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Labor migrants in St Petersburg: disease awareness, behavioral risks and counseling by health professionals in building up prevention against TB, HIV and associated infections

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Abstract

Aim The existing studies of disease awareness among labor migrants often do not extend to tuberculosis and hepatitis, as there is limited research on factors promoting contacts with medical professionals who can serve as important sources of disease prevention information. When designing health interventions, planners need to take these factors into account, especially given that the proportion of migrant population can impact on general health situation in certain areas.

Subject and methods Survey among labor migrants in St Petersburg ($n=150$) was administered by a team of Russian and Finnish researchers. It included assessments of migrants' awareness of HIV, hepatitis, TB and STIs; risk behavior, access to medical counseling and ranking of various sources as suppliers of health information.

Results The results revealed considerable gender gap, with women being better informed about transmission routes and prevention methods against communicable diseases. The gap

extends to information sources, yet both genders refer to medical professionals as an important source of health information. Women are also more likely to contact medical offices; availability of health insurance has limited impact in this respect.

Conclusion Given their role as suppliers of health information, medical professionals should be encouraged to share advice with migrants. The respective shift in funding priorities to support medical professionals is advisable. Furthermore, official policies to promote voluntary health insurance, while being a positive initiative, have limited value in terms of prevention of communicable diseases as availability of insurance does not promote contacts between migrants and medical professionals.

Keywords Migrants · Tuberculosis · Risk behavior · Disease prevention

Background

Morbidity with communicable diseases among migrants presents challenges to health systems in various countries including Russia. A significant increase in the amount of tuberculosis (TB) cases, malaria, and other infections was registered among migrants and returning travelers in France, Germany, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom (Gautret et al. 2012; Dara et al. 2012). In Russia—the second largest migrant-receiving country—6,226 cases of communicable diseases were detected during medical evaluation of migrants in 2013 alone (Federal Service on Consumer Rights' Protection 2014). While current economic downturn accompanied by the depreciation of the Russian currency is pushing migrants out of the country, still the Federal Migration

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Service reported about 100,000 Tajik and 2.2 million Uzbek nationals in Russia as of January 2015 (Tetrault-Farber 2015). Disease burden among migrants differs and, in some instances, exceeds that among the local population. For example, in 2013 the TB detection rate among foreign-born in Russia was 163.2 cases as opposed to 61.6 per 100,000 among Russian citizens (Nechaeva 2014). Some reasons for that appear to be easy to identify: those who migrate in search of employment often come from impoverished regions and end up in the metropolitan areas where prevalence of communicable diseases can be higher than in their home countries. Moreover, living in difficult social circumstances and being outside of their families contribute to migrants practicing behavior that may put them at risk of contracting diseases. The studies conducted in St Petersburg—the city with the second largest population of migrants in Russia (1,769 million of them are registered there officially)—and other settings revealed that some labor migrants consume alcohol, use condoms inconsistently, have multiple partners some of whom provide sexual services on a commercial basis (Bandyopadhyay and Thomas 2002; Cohen 2006; Stuhlhofer et al. 2006; He et al. 2007; Magis-Rodriguez et al. 2009; Amirkhanian et al. 2011). As to tuberculosis, among clients of the One-Stop Migration Center (OMC)—the facility that processes documents for residence and work permits and provides the respective medical testing in St Petersburg—the disease was detected in 1.5 of every 1,000 cases in 2014, a rate that exceeds that among local population by five times (Sergeyev and Isaeva 2014).

In this context, singling out factors promoting migrants' contacts with medical institutions becomes important as they ensure not only timely diagnostic and treatment of diseases, but also provide potential for disseminating prevention information (Gerbert et al. 1993; Schappert 1998; Center for AIDS Prevention Studies 1999; Wickramage and Mosca 2014). The need to ensure the effectiveness of TB prevention and diagnostic is underscored by the fact that most labor migrants tend to live in crowded conditions and often shuttle between Russia and their home countries so that the outbreak of TB can easily spill over national borders. Last but not least, although in Russia migrants were targeted by a number of surveys on HIV and STI behavioral risks, there is a paucity of studies addressing TB and hepatitis awareness among them. This rationale motivated holding a survey entitled "Migrants in St Petersburg: Socio-Economic Circumstances, Prevalence of Behavioral Risks With Respect to Infectious Diseases and Factors Influencing Their Seeking Medical Help in Russia" in April 2014. The study was focused on establishing awareness levels and the communication channels they rely on in collecting information on infectious diseases as well as determining factors promoting or hindering migrants from seeking medical help.

Methods

Procedures and setting

Between April 14 and 25, 2014, in-person interviews were conducted at the premises of the OMC in St Petersburg where migrants report for medical screening to obtain work and residence permits. The respective arrangements with the Federal Migration Service were made by the local branch of the Red Cross, whose staff members were recruited as interviewers during this study. Interviewers represented both genders so that it was possible to match respondent's gender when selecting for interview. Taking into account that daily load at the OMC is about 2,000 clients, the decision was made to interview every 100th client who applied for medical screening. 150 respondents were successfully recruited, putting the study's response rate at 75 %. Establishing one's legal status in Russia opens a wider range of employment opportunities as well as ensures access to medical and social services; thus, one may characterize clients of OMC as being a better-integrated group of migrants in Russia. Their participation in this study was voluntary, with consent form being signed before starting the interview. The latter were conducted in Russian using a structured questionnaire. Completing the questionnaire took about 35 min, with interviews conducted one-on-one in a separate room. Respondents received a food package of \$2 in value as a reward for their participation.

Measures

Disease awareness

Respondents were asked if they had heard about communicable diseases such as HIV/AIDS, hepatitis, TB and sexually transmitted infections (STIs). Those claiming to have heard about these diseases were probed further about transmission routes and how one can avoid getting infected. Among these items were closed-ended ones on HIV where respondents had to indicate whether the respective disease is transmitted this way or not. This battery of questions was premised on the respective indicator included in the UN Guidelines on AIDS (UNAIDS 2009). On transmission routes for hepatitis and TB, respondents volunteered their responses, with interviewers classifying them as correct or non-correct against the list of transmission routes agreed with medical professionals. The same applies to the item asking about how to protect oneself from getting infected with TB.

Sexual behavior

Participants reported whether they had sexual relations in the past 12 months and who their sexual partner was—spouse, permanent partner other than spouse or casual partner. Men

were also asked if they used services of sex workers. As to condom use, respondents were asked, if a condom was used at last time of sex.

Alcohol and drug consumption

Participants specified how often they had beer, wine and strong alcohol, if any, in the past month. They were also asked if they smoked marijuana, used other drugs and whether they injected any of them. Concluding this section was the item on whether they ever had sex under the influence of alcohol or drugs.

Sources of information on communicable diseases

Respondents were asked to indicate from which sources they collect most of their information on communicable diseases. Selection was made from the list including TV, radio, journals, web-based sources, flyers and booklets, friends, medical professionals, colleagues, lectures at educational establishments, parents, medical literature and public actions. In addition to this, respondents could add other sources via filling out response option “others”.

Statistical methods

Univariate analyses were conducted on demographic, disease awareness, sexual behavior and substance use characteristics. Gender differences in various respects were evaluated by Pearson's Chi-square for categorical variables and one-sample t-tests for mean values. Logistic regression along with calculating odds ratio was employed to explore variables associated with migrants visiting a doctor's office in Russia. The dependent variable was respondent visiting a doctor's office in Russia in the past 12 month coded as a dichotomy (yes/no) regressed against a set of factors such as respondent's having health insurance, his/her having heard of TB, HIV, hepatitis and STIs (composite variable, Cronbach's Alpha=.77), perceived state of health (“good”/“satisfactory”), number of visits (one or two + times) to Russia, as well as demographic variables including gender, education (secondary/university), and country of origin (Central Asia/Europe or Caucasus).

Results

Respondents

Among 150 respondents included in the sample, 69.3 % were men and 30.7 % were women. Respondents' countries of origin were Uzbekistan (52.7 %), Tajikistan (13.3 %), Ukraine (12.0 %), and Moldova (10.0 %), while others came from Kyrgyzstan, Armenia, Azerbaijan, Belarus, Kazakhstan and

Turkey. Table 1 contains a summary of socio-demographic characteristics of respondents. Secondary education was completed by eight out of every ten respondents, yet women dominated among those who went beyond secondary school. Six out of every ten migrants came from capitals or cities of their home countries, others were split between smaller towns and rural areas. Practically, all of them (94.7 %) came to Russia in search of employment, with 77.5 % of men and 82.2 % of women employed at the time of interview.

Employment patterns varied between genders: men tended to work in construction, repair, manufacturing, transportation and communication, while women worked in retail, served in hotels and restaurants, and worked in manufacturing. Work schedules varied accordingly: over half of the women worked for up to 12 h/day; daily workload of this scale was typical to 33.8 % of men. Living conditions of migrants tended to be modest, with only 15.5 % of the men and 8.7 % of the women having a room for themselves. Close to 40 % of respondents shared their place with three to five roommates. Only a half of the men (51.9 %, $n=53$) and one-third (29.7 %, $n=14$) of the women earned more than 25,000 rubles (\$700) per month; yet, 84.6 % of the men and 73.0 % of the women sent money back home.

Contacts with health services

While 85.7 % of the men and 58.7 % of the women considered themselves to be in good health, a third of the sample (35.3 %, $n=53$) had visited a doctor's office during their last year in their country of origin (Table 2). Upon their arrival in Russia men reduced their contacts with medical institutions (only 13.6 % of them went to the doctor's), whereas 43.5 % women had contact with medical institutions while in Russia. Among reasons for not going to the doctor's, men tended to mention that they “didn't see the need for that” (86 %, $n=88$), while women resorted to “self-treatment” (61.5 %, $n=29$).

Given that official policies promote voluntary medical insurance among migrants as a way to cover their healthcare needs (RIA-Novosti 2014), respondents were asked whether they had heard about this opportunity. The results suggested that they did know that medical insurance was available for them to buy, with 71.3 % of respondents giving affirmative answer to this question. However, their actual coverage by medical insurance was much smaller: 35.0 % for men and 21.7 % for women, whereas the employer provided coverage for another 22.3 % and 15.2 %, respectively. On the other hand, practically every second respondent did not have medical insurance.

Involvement in risk behavior

In Table 3, the results related to respondents' involvement to risk behavior of contracting communicable diseases are

Table 1 Demographic characteristics of respondents (%)

Variable	Overall sample (n=150)	Men (n=103)	Women (n=47)	Significance
Mean age, years	33	32	36	.001
Percentage of those who had any university education	16.6 (n=25)	8.7 (n=9)	30.4 (n=14)	.005
Percentage of married	64.0 (n=96)	59.6 (n=61)	73.9 (n=35)	.007
In their home country lived in:				
The capital or a large city	58.3 (n=87)	58.3 (n=60)	58.7 (n=28)	N/S
A small town	20.8 (n=31)	19.4 (n=20)	23.9 (n=11)	N/S
A rural area	20.8 (n=31)	22.3 (n=23)	17.4 (n=8)	N/S
Second+ visit to Russia	83.1 (n=125)	85.6 (n=88)	79.1 (n=37)	N/S
Working hours per day (mean)	10.1	10.05	10.22	.001
Number of roommates (mean)	2.38	2.37	2.41	.001
Monthly income above 25,000 rub (%)	34.0 (n=51)	51.9 (n=53)	29.7 (n=14)	.02

reported. The majority, accounting for three quarters of the sample (n=114), were sexually active in the 12 months preceding the interview. Although in most cases their sexual activity was limited to spouses, every third men (n=22) and 11.8 % of women (n=4) had sexual relations with permanent partner other than spouse. Also, 7.6 % reported having sex with a casual partner in the past 12 months (n=9), while 13.0 % admitted having had sex with prostitutes. Approximately four out of every ten respondents (37.9 %) who were sexually active, used condoms at last time of sex. On the other hand, a quarter of the men who had sexual relations with a “permanent partner other than spouse” reported not using a condom at last encounter. Even with casual partners, condom use among respondents was not universal; however, the number of those admitting casual ties was in the single digits, so that breaking down condom use by gender was not warranted in this case.

As to alcohol consumption, most respondents reported not drinking at all in the month before the interview: 59.3 % refrained from beer, 76.7 % from wine and 77.3 % from vodka and other strong alcohol. To the extent that alcohol drinking was present, it was more typical to men than women, while both genders preferred beer to strong alcohol. A total of 47.1 % of men (n=48) and 17.1 % of women (n=8) reported drinking beer in the past month, with half of the respondents having done this one time only. Wine consumption in the past month was reported by one fifth (21.2 %) of men and 17.5 %

of women. Consumption of vodka and other strong alcohol tended to be limited to men, a quarter of whom (24.3 %) reported drinking it in the past month. Among drugs, 6.0 % of men had smoked marijuana, another four respondents admitted ever using other drugs, while one respondent had experience with injecting drugs. Three among these casual drug users also mentioned that they had practiced sex under the influence of drugs or alcohol.

Awareness of communicable diseases

The respondents were asked if they had heard about HIV, hepatitis, TB and STIs. Over 90 % of respondents had heard about TB, awareness of STIs was also high, especially among women (89.1 %), yet men were less knowledgeable in this respect, with only 78.0 % of them having heard of venereal diseases. HIV was recognized by 66.3 % of men and 77.3 % of women, while hepatitis was the least-familiar among the four diseases: 67.4 % of men and 63.5 % of women heard of it.

Responses concerning awareness of transmission routes are presented in Table 4. A total of 43.2 % of men were under the impression that HIV could be transmitted via mosquito bites, while women were less likely to believe that, still over a quarter of them shared this impression. About a third of the sample believed that HIV could be transmitted via aerial route. Four out of every ten respondents (44.1 %) agreed that one could get infected with HIV via household items such as

Table 2 Access to medical help (%)

Variable	Overall sample (n=150)	Men (n=103)	Women (n=47)	Significance
Visited a doctor's office in their country of origin before leaving for Russia	35.3 (n=53)	35.6 (n=36)	34.8 (n=16)	N/S
Visited a doctor's office within 12 months upon arrival to Russia	22.7 (n=34)	13.6 (n=14)	43.5 (n=20)	.001
Reason for not seeking medical help: “there was no need to”	55.3 (n=83)	86.0 (n=88)	34.6 (n=16)	.001
Reason for not seeking medical help: “rely on self-treatment”	16.0 (n=24)	9.3 (n=10)	61.5 (n=29)	.001
Not covered by medical insurance	48.7 (n=73)	42.7 (n=44)	63.0 (n=30)	N/S

Table 3 Sexual behavior and use of psychoactive substances (%)

Variable	Overall sample	Men	Women	Significance
Sexual behavior				
Percentage reporting sex during the 12-month period before interview (<i>n</i> =150)	76.0 (<i>n</i> =114)	77.7 (<i>n</i> =80)	73.9 (<i>n</i> =35)	N/S
Of those sexually active: In the past 12 months had sexual contacts with spouse only (<i>n</i> =118)	67.8 (<i>n</i> =80)	60.5 (<i>n</i> =49)	83.8 (<i>n</i> =30)	.01
Of those sexually active: In the past 12 months had sexual contacts with permanent partner other than spouse (<i>n</i> =118)	22.0 (<i>n</i> =26)	27.2 (<i>n</i> =22)	10.8 (<i>n</i> =4)	.01
Of those sexually active: In the past 12 months had sexual contacts with casual partner (<i>n</i> =118)	7.6 (<i>n</i> =9)	9.9 (<i>n</i> =8)	2.7 (<i>n</i> =1)	N/S
Used condom at last sex (<i>n</i> =118)	37.9 (<i>n</i> =45)	46.3 (<i>n</i> =37)	18.9 (<i>n</i> =7)	.001
Alcohol consumption				
Percentage consuming beer in the past month	(<i>n</i> =150)	(<i>n</i> =103)	(<i>n</i> =47)	
Percentage consuming wine in the past month	37.3 (<i>n</i> =56)	47.1 (<i>n</i> =48)	17.1 (<i>n</i> =8)	.001
Percentage consuming strong alcohol	20.1 (<i>n</i> =30)	21.2 (<i>n</i> =22)	17.5 (<i>n</i> =8)	N/S
	18.0 (<i>n</i> =27)	24.3 (<i>n</i> =25)	5.0 (<i>n</i> =2)	.001

towels and plates used by an HIV-positive person. Practically, a half of the sample (49.2 %) attributed these qualities to a kiss. On a positive note, a vast majority of respondents were aware that HIV could be transmitted via sexual contacts or injecting with a contaminated syringe. As to protecting from HIV, seven out of every ten (69.2 %) respondents were confident that regular condom use reduced the risk of this disease.

Awareness of hepatitis appeared to be particularly weak among respondents, as 64.2 % of the sample (*n*=80) failed to indicate what organ was affected by the disease, with men being particularly under-informed in this respect. A similar pattern of responses emerged when respondents were asked for transmission routes for hepatitis: 64.7 % of respondents were not able to name correct options.

Only 43.6 % of men and 56.0 % of women recognized aerial transmission route for TB. About a half of the sample (56.4 % of men and 52.4 % of women) knew that it was important to limit chances for TB bacteria to be transmitted via coughing. These results can be placed against the backdrop of practically universal coverage of respondents by X-ray within the past 24 months—apparently, medical professionals did not discuss TB-related issues with their patients.

Responses on STIs followed the pattern established for other diseases, 70.9 % of men did not know the symptoms of venereal diseases, while 34.8 % of women were not aware of them. Only about 70 % of the sample trusted condoms as a means to protect against STIs. About a quarter of the sample were either not sure about that or believed that condoms were no protection against STIs. Finally, only 70.2 % of men and 65.2 % of women knew that infectious disease could have a latent period during which their symptoms did not manifest themselves.

Sources of information on communicable diseases

Table 5 presents gender-split ranking of those sources where respondents got most of their information on communicable

diseases. Men tended to rely on TV (66.0 %), information sessions at educational institutions (61.4 %), conversations with friends (58.4 %), counseling medical professionals (58.4 %), and advice from parents or relatives (56.4 %). Women relied more on what parents and relatives say (54.3 %), TV (45.7 %), information shared by friends (43.5 %), seminars at educational institutions (28.3 %, *n*=13) and counseling by medical professionals (26.1 %, *n*=12). Most of this information was received when respondents were still in their country of origin. Also noteworthy is that the proportion of men pointing to discussions with medical professionals as a source of information was more than twice as high as that among women.

A quarter of men (23.5 %) and only 5.4 % of women preferred publications in their native language. In all, 33.8 % and 51.4 %, respectively, wanted to be informed in Russian, whereas, for about 40 % of the sample, it did not matter in which language they received instruction on communicable diseases.

Contacting medical institutions: bivariate analysis

In Table 6 we report the effects of having voluntary medical insurance, awareness of infectious diseases, self-reported state of health, number of times visiting Russia and various demographic characteristics on the probability to visit a doctor while in Russia. Probability for migrants to approach medical professionals was higher among those who had heard about the communicable diseases, had visited Russia, at least, two times and were migrants with higher education. On the other hand, having health insurance does not necessarily make one more likely to visit a medical office, nor are these chances affected by respondent's perceived state of health, age, or Central Asian origin (non-significant factors are not reported). Among demographic factors, it is gender that is linked with

Table 4 Awareness of transmission routes and prevention methods for communicable diseases (%)

Variable	Of those who are aware of HIV (n=124)	Men (n=91)	Women (n=33)	Significance
Percentage of those who believe that HIV is transmitted through mosquito bites	37.8 (n=47)	43.2 (n=39)	25.6 (n=8)	.05
HIV is transmitted via aerial route	31.0 (n=38)	30.3 (n=28)	32.5 (n=11)	N/S
HIV can be transmitted through sexual intercourse	95.3 (n=118)	93.2 (n=85)	100 (n=33)	N/S
HIV can be transmitted through sharing plates, towels and other household items	44.1 (n=55)	45.5 (n=41)	41.0 (n=14)	N/S
HIV can be transmitted via homosexual contact	88.3 (n=109)	84.1 (n=76)	97.5 (n=32)	N/S
HIV can be transmitted through a kiss	49.2 (n=61)	50.0 (n=45)	47.4 (n=16)	N/S
HIV can be transmitted via injecting with contaminated syringe	88.0 (n=109)	88.5 (n=81)	86.8 (n=29)	N/S
Percentage of those who believe that regular condom use reduces risk of HIV	69.2 (n=86)	66.7 (n=61)	80.5 (n=27)	.05
Percentage of those do NOT know what organ is affected by hepatitis	64.2 (n=80)	70.6 (n=64)	50.0 (n=17)	.007
Overall sample (n=150)		Men (n=103)	Women (n=47)	
Percentage of those who DON'T know how hepatitis is transmitted	64.7 (n=97)	72.1 (n=74)	47.8 (n=22)	.001
Percentage of those who DON'T know how TB is transmitted	50.0 (n=75)	52.9 (n=54)	43.5 (n=20)	N/S
Percentage of those who DON'T know protection measures against TB	46.7 (n=70)	44.2 (n=46)	52.2 (n=24)	N/S
Percentage of those who DON'T know symptoms of STIs	59.7 (n=90)	70.9 (n=73)	34.8 (n=16)	.001
Percentage of those who believe that regular condom use reduces risk of STIs	67.3 (n=101)	65.3 (n=67)	77.8 (n=37)	.05

the willingness to contact medical institutions, with women being much more likely to seek medical help than men.

Discussion

From the public health perspective, labor migrants are subject to a combination of risks some of which can be traced back to their countries of origin where prevalence of TB and hepatitis is higher, while in St Petersburg HIV prevalence exceeds that of their home countries. Furthermore, there are reports about their living and working conditions being challenging along with indications that some migrants practice unsafe sexual behavior (Amirkhanian et al. 2011). The results of this study confirm earlier findings with respect to living conditions and irregular condom use among migrants. Also of concern is respondents' relatively low level of awareness of transmission routes, symptoms and prevention methods, especially with respect to diseases such as TB and hepatitis. Theoretically, these gaps in knowledge of communicable diseases can be filled through information sessions at schools, broadcasted by TV or conversations with relatives or friends, yet these options are either prohibitively expensive or out of reach once migrants leave their home country. A more realistic option is counselling sessions held by medical professionals who are among top providers of health information for migrants, especially for men. The potential for medical professionals to disseminate disease prevention information is reinforced by the 2015 changes in the respective Russian legal provisions expanding the list of categories of migrants who need to seek work permits, specifically to include those who plan to work for an individual. Work permits can only be issued if the applicant undergoes testing for a number of infectious diseases including HIV and TB, thereby providing health professionals with the opportunity to share information on the precautions to be taken to avoid TB and other diseases. Having said that, we admit that enhancing healthcare providers' involvement is only one aspect of a broad prevention policy, yet it is the one that remains underutilized while still being available. For example, doctors can also cooperate with leaders of ethnic communities, religious organizations or "diasporas" to disseminate this information among "undocumented" migrants or those who chose to work without proper paperwork. Effectiveness of medical professionals as providers of disease prevention information was demonstrated in a number of settings and with respect to members of at-risk populations including migrants (Hammett et al. 1998; Wickramage and Mosca 2014). Furthermore, physicians have an ethical obligation to provide information that will enable a patient to make an informed choice about treatment (see American College of Physicians 1998; Coyle 2003).

Returning to the issue of gender differences, they also manifest themselves in respondents' decision of whether to seek

Table 5 Sources of information on communicable diseases by gender beginning with the highest percentage

Men (n=103)	Women (n=47)
TV (66 %, n=68)	Parents and relatives (54.3 %, n=26)
Lectures at educational institutions (61.4 %, n=63)	TV (45.7 %, n=21)
Friends (58.4 %, n=60)	Friends (43.5 %, n=20)
Medical professionals at polyclinics (58.4 %, n=60)	Lectures at educational institutions (28.3 %, n=13)
Parents and relatives (56.4 %, n=58)	Medical professionals at polyclinics (26.1 %, n=12)
Booklets, flyers (50.5 %, n=52)	Radio (19.6 %, n=9)
Radio (45.5 %, n=47)	Newspapers, magazines (19.6 %, n=9)
Newspapers, magazines (38.6 %, n=40)	Booklets, flyers (13.0 %, n=6)
Specialized literature (35.6 %, n=37)	Internet-based sources (13.0 %, n=6)
Internet-based sources (33.7 %, n=35)	Specialized literature (8.7 %, n=4)

medical help, with women being more likely to contact doctors. This finding is in line with the evidence obtained in other countries: in US, three times as many men as women had not seen a doctor in the previous year; and 25 % of men said they would handle worries about health by waiting as long as possible before seeking help (Harvard Mens' Health 2010). Women are more likely than men to use health care (Galdas et al. 2005) and tend to report more body symptoms and distress (Koopmans and Lamers 2007). While men usually report only life-threatening situations such as heart disease, women report non-life-threatening symptoms as well (Benyamini et al. 2000). These differences were attributed to gender roles calling for men to be strong, reproductive biology and variances in health perceptions (Bertakis et al. 2000). In the case of labor migrants, these gender differences can only be reinforced as these people left their home countries to earn money, and men, as "breadwinners", can hardly afford wasting opportunities to show up for work even if they do not feel well. Also of importance is lack of effect of having voluntary medical insurance on respondents' chances to visit a doctor's office, as it suggests that this financial mechanism is of limited value when it comes to diagnosis of communicable diseases among migrants and sharing prevention information with them.

When considering these results, it is important to keep the study's limitations in mind. As noted at the outset, our sample reflects characteristics of those migrants who sought medical services in connection with obtaining work or residence permits during this period. OMC clients represent assimilated and

socially connected segments of migrant population so they are likely to be better educated and trained, especially when compared to those who choose to seek employment in violation of the respective migration provisions. These differences may extend to disease awareness and health-related behavior as well: the gaps in knowledge of transmission routes for TB, HIV, STIs and hepatitis detected among respondents are likely to be bigger among their counterparts working illegally, while contacts with medical professionals among the latter may be even more limited. As a result of financial constraints, the study's sample size is modest precluding us from exploring such issues as condom use with casual partners further. Also, the accuracy of the respondent's recall in reports of behavioral practices is unlikely to be perfect, especially when it comes to socially disapproved types of behavior. Responses to these items can also be affected by social desirability bias. Yet even with these limitations, the study contributes to designing improved disease prevention campaigns targeting migrants by identifying both gaps in their knowledge and the sources from which they collect information on HIV, TB, STIs and hepatitis.

Specifically, our recommendations for TB, HIV, hepatitis and STI prevention programs among migrants to become more effective and feasible include:

1. Low awareness of communicable diseases such as TB, hepatitis, HIV and STIs makes it necessary to hold information campaigns among migrants. The respective information materials should highlight transmission routes,

Table 6 Odds ratio between visiting doctor and awareness of infectious diseases, number of times in Russia and socio-demographic characteristics

Variable	Odds ratio	95 % CI
Respondent heard of TB, HIV, hepatitis and STIs*	1.94	1.56–2.32
Two or more times in Russia*	2.09	1.61–2.56
Female gender***	4.89	4.55–5.22
Higher education**	2.77	2.34–3.20

*p<.05, **p<.01, ***p<.001

duration of incubation period, symptoms of these diseases as well as methods of their prevention. These materials can be disseminated among migrants undergoing disease testing in search of residence or work permits.

2. Taking into account differences in awareness of communicable diseases between men and women, prevention campaigns among migrants should be focused on informing men on transmission routes and prevention techniques. Men are also likely to rely on medical professionals as a source of information on communicable diseases.
3. These information sessions (pre- and post-test counseling) have to be held during testing for communicable diseases, which is a legal requirement in Russia. Also, medical professionals need to be reminded that patients including migrants have to be informed about objectives and effects of medical manipulations they are about to undergo.
4. As doctors are among information sources from which migrants receive their information on communicable diseases, they need to be stimulated to hold information sessions with patients. Specifically, funding for prevention programs can be re-structured in such a way as to give priority to individual counseling on communicable disease as opposed to holding public awareness campaigns whose effects appear to be modest. Medical professionals holding one-on-one sessions can also benefit from attending training courses sensitizing them to cultural aspects relevant to their delivering health information or having information booklets specifying message to be conveyed.
5. Limited availability of voluntary medical insurance even among this well-to-do segment of labor migrants casts doubts about securing their access to health care through this route. Moreover, diagnostics and treatment of communicable diseases such as TB are not included in insurance policies. In light of that, alternative organizational and financial mechanisms to ensure migrants' access to medical care need to be developed. Among proposals to be considered is establishing a medical insurance fund by governments of CIS countries, with national allocations covering provision of medical help to labor migrants from the respective countries in Russia.

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Conflict of Interest The authors declare that they have no conflict of interest.

References

- American College of Physicians (1998) Ethics manual, 4th edn. In: *Ann Intern Med* 128:576–594
- Amirkhanian Y, Kuznetsova A, Kelly J, DiFranceisco W, Musatov V, Avsukevich N, Chaika N, McAuliffe T (2011) Male labor migrants in Russia: HIV risk behavior levels, contextual factors, and prevention needs. *J Immigr Minor Health* 13:919–928
- Bandyopadhyay M, Thomas J (2002) Women migrant workers' vulnerability to HIV infection in Hong Kong. *AIDS Care* 14:509–521
- Benyamini Y, Leventhal E, Leventhal H (2000) Gender differences in processing information for making self-assessments of health. *Psychosom Med* 62:354–364
- Bertakis K, Azari R, Helms J, Callahan E, Robbins J (2000) Gender differences in the utilization of health care service. *J Fam Pract* 49(02):147–152
- Center for AIDS Prevention Studies at the University of California San Francisco (1999) Can healthcare workers help in HIV prevention? Fact sheet available at: <http://caps.ucsf.edu/archives/factsheets/healthcare-workers>. Accessed 12 Jan 2015
- Cohen J (2006) HIV/AIDS: Latin America and Caribbean, Mexico: prevention programs target migrants. *Science* 313:478–479
- Federal Service on Consumer Rights' Protection (2014) On increasing effectiveness of prevention of infectious diseases among migrants in regions of the Russian Federation (in Russian). No. 01/2159-14-32. Available at: <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=EXP;n=580687>. Accessed 6 Jan 2015
- Coyle S (2003) Providing care to undocumented immigrants. *The Hospitalist* 25(July/Aug):24–27
- Dara M, de Colombani P, Petrova-Benedict R, Centis R, Zellweger J-P, Sandgren A, Heldal E, Sotgiu G, Jansen N, Bahtijarevic R, Migliori JB (2012) Minimum package for TB control and care in the WHO European region: a Wolfheze consensus statement. *Eur Respir J* 40:1081–1090
- Galdas P, Cheater F, Marshall P (2005) Men and health help-seeking behaviour: literature review. *J Adv Nurs* 49(6):616–623
- Gautret P, Cramer JP, Field V, Caumes E, Jensenius M, Gkrania-Klotsas E, de Vries PJ, Grobusch MP, Lopez-Velez R, Castelli F, Schlagenhauf P, Hervius Askling H, von Sonnenburg F, Lalloo DG, Loutan L, Rapp C, Basto F, Santos O'Connor F, Weld L, Parola P (2012) Infectious diseases among travellers and migrants in Europe, EuroTravNet 2010. *Eurosurveillance* 17(26):16–26
- Gerbert B, Bleecker T, Bernzweig J (1993) Is anybody talking to physicians about acquired immunodeficiency syndrome and sex? A national survey of patients. *Arch Fam Med* 2:45–51
- Hammett TM, Gaiter JL, Crawford C (1998) Reaching seriously at-risk populations: health interventions in criminal justice settings. *Health Educ Behav* 25:99–120
- Harvard Mens' Health Watch (2010) Mars vs venus: the gender gap in health. Available at: http://www.health.harvard.edu/newsletters/Harvard_Mens_Health_Watch/2010/January/mars-vs-venus-the-gender-gap-in-health. Accessed 6 Jan 2015
- He N, Wong FY, Huang ZJ, Ding Y, Fu C, Smith BD, Young D, Jiang Q (2007) HIV risks among two types of male migrants in Shanghai, China: money boys vs. general male migrants. *AIDS* 21(Suppl 8):81–87
- Koopmans G, Lamers L (2007) Gender and health care utilization: the role of mental distress and help-seeking propensity. *Soc Sci Med* 64(6):1216–1230
- Magis-Rodríguez C, Lemp G, Hernandez MT, Sanchez MA, Estrada F, Bravo-García E (2009) Going north: Mexican migrants and their vulnerability to HIV. *J Acquir Immune Defic Syndr* 51(Suppl 1):21–25

- Nechaeva O (2014) Impact of migration on the HIV and tuberculosis situation in Russia. Presentation at the 3rd Congress of the National Association of TB Doctors, St Petersburg
- RIA-Novosti (2014) State Duma adopted regulations on insuring labor migrants from 2015 on (in Russian). Available at <http://ria.ru/politics/20141121/1034519276.html>. Accessed 6 Jan 2015
- Schappert SM (1998) Ambulatory care visits to physician offices, hospital outpatient departments, and emergency departments: United States. *Vital Health Stat* 134:1–37
- Sergeyev B, Isaeva N (2014) Detecting and preventing of communicable diseases among migrants (in Russian). Paper presented at the 3rd Congress of the National Association of TB Doctors, 27–30 November 2014, St Petersburg, Russia. Available at: <http://dfiles.ru/files/6vmrasiow>. Accessed 6 Jan. 2015
- Stuhlhofer A, Brouillard P, Nikolic N, Greiner N (2006) HIV/AIDS and Croatian migrant workers. *Collegium Athropologicum* 30(Suppl 2):105–114
- Tetrault-Farber G (2015) Russia sees exodus of labor migrants. *Moscow Times* no. 5544
- UNAIDS (2009) Guidelines on construction of core indicators. 2010 reporting. UNAIDS, Geneva
- Wickramage K, Mosca D (2014) Can migration health assessments become a mechanism for global public health good? *Int J Environ Res Public Health* 11(10):9954–9963