ATTITUDE AND KNOWLEDGE OF HIV INFECTION AMONG HEALTH PERSONNEL IN BULGARIA

R. Emilova[1], Y. Todorova[1], M. Nikolova[1]

[1] National Reference Laboratory of Immunology, National Center of Infectious and Parasitic Diseases, Sofia

ABSTRACT

Background Addressing HIV-related stigma among healthcare workers is vital in the era of contemporary antiretroviral therapy (cART). It is equally important for stimulating early diagnosis, and for meeting the complex medical needs of people living with HIV (PLHIV).

Material and Methods. We analyzed the results of anonymous local survey comprised of 18 closed-choice questions on the knowledge and attitude towards HIV infection and PLHIV. The survey was conducted among 91 Bulgarian healthcare workers as a part of a large cross-national study in Europe and Central Asia, launched by ECDC and EACS in 2023.

Results. The respondents were predominantly women (65,7%) working mostly as medical doctors (34%), 23% - in a specialized unit for PLHIV, 42% - with over 20 years of experience.

The most important results were: lack of training on PrEP (in 62%), on stigma and discrimination (in 75%). Low level of knowledge on HIV transmission and prevention (in 40%) was associated with anxiety, exaggerated preventive measures and no professional experience with PLHIV. As compared to the mean EACS survey results, specific for Bulgaria were the high prevalence of the misconception "HIV is a result of irresponsible behavior, the ignorance of PrEP, the low rate of administrative sanctions related to PLHIV discrimination, and the low awareness of the availability of PEP.

Conclusions There is an urgent need of targeted and tailored educational programs on HIV-related issues among the different healthcare workers groups. Those should be combined with legislative and administrative measures to assure the implementation of UNAIDS 2030 goals.

Key words: stigma, healthcare workers, people living with HIV

ADDRESS FOR CORRESPONDENCE:
Radoslava Emilova
NRL of Immunology
National Center of Infectious and Parasitic Diseases
Yanko Sakazov boul. 26, 1504 Sofia, Bulgaria
email: remilova@ncipd.org

INTRODUCTION

In 40 years, HIV infection has evolved from death sentence to chronic infection. Timely started contemporary antiretroviral therapy (cART) successfully suppresses HIV replication, and provides satisfactory immune recovery for people living with HIV (PLHIV) (1). Still, the share of late presenters diagnosed with suboptimal CD4 absolute counts (CD4AC) remains considerable even in the EU/EEC countries (2). Reducing stigma to less than 10% affected is one of the goals set by UNAIDS on the road of ending up with AIDS, and was included as strategic intervention in the National Program for control of HIV and STI in Bulgaria, 2021-2025 (3,4). Nevertheless the problem remains significant worldwide, our country included.

HIV stigma combined with lack of basic medical knowledge about HIV infection, the realistic risks of transmission, and the benefits of cART is a recognized barrier hampering HIV prevention, timely diagnosis and treatment efforts. While ignorance and discrimination towards PLHIV among the general population has primarily affective and moral consequences, stigma among healthcare workers has direct detrimental effects both on the spread of infection, and on the health of those living with HIV.

Therefore, in the period September 15th - November 30th 2023, the European Center for Disease Prevention and Control (ECDC) and the European AIDS Clinical Society (EACS) launched a cross-national study in European and Central Asian countries to assess the level of knowledge and the attitude of healthcare personnel towards HIV infection and PLHIV (5). The present paper analyses the results of the local survey

conducted among healthcare workers in Bulgaria.

MATERIAL AND METHODS

The target population included any person working in a healthcare facility, regardless of profile, including medical doctors of any specialty, dentists, and non-clinical positions. Healthcare facilities were defined as any facility providing healthcare services. The survey was conducted online, after obtaining a written consent from the participant, by filling-in an anonymous card comprised of 18 closed-choice questions (**Table 1**). The sampling was of a non-representative and snowball nature; the participants were reached through professional contacts, and were asked to further distribute the questionnaire using their own networks. None of the survey activities was remunerated or compensated.

In Bulgaria, 663 healthcare workers (doctors, nurses, dental specialists and others) from all administrative regions of the country were invited to participate in the survey.

Data analysis included assessment of the sociodemographic and professional characteristics of the respondents. The questions covered four

Table 1. Questions on HIV infection included in the survey*(5)

Have you ever worked in a clinic or department that specializes in HIV care and treatment?
• No • Yes, currently • Yes, within the last 5 years (although not currently) • Yes, more than 5 years ago
How many people living with HIV have you interacted with at work within the past 12 months?
• None that I am aware of • Less than 5 • Between 5 and 20 • More than 20 but less than 50 • Between 50 and 100 • More than 100 • Don’t know
Have you received training in the following subjects? Check all that apply.
• Equity, diversity and inclusion • Patients’ informed consent, privacy, and confidentiality • Infection control • HIV stigma and discrimination
Did your training in infection control training include post-exposure prophylaxis (PEP)?
• Yes • No
Do you agree or disagree with the following statements? (Agree/Disagree/Don't know)
• People living with HIV who are on effective treatment and have an undetectable viral load cannot transmit the virus sexually • Taking a short course of HIV medicines after a possible exposure to HIV prevents the virus from taking hold in your body • Someone who does not have HIV can take HIV medicines to prevent them from getting HIV
How worried would you be about getting HIV if you did the following? (Not worried/A little worried/Worried/ Very worried/Not applicable)
• Touched the clothing of a patient living with HIV • Dressed the wounds of a patient living with HIV • Drew blood from a patient living with HIV • Took the temperature of a patient living with HIV
Do you typically use any of the following measures when providing care or services for a patient living with HIV? (Yes/No/Not applicable)
• Avoid physical contact • Wear double gloves • Wear gloves during all aspects of the patient’s care • d. Use any special infection-control measures with people living with HIV that you do not use with other patients
In the past 12 months, how often have you observed the following in the place you work? (Never/Once or twice/ Several times/Most of the time /Not applicable)
• Unwillingness to care for people living with HIV or thought to be living with HIV • Poorer quality of care provided to a person living with HIV or thought to be living with HIV, relative to other • patients • Discriminatory remarks or talking badly about people living with HIV or thought to be living with HIV • Disclosure of a person’s HIV status without their consent

Please, indicate if the following statements are correct in relation to your healthcare facility. (Yes/No/Don't know)
• In my facility it is not acceptable to test a patient for HIV without their knowledge • I will get in trouble at work if I discriminate against people living with HIV • My health facility has written guidelines to protect people living with HIV from discrimination • There are standardized procedures/protocols in my health facility that reduce my risk of acquiring HIV • My health facility has a Post-Exposure Prophylaxis (PEP) protocol in case of needle stick injury • My facility has a policy for scheduling people living with HIV on the end of an operating/procedure list • In my facility there are guidelines recommending wearing double gloves when caring for people living with HIV
Do you agree or disagree with the following statements? (Strongly Agree/Agree/Neither agree nor disagree/Disagree/Strongly Disagree)
• People living with HIV should be allowed to have a fulfilling sexual life • Women living with HIV should be allowed to have babies if they wish • Most people living with HIV have had too many sexual partners • People acquire HIV because they engage in irresponsible behaviours • HIV is punishment for bad behaviour • People living with HIV should feel ashamed of themselves • Most people living with HIV do not care if they infect other people • People living with HIV with detectable viral loads should not be parents
If I had a choice, I would prefer not to provide care or services to… (Strongly Agree/AgreeNeither agree nor disagree/Disagree/Strongly Disagree)
• People who inject prohibited drugs • Men who have sex with men • Sex workers • Transgender men and women
I prefer not to provide care or services to people who inject prohibited drugs because… Check all reasons that apply.
• They put me at higher risk for disease • This group engages in immoral behaviour • I have not received training to work with this group
I prefer not to provide care or services to men who have sex with men because… Check all reasons that apply.
• They put me at higher risk for disease • This group engages in immoral behaviour • I have not received training to work with this group • I prefer not to provide care or services to sex workers because… Check all reasons that apply. • They put me at higher risk for disease • This group engages in immoral behavior • I have not received training to work with this group
I prefer not to provide care or services to transgender men and women because… Check all reasons that apply.
• They put me at higher risk for disease • This group engages in immoral behaviour • I have not received training to work with this group

*****Questions on sex, age, professional position, professional experience not shown

thematic areas: knowledge and training related to the prevention and transmission of HIV infection; attitudes towards and behaviour of PLHIV; stigma and discrimination observed in health facilities; facilities' HIV-related policies and practices. The proportions for the different response categories were calculated, and if relevant further analyzed by background and other thematic characteristics.

RESULTS:

Of the 663 invited, only 91 (13.7%) returned a filled-in questionnaire. The average (min-max) age of the respondents was 43 (22 - 72) years, with a prevalence of women (65, 7%) over men (26, 29%). The professional structure and experience of the respondents are shown in **Fig.1** The majority of respondents were medical doctors (34%) followed by non-clinical specialists – 19.7%, other clinical specialists – 9.8%, medical students and fellows – 9.9%, dentists – 7.7%, managers of health facilities – 7.7%, other non-clinical positions - 7.7%, nurses – 5.5%, and administrative personnel – 3% **(Fig.1A).** Clinical staff was mostly from infectious, surgery, pediatric, oncology and primary care departments. Notefully, 21 (23%) of the respondents worked in a specialized unit for treatment of people with HIV. Five (5.5%) of the participants were interns, students or fellows of foreign origin including 3 Germans,

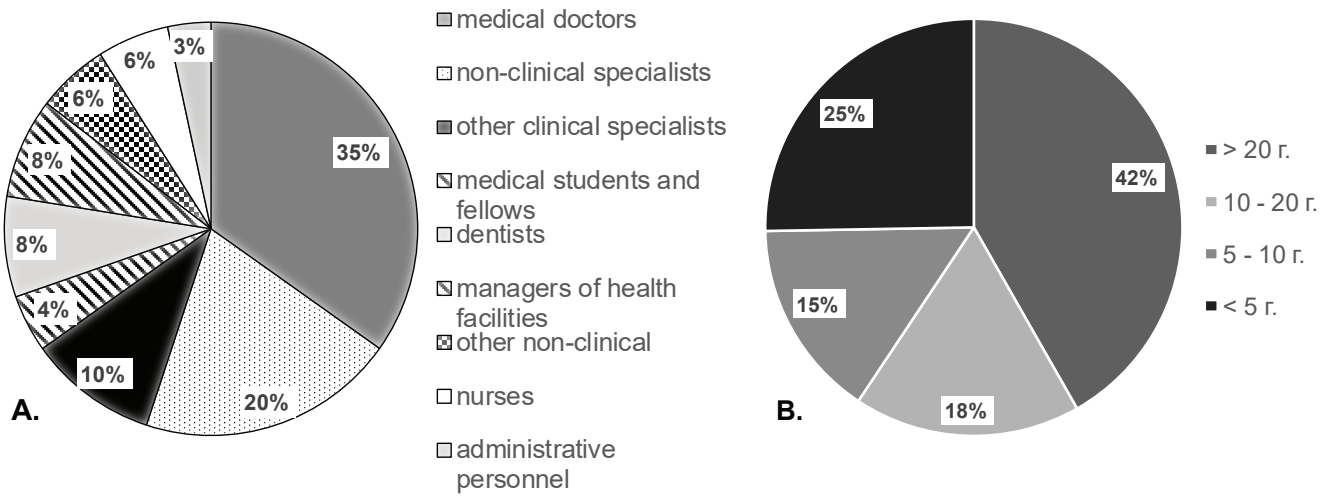

Fig. 1. Professional characteristics of the participants.
A. Distribution according to the professional role**. B.** Distribution according to the experience.

one North Macedonian and one Latvian. A major part of the interviewed (42%) had over 20 years of professional experience; 17.5% – between 10 and 20 years; 15% – between 5 and 10y, and 25% - less than 5 years **(Fig.1B).**

Regarding the level of patients' knowledge on HIV, most respondents reported to be familiar with the methods for infection control (56, 6%), followed by training on the necessity of informed consent for HIV testing, and the importance of privacy, and confidentiality regarding PLHIV (53, 58%). Post-exposure prophylaxis (PEP) was substantially less addressed as a method for infection control (35 or 38%). Importantly, only 23 respondents (25%) have received training on HIV stigma and discrimination.

Further on, knowledge about HIV transmission and prevention was checked by three correct statements (**Fig 2A**). The statement that 'People living with HIV who are on effective treatment and have an undetectable viral load cannot transmit the virus sexually (U=U) was confirmed by 49 (54%) of respondents. The definition of PEP: 'Taking a short course of HIV medicines after a possible exposure to HIV (PEP) prevents the virus from taking hold in your body' was familiar to 36 (39%). Only 27 (one third of the respondents) confirmed being familiar with PrEP by agreeing with: 'Someone who does not have HIV can take HIV medicines to prevent them from

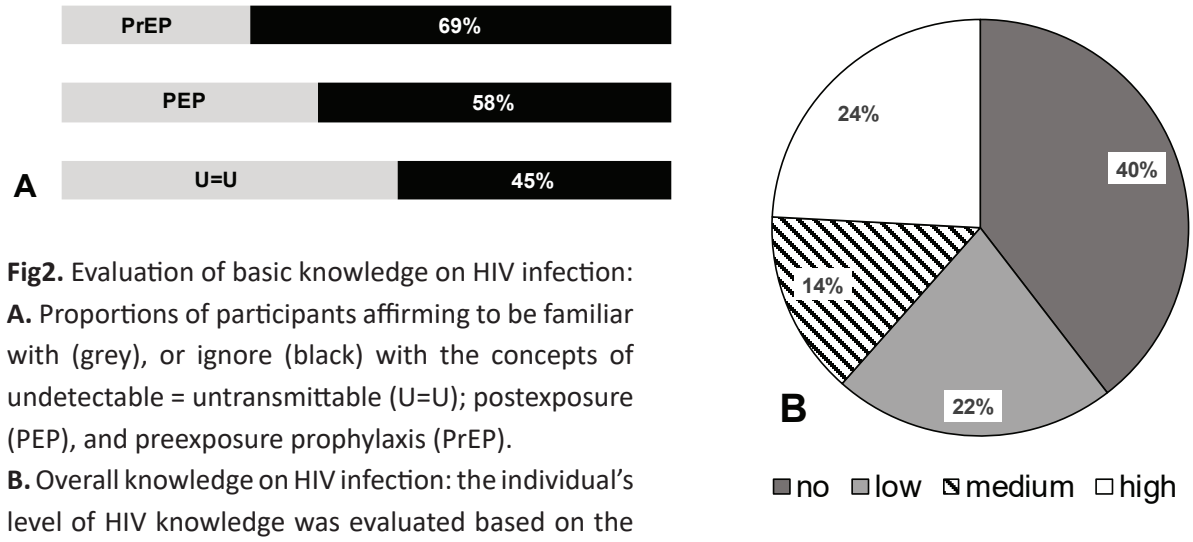

Fig2. Evaluation of basic knowledge on HIV infection:
A. Proportions of participants affirming to be familiar with (grey), or ignore (black) with the concepts of undetectable = untransmittable (U=U); postexposure (PEP), and preexposure prophylaxis (PrEP).
B. Overall knowledge on HIV infection: the individual's level of HIV knowledge was evaluated based on the sum of agreements with correct statements.

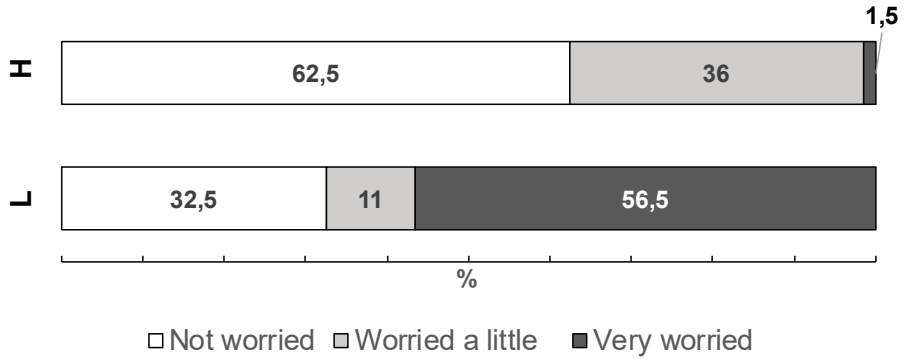

Fig.3 Worries are associated with the level of special knowledge. Participants that had agreed with all 3 correct statements on HIV infection were defined as having high knowledge (H), and those who had answered negatively to the 3 statements – as having low/no knowledge (L). Within these groups, the proportions of "not worried", "little worried" and "worried/very worried" about working with HIV+ patients are shown.

getting HIV (PrEP), The overall individual's level of HIV knowledge was evaluated based on the sum of agreements with correct statements, as "no", "low", "medium" and "high". According to this scale, 40% of the respondents had no basic knowledge on HIV infection **(Fig.2B).**

The group of questions related to worries and preventive measures associated with care for PLHIV is the most revealing about stigma in healthcare institutions. From those to whom the questions were applicable, 83.5% and 80% respectively were not worried about taking the temperature or touching the clothing of PLHIV. However, 77% were anxious about dressing wounds or drawing blood from such patients. Excessive preventive measures like avoiding any contact and wearing double gloves were envisaged by 21% and 51%, respectively. Noteworthy, low level of special knowledge about the infection was associated with concerns about working with HIV+ patients **(Fig.3).** At the same time, 100% of respondents with low/no knowledge on HIV infection reported having had no or less the 5 professional contacts with PLHIV**,** while 32% of respondents with high level of special knowledge had met more than 5 PLHIV during the last year.

Between 20% and 33% of the interviewed reported having noticed some form of discrimination at their working place during the past 12 months, including: refusal or poor quality of care, disclosure of positive status, testing without consent or discriminatory remark. As to the attitude to specific risk groups, the respondents were most often reluctant to take care of IDUs (31%), followed by 17.5% for sex workers, 16% for MSM, and 18% for transgender people. The most frequent reason was "I am not trained for that", followed by "This group engages in immoral behavior", and "They put me at higher risk of disease". When asked about certain stigmatizing misconceptions about PLHIV, 98% of the respondents disagreed that "PLHIV should be ashamed of their behavior", 96% disagreed that PLHIV deserve punishment, and 89% did not accept that "PLHIV do not care if they infect other people". Still, 14% were persuaded that PLHIV should not have babies, almost 30% believed that most PLHIV had too many sexual partners, and 46% - that people acquire HIV as a result of irresponsible behavior.

Regarding the healthcare facilities' policies in the field of HIV infection, 68% of respondents were aware that HIV testing consent was obligatory at their working place; 43% were sure to be administratively punished in case of discriminating PLHIV, while only 21% reported the existence of written documents and procedures protecting PLHIV from discrimination.

In 59% respondents were aware of any standardized procedures/protocols reducing personnel's risk of acquiring HIV, and in 45% - of the availability of PEP. At the same time, discriminative measures, such as scheduling PLHIV on the end of an operating/ procedure list, and recommending wearing double gloves when caring for PLHIV were at place in 23% and 13% of the facilities.

DISCUSSION

Nowadays, thanks to contemporary ART, the life expectancy of PLHIV is similar to that of their HIV-negative peers (6). Therefore, the international guidelines recommend immediate start of ART after diagnosis (1). At the same time a significant share of PLHIV are still diagnosed with advanced immune deficiency (CD4 cell count < 350 cells /µl), a non-negligible number of them being in their sixties. The result is an increasing share of patients ageing with HIV, and experiencing the effects of long-term ART. The latest ECDC surveillance report indicated that a growing number of people are living with undiagnosed HIV, 52.4% of those diagnosed in 2023 were diagnosed late (2). In Bulgaria, the share of late presenters has varied between 41% and 57% during the period 2018 – 2023 with a tendency to increase (unpublished data).

Persisting immune activation in long-term treated PLHIV is a well-known problem associated with higher rates of comorbidities, hospitalizations, and other challenges relating to quality of life (7,8). This means that healthcare systems will need to adapt urgently in order to meet the complex and increasing needs of people ageing with the infection (9). In these settings, the problem of HIV stigma in society, and among healthcare workers at the first place, is clearly of critical importance (10).

The survey among healthcare personnel in Bulgaria on the attitude and knowledge about HIV infection in the context of the overall results of EACS study helps to explain in part the observed negative facts, to compare Bulgaria with other European and Central Asian countries, and to choose appropriate approaches for amelioration.

The results from the local survey revealed a significant share of respondents with negative attitude towards PLHIV, combined with important gaps in the specific knowledge about the infection. At the same time, for most of the questions, the share of negative answers was similar or slightly higher than the mean numbers reported by the EACS survey. This was valid for: infection control training including post-exposure prophylaxis (PEP), training on HIV stigma and discrimination, basic knowledge about HIV transmission and prevention. However, in the latter group of questions knowledge about PrEP was demonstrated by only 27% of Bulgarian respondents vs. a mean of 41% in the EACS study. PrEP is a particularly sensitive theme closely related to stigmatizing misconceptions about MSM as a major risk group for HIV infection, and their behavior. Bulgaria is among the few European countries without implemented national policy and program on PrEP, together with other Central European countries as Romania, Serbia and Turkey. Noteworthy, the mean result for the Central European countries was 31% vs.41% for EU/EEC. (10,11) The identified particular gap in HIV-related knowledge is an important conclusion that might aid the further attempts for implementation of PrEP in Bulgaria.

Lack of basic knowledge correlated with professional fears, excessive preventive measures, and, importantly, admitting some form of discrimination at the working place, underlining again the crucial importance of educational campaigns for combating stigma, and addressing adequately the medical needs of PLHIV. Importantly, lack of special knowledge correlated with lack of professional contacts with PLHIV. This fact might indicate that educational programs on HIV are limited to HIV-dedicated staff, but also – that to a large extent stigma is based on prejudice, and not – on real experience.

Other important deviations in our local survey were the misconceptions about PLHIV having too many sexual partners, and PLHIV having irresponsible behavior (30% vs. 12%, and 46% vs. 22% for the EACS survey). The latter result was comparable to the mean for East European countries (ex-USSR republics), 41%, revealing the influence of traditional moral, religious and educational concepts on the overall attitude to PLHIV. These facts indicate the urgent need for more effective intersectional stigma interventions in CEE, including healthcare, community and legislative sectors (12).

A general flaw detected by both the local and EACS survey was the absence of written guidelines protecting PLHIV from discrimination (in 79% and 73% respectively). Specific for Bulgaria were the low rate of administrative sanctions related to PLHIV discrimination (41% vs. a mean of 66%) as well as the low awareness of the availability of PEP (45% vs. 69%). Unlike the previous group, this type of gaps are easily amendable through administrative measures.

The demographic and professional characteristics of the interviewed corresponded to the average European results, with a slightly lower prevalence of women (64% vs.75%), and a prevalence of the age group 45 – 54 (25%) vs. 34 – 45 (27%) for the EU/EEA. The predominance of female sex among the respondents might be a consequence of several factors: the nation-specific sex distribution among the participating professional categories, and women being more responsive and assiduous in general. At the same time, this prevalence might have impacted the results, especially the reported reasons for not providing services to certain risk groups. On the other hand, the professional structure of the interviewed in Bulgaria differed significantly as compared to EC/EEA with a total share of medical doctors and nurses 39% vs. 61% at the expense of dentists (7.7% vs. 2%), and other non-clinical positions (20% vs.2.8%) which could explain some discrepancies in knowledge level. Importantly, the share of participants working in HIV clinics in the Bulgarian survey was 23% vs.7% for EACS. While it could be expected that working routinely with PLHIV might have a positive impact on the answers, that was not the case in our survey. It should be noted that another study on HIV stigma among healthcare workers in Washington, DC reported stigmatizing behaviors in up to 66% of participants in spite of the high HIV prevalence and the fact that most participants had been working with HIV+ patients, and required to periodically undergo HIV-related continuing medical education The authors concluded that the training/education related to HIV should be targeted, and specific topics may need to be addressed. (13).

This study has several general limitations: HIV 'knowledge' was focused on the modes of infection, and the ways to prevent HIV transmission. The participants had to approve or disapprove of correct statements, and not to choose between correct or incorrect, or answer to open questions. The survey had a non-random and a non-representative nature, thus limiting the generalisation of the findings.

CONCLUSIONS

HIV-associated stigma among healthcare personnel is an overwhelming fact in Bulgaria, as a part of a general tendency in Europe, and in particular, its Central and Eastern part.

The level of knowledge about the infection is the main determinant of the personal perceptions, and professional attitude. However, additional socio-cultural, ethnical, and religious factors are also in play and may confront with formally existing policies.

The established deficiencies in the knowledge and instructions concerning HIV infection require targeted educational programs among the different healthcare professional groups. Those should be combined with legislative and administrative measures to assure the implementation of UNAIDS 2030 goals.

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