

The Ecology of Sex Work and Drug Use in Saratov Oblast, Russia

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Background: The Russian Federation is experiencing epidemics of drug-injection-associated HIV infection and high rates of syphilis and other sexually transmitted infections (STIs).

Goal: The goal of the study was to present the results of a rapid assessment focusing on sex workers (SWs) and drug users that was conducted in the Saratov Oblast in May 2000.

Study Design: We used four data-collection techniques during this rapid assessment: review of available literature; in-depth interviews; naturalistic observations; and focus group discussions.

Results: Sex work in Saratov/Engels is more differentiated, with more categories of SWs, pimps with well-defined functions, and clearly formed escort services. In Balakovo, sex work is confined to individual women who are working as freelancers, most of whom are drug users. In the past 2 years, the drug of choice has shifted to heroin. The potential epidemiologic impact of sex work on the general population is defined in terms of the number of SW contacts per 100,000 population per year, which ranges from 32,800 to 730,000. Further elaboration of this simple measure is discussed.

Conclusion: Our understanding of core group structure and characteristics, core-periphery contacts, and the impact of these on the spread of STI needs to be enhanced; comparative empirical data on such parameters need to be collected across societies.

THE RUSSIAN FEDERATION is experiencing epidemics of drug-injection-associated HIV infection at the same time as high rates of occurrence of syphilis and other sexually transmitted infections (STIs).¹⁻³ While the disease burden remains small compared with that in Africa, the Caribbean, and the United States, HIV infection is growing at a faster rate in Russia and the rest of Eastern Europe than anywhere else in the world. In Russia, since January 2001, nearly 50,000 people have tested positive for the virus, a 60%

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increase in just 6 months.⁴ HIV infection is currently concentrated among injecting drug users (IDUs). However, the substantial overlap between sex workers (SWs) and IDU populations, as well as the enhancement of HIV transmission by STIs, suggests that there may be potential for the development of large second-wave epidemics of sexually transmitted HIV infections. Estimates of the number of female IDUs who are involved in sex work range between 10% and 30%.⁵ The ratio of male-to-female cases among those with new infections declined from 4:1 during the early stages to 2:1 in 2000.² There are currently very few behavioral data allowing any estimation of critical sexual behavior and drug use parameters in this area.³

During recent years, economic conditions in the former Soviet Union severely worsened. Unemployment increased from less than 1% in 1992 to 13.4% in 1999.⁶ Poverty and inequality have also increased substantially. The Gini coefficient for income inequality was 0.25 in 1991 and 0.4 in 1997.⁷ Informal economies, including those associated with crime, sex work, and drugs, have proliferated.⁸⁻¹⁰ The economic situation for women worsened and trafficking of women in the sex trade (domestic and international) increased greatly as the economy deteriorated.¹¹ In addition, parallel changes in attitudes and behaviors are observed.

Age at sexual debut has decreased, and permissive attitudes toward having multiple sex partners are more common.¹² The economic transition in the Russian Federation resulted in major social structural changes, including major declines in health expenditures.¹³ In 1987, 4.6% of the Russian GDP was spent on health; in 1994 this proportion was just 1.7%. Massive changes in the social, economic, and political structure of the country have also affected life expectancy.¹⁴ In addition, dual epidemics of syphilis and gonorrhea reflect the impact on sexually transmitted disease of these pervasive and large-scale social-behavioral changes.¹⁵

Recent mathematical modeling studies have demonstrated that the key to reducing an individual's STD/HIV

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risk is reducing the prevalence of infection within the population, and the key to doing this is to reduce the number of people who transmit infection to others.¹⁶ The number of sex partners provides an easy measure of how much a given individual at a given point in time will contribute to the spread of infection.¹⁶ These findings reemphasize the role of core groups, particularly that of SWs, in the spread of STIs. The need to quantify the level and describe the distribution of risks for STI acquisition and transmission in core groups has led some researchers to attempt to empirically quantify parameters of core groups such as size.^{17–19} Other than size, parameters related to core groups, such as amount of time spent on the risk activity, volume of contact with clients, and concentration of activity by individual members within core groups, may also be important to quantify.

In light of the recent economic, demographic, and socio-political changes in the Russian Federation, it is important to identify the core groups that play a role in the spread of HIV and other STDs and to describe their social organization and behavior patterns. While a number of publications have focused on the IDU group,¹¹ less attention has been given to SWs as a core group. In this paper, we present the results of a rapid assessment focusing on SWs and drug users that was conducted in the Saratov Oblast in May 2000. We describe the unique history of the Oblast, the patterns of drug use, and the typology of sex work that emerged, report on the quantifiable parameters we estimated, and discuss the implications of our findings for public health programs and future research.

Methods

The rapid assessment was conducted by the authors; both participated in all data collection activities. At the end of each data collection activity, systematic cross-comparisons were conducted, first of the observations and second of the interpretation of findings. Discrepancies in observations were systematically followed with repeated data collection or observation of the same data points; discrepancies in interpretation were followed with in-depth discussion and further data collection until the discrepancy was resolved.

We used four data collection techniques during this rapid assessment: review of available literature; in-depth interviews; naturalistic observations; and focus groups. We conducted in-depth interviews with 32 respondents. Some interviews yielded very rich or discrepant material necessitating re-interviews. Therefore, the number of interviews (43) exceeded the number of respondents. The interviewees included individuals responsible for AIDS and STD prevention; coordinators of outreach efforts for drug users and SWs; social scientists working on social problems; needle-exchange service providers; escort service providers; self-identified pimps; SWs; and former drug users.

Naturalistic observations were conducted while riding in cars or walking on streets that were identified during the interviews as key locations in which sex work was concentrated. The time of the day for conducting the naturalistic observations was varied systematically to cover the morning, afternoon, evening, and late night hours. Observations were completed over a period of 8 consecutive days.

We conducted three focus groups, with SWs, former drug users, and outreach workers, each ranging in size from 6 to 15 persons. Before each focus group session, the discussion guide for the session was developed on the basis of the information and interpretation available to us at the time. Therefore, the questions driving the rapid assessment were allowed to evolve continuously as new information was incorporated into the interviews. During this process, all information and all interpretations were systematically triangulated at the end of each day.

Results

History, Demography, and Economy

Saratov Oblast, with a population of 2,690,000 at the time of the last census in 1989, is a major port on the Volga River. A major industrial and educational center, it is at the crossroads of trade routes that connect central Russia to the Urals and the South. Saratov was a “closed Oblast” until 10 years ago, owing to its strategic location on the Volga, military presence, and sensitive industrial facilities. In 1996, the Saratov government began inviting outsiders to come into the Oblast, resulting in major migration into Saratov.

Saratov (2,293,000 population)/Engels (207,000 population) and Balakovo (200,000 population) are the two epidemiologically, demographically, and economically distinct and important units within the Oblast. Balakovo has an interesting history. Thirty years ago, a hydroelectric plant, a metallurgical factory, an atomic energy facility, and a chemical plant were constructed in Balakovo, in what had been a small agricultural community. To support this development, two distinct categories of workers were relocated into Balakovo from all over Russia: construction workers (former prisoners, unemployed persons, and unattached young people), and highly educated and skilled scientists/professionals with high social status, salaries, and privileges. This brought about a relocated, bifurcated and fully employed population that was characterized by inequality, where men outnumbered women. Beginning in the early 1990s, manufacturing production stopped, people lost their jobs, and young people could not enter the labor force, resulting in very high unemployment. The historic distortions in the sex ratio are further exaggerated by recent male-dominated inward migration from the central Asian republics.

The population composition in Saratov/Engels and Balakovo is influenced by four migration flows: (1) migration

from surrounding rural areas into the cities by students, among whom women outnumber men; (2) movement of refugees into Saratov Oblast from many areas, including Chechnya; (3) recent male-dominated inward migration from the central Asian republics; and (4) seasonal migration of construction workers during the summer. The influx of students results in a relatively young age composition in the cities. A comparative shortage of local men, resulting from military service, wars, and imprisonment, contrasts with an excess of migrant men due to seasonal and permanent migration from the Central Asian republics.

Transportation routes are such that the movement of population and drugs appears to be from Afghanistan and the Central Asian republics, first to Engels and Saratov and then on to Balakovo, which is a 3-hour drive from Saratov. All railroad traffic from the Central Asian republics terminates in Saratov. Militia searches of arriving trains regularly yield large amounts of narcotics in transit for distribution throughout Russia. Three times a week, trains from Afghanistan (which now terminate in Saratov instead of continuing on to Moscow as they did in the past) arrive in Saratov, and passengers (including drug couriers) and cargo disembark there. Onward passengers in transit have a day's delay in Saratov before they can board a train to Moscow. Drug couriers who formerly traveled directly to Moscow must now disembark in Saratov. As a result of this change in the transportation system, drug availability and distribution within the Oblast increased markedly.

In the 1990s the economy in Saratov Oblast started declining and unemployment increased. Beginning in 1996, inward migration increased the potential work force, further exacerbating unemployment. In response to changes in the economy, many residents of Saratov started import/export businesses, buying Russian products in Saratov and transporting them to Turkey for sale, and in turn purchasing Turkish-manufactured consumer products for sale in Saratov. Other residents turned to the growing drug and sex industries; unemployed chemists shifted into producing and processing opium-based drugs from readily available raw materials, and unemployed women moved into sex work. The economic crisis of 1998 halted the economic recovery inherent in the import/export business, increased already high unemployment, and decreased buying power as the ruble was devalued. A pervasive informal economy appeared in Saratov as formal salaries became woefully inadequate to support established lifestyles, forcing employed individuals to supplement their incomes by other activities. For example, as of May 2000, the monthly salary of a university professor was the equivalent of US\$30 and the monthly salary of a chief physician for Saratov City was US\$40, salaries that are now insufficient to support basic necessities.

Sex Work

The social organization of sex work varies from Saratov to Engels and Balakovo. Sex work in Saratov/Engels is more differentiated, with more categories of SWs, pimps with well-defined functions, and clearly formed escort services. In Balakovo, sex work is confined to individual girls who are working as freelancers, most of whom are drug users. More minors are involved in the sex industry of Engels than in Saratov, where SWs are primarily adults. In contrast to the visibility of female SWs, male SWs are a more hidden population, and less information is available about them. Escort service operators indicated that the ratio of male-to-female SWs does not exceed 1:8 and that the clients of male SWs are always men. In Balokova, there are approximately 2000 SWs, and the equivalent figures for Saratov and Engels are estimated to be 1000 and 100, respectively. These figures translate into 1000 SWs per 100,000 population in Balakovo, 45 SWs per 100,000 population in Saratov; and 50 SWs per 100,000 population in Engels. One observer suggested that as many as 20% to 25% of women between the ages of 15 and 30 years in Saratov City currently engage in sex work.

All interviewees and focus group participants agreed that the size of the SW population had increased since 1990, with marked acceleration over the past 5 years in all three cities. SWs are reported to be working longer hours and entering the sex trade at younger ages since the fiscal crisis of 1998. The demand for positions within escort services is larger than the number of available slots. At the same time, client demands for SWs are greater than the existing number of escort services can meet.

Age of initiation into sex work varies from 12 to 30 years and seems to be related to the underlying motivations for entering sex work. Four motivational patterns for entering sex work were delineated: (1) to make quick money for survival needs, including food, lodging, and medicine; (2) to obtain money for luxuries; (3) to support a drug habit; and (4) to travel abroad and meet potential marital partners. Initiation into sex work is usually through friends and occasionally through applications to Internet agencies. The social backgrounds of SWs are highly varied; while some women are from very poor backgrounds, others are from families of high socioeconomic status. Currently, due to its high income potential, sex work is a positively valued source of income.

Several distinct categories of sex work are observable in Saratov City. Organized SWs are affiliated with an escort service. Clients contact the escort services, usually by telephone, and one or more SWs are driven to a designated location by the pimp/driver. Services are provided at hotels or other locations of the clients' choice. Escort services pay hotel staff members for their cooperation. The pimp/driver receives payment from the client for services for an agreed-

upon duration and then returns to pick up the SW at the end of this period. Another major category is street SWs, 45% to 50% of whom are estimated to be intravenous drug users. Some street SWs affiliate with pimps. Street pimps typically claim a defined area of the sidewalk as their "territory," and SWs pay the pimp in return for permission to recruit clients from the pimp's "territory." Street pimps do not negotiate prices with the client; they may hold the money for the SW until she returns, but they do not provide any type of security for the SW. Other street SWs are unaffiliated freelance workers, usually located on the streets just beyond the areas that are reserved by the pimps or along the trolley lines. Sex work also takes place in massage parlors, in baths, and on the major roads outside of town, where SWs wait to be picked up by truck drivers for sexual services.

Another form of sex work involves women who pay to register with Internet services marketed as "marriage agencies." The agency posts information and photographs on the Internet and facilitates correspondence between the women and respondents. Some women reportedly have married contacts whom they have met through this service. Others receive money in advance from Internet contacts to meet them in another country for a vacation that includes a sexual relationship. Women reportedly do not view these activities as "sex work" even though they may engage in such travel arrangements repeatedly with the same or different partners met through the Internet.

The charge to a client for women from escort services ranges between 200 and 400 rubles an hour (around US \$7.00 to \$14.00 at the current exchange rate of 28 rubles to the dollar). The charge for a male SW is three times higher than that for a female, and prices for a woman requesting a female partner are double the usual rate. The financial agreement between SWs and escort services varies; the SW may receive only half (or less) of the amounts mentioned above. The balance is retained by the agency, which provides the SW with medical care and supplies. For SWs on the street who must pay a pimp 100 rubles per client, the usual (additional) payment averages 100 rubles for oral sex and 150 rubles for vaginal intercourse. The sexual contact typically takes place nearby in a car, doorway, or other readily accessible place.

Drug-using women who do not work with pimps and who engage in sex work to obtain money for the next dose charge from 50 to 70 rubles. Prices for street workers are more negotiable than they are for escort services. Women working without a pimp to support a drug habit are more likely to agree to any price set by the client or will agree to exchange sex for drugs.

In Saratov, sex services provided through escort agencies are geographically dispersed, while street sex work tends to be geographically clustered. In Saratov City, street sex work is concentrated on Bolshaya Kazachya Street, Astrakhanskaya Street, and Chapayev Street. A small number of home-

less persons reportedly exchange sexual favors for minimal payments, alcohol, or food near the train station. In Engels, street SWs are observed along trolley lines, particularly in Rabochaya Station and Kovskaya Station.

Core-to-Periphery Contact Rates

The *potential* epidemiologic impact of sex work on the general population may be estimated in terms of the number of SW contacts per 100,000 population per year. This estimate can be calculated on the basis of observations (assessments) of the number of SWs, the average number of nights they work per week, and the average number of clients served per night. In Engels, taking into account only SWs in escort services, there are estimated to be 16,420 SW contacts per 100,000 population each year. In Saratov City, the corresponding figure ranges from a minimum estimate of 43,800 SW contacts per 100,000 population per year to a maximum estimate of 73,000 SW contacts per 100,000 population per year (depending on the assumptions made about the average number of nights SWs are on the job and the average number of clients they see per night). These figures do not include street SWs, and Balakovo does not have escort services. When street SWs are added into the calculation, it is estimated that there are 730,000 SW contacts per 100,000 population per year in Balakovo, 87,600 SW contacts per 100,000 population per year in Saratov, and 32,800 SW contacts per 100,000 population per year in Engels. These numbers translate into 1946 SW contacts per SW per year per 100,000 population in Saratov; the respective contact rates for Balakovo and Engels are 730 and 656.

Client-SW contacts that take place within segmented population pockets that have clearly defined boundaries would limit the spread of STI to those specific segments within the larger population, decreasing the potential epidemiologic impact of sex work on the general population. Clearly defined boundaries might be based on socioeconomic status, ethnicity, or a specific locale. No such boundaries were identified in Saratov; sexual mixing patterns appear to cross all of these potential boundaries. Seasonal variations in sex work also may limit the potential epidemiologic impact of sex work on the general population. There are no seasonal variations in sex work that is provided through escort services. As would be expected, the volume of sexual services provided on the streets varies throughout the year, with increased volume during the spring and summer months.

Prevention and Health Care Seeking Practices of SWs

SWs affiliated with escort services reportedly use condoms every time they have sex, spray and douche with Mira Mistine (disinfecting douche), and use Farmatex as a lubricant to prevent STIs. The effectiveness of these products is not known. Latex and nonlatex condoms are perceived to be

equally effective; latex condoms cost 10 times more than nonlatex condoms. These women report that they get tested for STI regularly, some as often as weekly, despite disadvantages associated with seeking care at both public and fee-for-service clinics. Long waits and lack of confidentiality at public clinics and the high cost of medical services at fee-for-service clinics constitute barriers to seeking STD screening and treatment. Street SWs, particularly women who are drug-dependent, are believed to be less regular in condom use and in accessing health care.

Drug Use

All our data indicate that drug use was a major problem in Saratov Oblast in May 2000. In 1995, 58 IDUs were registered in Engels, a figure that had reached 1700 by 2000. With correction for underreporting, it is estimated that there are at least 3000 current IDUs in Engels. In Saratov City there are currently 1000 registered drug users. While an estimate was not available, the number of drug users in Balakovo was believed to be higher than that in Engels. The known-drug-user figures represent individuals who were arrested for drug possession and registered by the police as drug users. Once registered, an individual's discontinuation of drug use does not remove him/her from the record as a registered drug user for 5 years.

The drug market is expanding rapidly as dealers enlist younger people into use and distribution. Over the past 4 years, the average age of drug initiation reportedly has dropped, from 15–16 years to 12–13 years. Social marketing of narcotics appears highly aggressive, often specifically targeting children in families of higher socioeconomic status. In addition, there is a structured system of incentives for enticing friends into drug use and to become a drug dealer because the dealer receives one free dose for each four doses sold.

Some militia members reportedly prefer not to intervene; rather, they are described as collecting the names of children involved in drug use in high-income families because this often results in receiving "hush" payments from the families to avoid having their children officially registered as drug users. Some, but not all, militia are reported to be actively involved in the protection of high-level dealers, distribution, or sales. There are extreme disincentives to getting out of the business of narcotics sales and distribution: very high cash payments are necessary to avoid getting killed.

In the past 2 years, the drug of choice is reported to have shifted markedly. In 1997, there was no heroin use; 1 year later, 30% of drug users were self-injecting heroin, and by 2000, 70% of drug users were injecting heroin. In the first few months of 2000, injectable and liquid methamphetamine (called "vint" or "jeff") first appeared in the drug market.

Drug use is intricately associated with criminal activities

such as robbery and burglary among male users and with sex work among women. Drug-using SWs accept the terms offered by the client, forego condom use, and agree to sexual practices such as anal sex that are refused by other SWs. Clients of drug-using SWs are also different from the clients of other SWs, since the latter refuse to service drug-using men, who then resort to using the services of drug-using SWs exclusively and exposing them to whatever infections are present in male drug users. Very young boys who are not drug users, but who lack money, also purchase sex from drug-using SWs. This indirectly exposes male youths to STDs, including HIV, that are present in the adult male drug-using populations.

Prevention and Health Care Among Drug Users

Comprehensive drug treatment is not widely available in Saratov Oblast, despite the high prevalence of intravenous drug use, specifically heroin injection. Inpatient drug treatment typically consists of hospitalization for 3 to 10 days for detoxification, followed by release and a recommendation for outpatient therapy. Consistent with a harm-reduction approach, needle exchange was introduced recently in Engels and Balakovo. Drug users who exchange needles receive a clean needle, condoms, and a card that will prevent the user from being arrested by the militia if they are caught with drugs.

Despite the availability of needle exchange, transmission of HIV and other STIs by infected drug users continues to pose a considerable risk. Some drug users reportedly attach previously used syringes to new needles and continue to share the drug-preparation paraphernalia.

Drug users' perceptions of the current laws may paradoxically act as a deterrent to seeking drug treatment and as an incentive for drug dealing. Penalties are commonly believed to be identical for marijuana and heroin, regardless of quantity. Drug users also have the mistaken impression that penalties under the current law do not differentiate between drug use and drug dealing. In actuality, current law does have graduated penalties that differentiate possession from dealing; penalties differ according to the drug and quantity. However, drug conviction results in imprisonment and being registered as a known drug user.

Discussion

Our findings underscore the extensive spread of sex work and drug use in Saratov Oblast, providing the epidemiologic context for explosive increases in STIs, including HIV. They also demonstrate the links between demographic, social, economic, and political factors and behavioral responses such as sex work and drug use.

The drug economy and sex industry are emergent and flourishing opportunities against the bleak economic back-

ground in Saratov. Both involve increasing numbers of residents, and the drug economy has become a well-organized, large “business” marked by tremendous earning potential and profitability. Compared with other job prospects, there is greater economic opportunity for SWs and pimps than in most other occupations.

The population composition in the cities of Saratov Oblast is remarkably youthful, owing to the large influx of students attracted by the many educational facilities and the rich cultural life. The comparative shortage of local men, a result of military service, war, and imprisonment, contrasts with an excess of men entering the Oblast from the Central Asian Republics for seasonal and permanent migration. Taken together, these factors may disturb the social balance between men and women to a greater extent than is reflected by the purely demographic sex ratio. The migrant men tend to be more interested in temporary sexual links with women they meet in the city; women who are unable to find local men for long-term relationships may need the financial rewards provided through temporary commercial sex partnerships with migrant men and may be more willing to engage in sex work. It is likely that this socially qualified gender imbalance is a more important factor than the gross demographic sex ratio in patterns of sex partnering and in the high prevalence of commercial sex.

The history of societal development in Saratov Oblast may be viewed as including three distinct natural experiments at the population level, where the interventions introduced were sudden demographic, economic, and political changes and the population they were introduced to was a closed one that had little interaction with the world beyond its borders. The first intervention involved the settlement of Balakovo; the second was the collapse of the former Soviet Union; and the third was the economic crisis of 1998. Each of these interventions, in retrospect, seems to have caused waves of further change in the demographic and economic domains as well as in other aspects of social life. Simultaneous resettlement of 100,000 young people into Balakovo from a wide variety of locations and the more recent entry of multinational immigrants disturbed the existing patterns of social organization and social norms.

Rapid value changes were further exacerbated by rural-to-urban migration, particularly by girls coming into Saratov for higher education. Once they are exposed to the more stylish apparel and cultural climate in Saratov City, many of these young women acquire new tastes and are unwilling to return to their rural origins. These acquired tastes can rarely be satisfied from the available resources or job opportunities, necessitating income generation through the informal economy. A youth-dominated less-conservative value system also resulted from the influx of young workers into Balakovo and the influx of students into Saratov City. This youthful value system was often at variance with preexisting social norms and values.

Gender power relationships were also disrupted as industries closed down and men lost both their prestigious positions and their status as breadwinners, causing their families' lifestyles to spiral downward. Role definitions shifted for both men and women, with men experiencing high levels of stress that left them vulnerable to drug addiction and criminal activity as a means of reasserting their role as the family provider. Women whose marriages survived were faced with the necessity of bringing in supplemental income for the family. Women whose marriages dissolved suddenly became the primary providers for themselves and their children.

As these major economic changes were taking place, the society was simultaneously exposed to new ideas from the west after many years of isolation owing to their closed status. It appears that their new exposure to fads, fashions, and tastes resulted in new desires and elevated material aspirations at the same time that their economic capacity was severely constrained.

Traditionally sex work had been viewed negatively, and SWs held very low social status. As a result of the societal and economic changes, sex work emerged as attractive: its practitioners had disposable incomes and wore the latest fashions, in marked contrast with the segments of the population struggling for survival. Consequently, greater occupational prestige became attached to sex work. Currently, it is an occupation that attracts women from all socioeconomic strata. The greatly heterogeneous socioeconomic status backgrounds of SWs indicate how widely diffused sex work is in Saratov society. The emerging drug economy also had a major impact on the existing socioeconomic hierarchy and on families, creating newly affluent and powerful social strata. The location of Saratov Oblast as a focal point in the transportation routes connecting Afghanistan and the Central Asian Republics to Russia facilitated the emergence of the drug industry. Couriers, who frequently transport the poorly packaged drugs in vaginal and anal body cavities, are eager to distribute the drugs quickly upon disembarking the trains in Saratov.

The political, economic, demographic, and social changes that took place in Saratov all contributed to the emergence and rapid expansion of the sex and drug industries and thus to the rapid growth of STD and HIV core groups. Neither the changes that took place in Saratov nor the rapid expansion of sex- and drug-based core groups are confined to Saratov or the former Soviet Union. Many other societies around the world, in Africa, Asia, Latin America, and even in Europe, are currently undergoing similar social and economic changes. The size and structure of core groups and their role in the spread of STIs are bound to be affected by these changes. Therefore, it seems important to develop a better understanding of the determinants and consequences of the formation and evolution of core groups; their structure; their size; their relative size (in

relation to the size of the population); and the structure of core–periphery contacts.

Understanding how these core group parameters are influenced by social and economic factors and how, in turn, they affect the spread of STIs may help us design more meaningful interventions and facilitate the appropriate targeting of interventions.²⁰ Moreover, our findings in Saratov suggest that the social status attached to core group occupations may increase drastically in the context of wide-scale social and economic changes. Increases in occupational prestige may necessitate changes in public health approaches to these groups for outreach and intervention purposes.

Enhancing our understanding of core group parameters, their determinants, and their consequences may require a multipronged approach. While empirical studies shed light on parameter values observed under specified contexts, mathematical modeling exercises may demonstrate the dynamic impact of changes in parameter values on other parameters. Empirical investigations of core groups should include a focus on the social organization of these groups. We found that in Saratov the limiting factor determining the size of the organized SW population was the number of pimps or escort services. The demand for positions within escort services was greater than the number of available slots. At the same time, the market demand for SWs was greater than the existing number of escort services could meet.

In this article, we have defined the potential epidemiologic impact of sex work on the general population in terms of the number of SW contacts per 100,000 population per year. While this approach allows us to start quantifying some aspects of core group phenomena, this measure by itself is overly simplistic. The actual epidemiologic impact of sex work on the general population would depend on the potential impact (defined above); the percentage of SWs who are infected; the probability of transmission when a susceptible person is exposed to an infected person (i.e., β ; preferably, β would be measured separately for each gender); and the duration of infectiousness, D . The values of these additional parameters depend on the specific STI; thus, the impact of sex work on the general population would vary across different STIs.

A more refined measure of the potential epidemiologic impact of sex work on the general population also needs to incorporate measures of concentration in the core–periphery contact. The epidemiologic impact of SW contacts that involve few SWs and many client contacts per SW may be different from the impact of the same number of SW contacts when they involve many SWs and fewer client contacts per SW. Similarly, SW contacts that involve many clients and few repeated visits per client may have a different impact on the general population than SW contacts that involve few clients and many repeated visits per client.

Measures to capture and quantify the concentration of SW-client contacts across SWs and across clients need to be developed. Mathematical modeling may help demonstrate the effects of these measures on the spread of STIs.

Our findings are limited by our methodology and the limitations of time. We employed qualitative data collection techniques, and at least some of our respondents were selected on the basis of “snowball” sampling approaches. Thus, our results should be considered as “hypothesis generating” rather than “hypothesis testing.” Future quantitative research would contribute greatly to the testing of hypotheses generated through our work. While nonparticipation was not an issue in Saratov, generalizability of our findings to the Saratov population may be ensured only when these findings are confirmed through quantitative research.

Nevertheless, our work has important implications for STD research and programs globally. First, the impact of social and economic context on the formation and evolution of core groups and the spread of STI is clear. As globalization proceeds with wide-scale and accelerated change all over the world, key contextual parameters need to be monitored.²¹ Second, our understanding of core group structure and characteristics, core–periphery contacts, and the impact of these on the spread of STIs needs to be enhanced. A means by which to empirically quantify core-group parameters and to theoretically define their effects on STD transmission dynamics would greatly enhance the ability of STD prevention programs to design effective interventions and to target their implementation to the appropriate groups. Third, our work suggests that the nature, size, and structure of core groups and core–periphery contacts may be changing as a result of drastic social and economic changes. Future research should describe these changes and the implications of such change for the spread of STD globally.

Finally, we have described core groups in the context of Saratov Oblast, Russia. Undoubtedly, similar groups vary in their size, organization, structure, and the volume of core–periphery contact across societies. Future researchers should adopt a cross-cultural approach and aim to develop typologies of core-groups (e.g., a typology of sex work). Such a typology may shed considerable light on the reasons why specific STIs spread fast in some societies but not in others.

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