree) asking to what extent these barriers and/or facilitators are experienced by the broader group of HCWs included in Phase II will be used in the questionnaire (Annex 2). The questionnaire will also include a question on hepatitis B vaccination among HCW (ever vaccinated, when and if partly or fully vaccinated). The questionnaire will be no longer than 10-15 content-related questions. The questionnaire will be available in an online format through Voxco and accessible through a link or QR code, and also on paper if preferred. Completed paper-based questionnaires will be entered in EpiData, and online completed questionnaires will be saved directly through the online survey-server Voxco.

Analyses

Qualitative analysis

The analysis of the collected data will be conducted in English, taking advantage of the flexibility that problem-centred interviews offer, especially when exploring people's experiences (16). Given the focus of the study on individual experiences, multiple methods of analysis may be applicable. Our intention is not to generalise findings, but to look for patterns while remaining open to exploring the nuances, discrepancies, and potential conflicts inherent in the data (16).
Given our interest in identifying patterns of meaning in the data regarding barriers and facilitators to

HIV ad viral testing services, we will use an inductive approach to reflexive thematic analysis (18, 20). This method is characterized by its adaptability and effectiveness in addressing different research questions and analysing various types of data (18, 20). Inductive approach was chosen because it allows us to develop codes and themes under the influence of the data, rather than being constrained by a pre-defined theoretical framework. In doing so, we ensure that all data collected, regardless of their initial perceived value, are included in the final analysis, providing a comprehensive understanding of the topic and allowing us to develop themes that the researchers were not aware of prior to embarking on data collection. However, the theoretical framework can still be used to interpret the results.

Quantitative analysis

The analyses from the questionnaire will be conducted in R (version 4.2.2). The analysis will be descriptive, and we will describe the most frequently reported barriers and facilitators for HIV and viral hepatitis testing.
If the number of respondents and available data allow, the following stratified analyses will be conducted:

- Geography: urban and rural region
- Type of HCW: specialty/background
- Age of participants
- Sex: male and female

Quality assurance

The protocol will be reviewed by the entire project team including the project partners in Kyrgyz Republic. The semi-structured interview guide developed for the interviews will be checked and evaluated by team members and piloted with at least one HCW from Kyrgyz Republic in order to also control for a possible translation bias. The interview guide will be revised based on feedback provided.

Bias and Limitations

The data and analyses are subject to limitations. Interviews and qualitative methods are a good method to get first-hand knowledge of HCWs experience and perception of barriers and facilitators to testing. However, there is a risk of selection bias in case some participants do not have capacity or time for participation. It may also be that the HCWs will appreciate the opportunity to express their concerns or ideas for improving testing uptake in Kyrgyz Republic. Careful instructions in the beginning of the interviews as well as the assurance of anonymity and patience throughout the interview will hopefully provide a safe setting and context for the participants to express their views on barriers and facilitators to HIV and viral hepatitis testing. For the questionnaires, a non-randomized sampling of HCWs will be performed, which leaves potential for bias and some groups may be underrepresented providing a skewed picture of barriers and/or facilitators for testing.
A lot of testing in the country is taking place in specialised settings, such as in hospitals, STI clinics, and blood centres. Moreover, community-testing as well as self-testing has been rolled out in the country. However, due to time, budget and staff limitations it was necessary to narrow down the scope of the study. This means that we are only able to report on barriers and facilitators among HWCs in PHC and not in other settings.

Ethics and data protection

Ethical considerations

Ethics approval was obtained from the institutional review board in Kyrgyzstan A study information sheet will be provided to potential participants (in the qualitative part and quantitative part), and a written informed consent form will be collected prior to participation. Participants informed consent includes being informed of the study objectives, the procedure of their data protection rights including how long and where data will be stored and who has access, the person responsible for the study, as well as the person responsible for data protection. This information includes the right to request that their data is deleted, and also to discontinue their participation without any consequences. All participants must be over the age of 18. Participants in the interviews will also be asked for consent to being quoted in publications, and will also have the option to consent to participate without being quoted in publications. Participants in the in-depth interviews will be reimbursed with a financial incentive for their time, transport and participation.

Data protection

A review of the acquisition and processing procedures is provided by the RKI data protection officer. The interview will be recorded and a transcript will be produced in Kyrgyz Republic. Only anonymised written text will be shared with RKI through the secure server Cryptshare. After the interviews have been transferred to a secure server, they will be deleted from the recording devices. All personal data will be deleted after the end of the study.
The informed consent forms will be kept at RKI until the end of the study, and it will not be possible to link the data to the personal information (i.e. names of participants). All personal data will be deleted after the end of the study.
A list of participants in Phase I is needed for the purpose of providing incentives for participation. This list will be deleted six years after end of study.

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Authors’ Contributions

IS, NL, AS, MB, OK, VB, BG and SD conceptualised the study. IS wrote the overall study protocol, and NL the part on qualitative methods. All authors critically revised the manuscript, and approved the final version.

Conflicts of Interest

The authors declare no conflicts of interest.

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Supplementary Files