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Contextual factors influencing HIV risk behavior in Central Asia

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Abstract

Central Asia has experienced a rapid increase in HIV. HIV interventions and prevention programmes are needed that adequately appreciate and account for the ways that ongoing cultural, political, and economic changes in this region affect HIV risk reduction efforts. Drawing on relevant literature, this paper provides a contextual foundation to better understand the impact of context on HIV risk behaviour in the countries of Central Asia and to begin the conversation on the contextual factors of Islam and polygamy.

Keywords

HIV/AIDS; Central Asia; religion; culture; social context

Introduction

Central Asia, defined by World Health Organization (WHO) as the Republics of Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, and Turkmenistan, is experiencing one of the fastest growing HIV epidemics in the world, with some areas seeing infection rates doubling yearly since 2000 (WHO 2006a). Evidence suggests that HIV transmission has primarily been through injection drug use; however, recent studies reveal that heterosexual transmission rates are escalating (EuroHIV 2006; Godinho et al. 2005; RAC 2006). In Kazakhstan in 2004, heterosexual transmission was reported to account for 25% of all cases, and 37% of new HIV cases (Godinho et al. 2005). The actual prevalence of HIV among the heterosexual population in Central Asia may be significantly higher, as little testing has been conducted among the non-injection drug user population. Overall, the current conversation regarding HIV in Central Asia could benefit from additional emphasis on the contextual factors of HIV risk behaviour.

This paper aims to provide a deeper understanding of pertinent contextual factors. Additionally, this paper seeks to begin the conversation as to how the contextual factors of polygamy and Islam relate to HIV risk reduction. The intersection of Islam and polygamy has not been adequately addressed in regard to interventions that can enable individuals to avoid risk behaviour. The interaction of, and influence exerted by the political economy; migration; Islam, culture, and gender; collectivism and familism; sex between men; condoms; polygamy; and Islamic revival form the central study variables. This paper provides a foundation for more contextually grounded risk reduction, moving away from efforts focused solely on persuading individuals to not engage in risk behaviour, and toward facilitating an environment that allows risk behaviour to be more easily avoided (Atlani et al. 2000). Specifically, HIV risk behaviour occurs within a broader social context and is only partially regulated at the individual level. This system includes, but is not limited to, the contextual factors of health beliefs, religion, ethics, history, politics, class status, family, and division of labour. These factors interact with one another, stimulating and limiting an individual's behaviour (Zalduondo and Bernard 1995).

Soviet rule from the 1960s through the early 1990s resulted in a drought of HIV research in Central Asia. With the establishment of independence in many Central Asian nations, the region is now more open to research. Table 1 displays the estimated prevalence of HIV in Central Asia and Table 2 displays the estimated percentage of population within Central Asia claiming Islamic religious affiliation. Reviewed literature was identified through electronic databases (Cochrane databases, Medline, and Web of Science), hand searching, and contacting experts. Literature relevant to HIV and Central Asia or HIV, Islam, and polygamy was found to be in short supply. Given the aforementioned scarcity of literature, this paper utilises studies from four of the five Central Asian countries -- Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan -- to address the region as a whole rather than focusing on one individual country. The fifth of the five former Soviet republics of Central Asia, Turkmenistan, is omitted because it is politically closed, particularly to most outside researchers. Though Central Asia is a geographical region, its boundaries and parameters of space reflect comparable social hierarchies, inequalities, and power relations as well. The entire region shares a similar history, as part of the former Soviet Union, and the majority religion of all five countries is Islam. In the words of (Lefebvre 1991, 26), "social space is a social product". Because of their similarities the region is referred to as a whole for the purposes of this paper.

No research has been conducted concerning the impact of polygamy and Islam on HIV risk behaviour in Central Asia. However, related research conducted in Africa offers a contextual connection of polygamy and Islam to HIV risk behaviour, and will be used to illustrate potentially relevant issues. Africa and Central Asia share several important similarities that allow research from the former to offer insight into the latter. For example, in both regions, HIV prevalence is high, and heterosexual behaviour is a major transmission route. The research from Africa utilised for this paper includes studies conducted in countries with Muslim majorities and those with significant Muslim populations. Moreover, as in Central Asia, economic and political conditions in Africa are fueling polygamy, sex work, and migrant work. Given that heterosexual sex accounts for a significant portion of new HIV cases in Central Asia, the contextual influences of both heterosexual polygamy and the heteronormative ideals of Islam findings from Africa examining the subject using a similar demographic may inform studies of Central Asia. Nonetheless, the parallels drawn between Africa and Central Asia are meant only in regard to polygamy and Islam, since there are notable limitations and differences in other aspects related to HIV, such as the greater frequency of transmission via injection drug use (IDU) in Central Asia.

Political Economy

The collapse of the Soviet Union produced an economic breakdown and a failing health care system that intersected with changes in moral and social norms in Central Asia. In the years following the collapse, all health indicators declined dramatically in the former Soviet republics, and HIV prevalence rates increased (Atlani et al. 2000). The association between decreasing economic opportunities and poor health outcomes has been clearly demonstrated in Western cultures (Phelan et al. 2004; Link and Phelan 1995; Ross and Mirowsky 2001). The failing economies spurred the growth of sex work as well as heroin trafficking. It has been estimated that from 30% to 50% of all economic activity in Tajikistan is related to the trafficking of narcotics (Parfitt 2003; Parshin 2001). Moreover, the prevalence of heroin and sex work intersect. In 2004, Kazakhstan the largest of the Central Asian countries, with a population of over 15 million (World Bank 2009) was home to an estimated 20,000–50,000 female sex workers (FSW), 30% of whom were IDU (WHO 2006b). Moreover, 15% of non-IDU sex workers in Kazakhstan were estimated to be HIV positive, and the HIV prevalence among sex workers who were IDUs was 44%. Following the disintegration of the Soviet Union, the rise in sex work and injection drug use, both risk factors associated with HIV infection, has contributed significantly to the rise of HIV in Central Asia.

Corruption among officials is yet another by-product of the worsening economic condition; once again, injection drug use and prostitution intersect. For example, some IDUs in Kazakhstan have reported being routinely contacted by police and required to produce bribes in order to avoid jail (Atlani et al. 2000). The same IDUs have reported engaging in sex work to generate the necessary bribe money. IDUs and sex workers are the two most vulnerable populations in Central Asia with regard to HIV risk. Despite political and economic factors (e.g., health beliefs, religion, ethics, history, politics, class status, family, and division of labour) heavily impacting HIV risk behaviour, the prevalence of HIV is not a chief priority for political leaders, whose reluctance to acknowledge HIV prevalence may be connected to a fear of decreasing tourism and dissuading foreign investors from pursuing labour in the region (Bor 2007). Such factors feed one another and further destabilize the region, which, in turn, increases risk factors for HIV.

Migration

Since the collapse of the Soviet Union, migrant work has become widespread in Central Asia, and provides a clear example of the political economic context influencing HIV risk behaviour. The WHO, World Bank, and UNAIDS have identified migrant workers as a major source of the HIV epidemic in Central Asia (Godinho et al. 2005). The scarcity of economic opportunities in Central Asia continues to drive migration from Central Asia to Russia. Within the region, Kazakhstan holds greater economic opportunities and is increasingly drawing migrants from other Central Asian countries. It is estimated that each year about one million undocumented migrants enter Kazakhstan for seasonal work. In 2006, Kazakh authorities registered 424,275 foreigners on temporary business (International Organization for Migration [IOM] 2006). Much of Kazakhstan's employment opportunities are in urban areas, and this is fueling internal migration from rural to urban areas. For example, only in 2005 over 60,000 farmers relocated from rural areas to major cities in Kazakhstan (International Organization for Migration [IOM] 2006).

Yet, Kazakhstan is not the only Central Asian country to experience recent and dramatic shifts in population. It is estimated that 700,000 Tajik citizens are working abroad and 80% of Tajikistan's financial resources stem from migrant workers (International Organization for Migration [IOM] 2006); moreover, the majority of HIV cases in Tajikistan in 2006 were among migrant workers. Outside of Central Asia, international studies have found migrant workers to be more likely to utilize the services of sex workers and have multiple partners (Magis-Rodriguez et al. 2009; He et al. 2005; Hu 2006; Lurie et al. 2003; Beyrer 2007; Udoh et al. 2009). Migrant workers often contract HIV in their urban workplace, only to return home to their villages carrying with them new HIV infections that are ultimately transmitted to their spouses. In this way, migrant workers may sow the seeds for new regional HIV epidemics.

Migrant workers are also leaving the region to search for work in Western Europe. It has been estimated that between one quarter to one third of migrant sex workers in London are originally from the former Soviet Republics (Scambler 2007). The allure of sex work is powerful: within an hour or two of sex work, a migrant worker can make the equivalent of one month's salary as a waitress, cleaner, or dishwasher in her country of origin (Scambler and Paoli 2008). Some Central Asian sex workers justify their work by comparing it to the possible alternative of polygamy in their home country, viewing sex work as preferable. This preference may be largely a result of the not uncommon scenario of husbands, particularly if they are migrant workers themselves, falling behind in providing financial support when work is sparse. Sex work, on the other hand, provides an immediate financial exchange. Furthermore, in the Central Asian context, economic pressures and religious regulations largely drive polygamy (addressed in the following section). Economic opportunities for women in Central Asia are scarce. Culturally, women are traditionally expected to attain financial support from a husband (Harris

2006). Yet, a lack of available job opportunities combined with an influx of migrant labour has left many men unable to provide for even one spouse. Other men have access to the financial resources necessary to allow for several wives, which, under the eyes of the majority religion, Islam, is acceptable.

Islam, Culture, and Gender

The majority of Central Asians are Muslim. Most Central Asians consider local customs and Islam inseparable (Akbarzadeh 1999). Tradition is often explained as rooted in Islam and, therefore, divinely mandated. Outside influence is often rejected as being against religion. For example, when the Soviets first arrived with the intent of “liberating” Central Asian women from their veils, most women resisted, even when the Soviets forcibly removed their veils (Harris 2006). Gender norms are largely shaped by tradition. Women are considered under the care of male relatives until marriage, when they become the financial and moral responsibility of their spouse. Female sexuality is the center point of moral respectability and honour; moreover, it is nested in the woman’s family, reflecting both her own character and that of her husband and family as well. Along the same lines, the only morally acceptable expression of female sexuality is limited to the context of marriage. Although Islam also maintains the same standard for male sexuality, cultural enforcement is not equal, and men are given greater leniency. Heterosexual marriage is the normative ideal of Central Asian society and considered the “natural” state of humans. Similarly, Islamic teachings describe marriage as completing half of one’s religious requirements, the other half mainly being the declaration of faith, prayer, fasting, charity, and pilgrimage. Islam and local customs significantly influence Central Asian sexuality. At the same time, other contextual factors interact with Islamic and local norms.

Sex workers navigate familial and societal concerns over their sexuality within the broader context of Central Asia. Given the economic climate of Central Asia, exchanging sexual services for economic subsistence can be a matter of basic survival. Schoepf (1988, 628) pointedly termed this type of sex work as ‘survival sex’. Individual choices can be limited by political and economic circumstances (MacLachlan et al. 2009; Brijnath 2007; Parker 2001), and in the Central Asian context, even cultural norms that regulate Muslim women’s sexuality are circumvented by greater contextual pressures.

Condoms

Many HIV risk reduction interventions focus on increasing condom use among individuals. Various contextual factors impede this strategy. For example, a study of pregnant women in Kazakhstan noted that 89% were aware that sexual intercourse without a condom was a main route of HIV transmission, but only 28% felt that they could protect themselves from such transmission by using a condom (Sandgren et al. 2008). Fear of rejection, anger, and violence from partners impedes women’s initiation of condom use, particularly when the woman is financially dependent on the man. Male rejection may, for some women, translate into a man not providing a woman with enough food to feed herself and her children. A wife asking her husband to use a condom may be assumed to be unfaithful, showing disrespect and distrust toward her husband, and lacking in wifely piety. As Smith (2007, 1002) succinctly stated in an observation from a Nigerian population displaying some cultural similarities to Central Asia in the domains of sexuality and gender, “a woman asking her husband to use a condom is putting herself in the position of a whore”.

Condom-centred interventions have been conducted in Muslim populations in other parts of the world. Muslim leaders in Kenya were found to be willing to support condom use provided the use did not conflict with Islamic teaching (Maulana et al. 2009). A study in Yemen suggested that the major constraint to using condoms was a concern of undermining the country’s sexual norms, which are based on Islam (Busulwa et al. 2006). The Yemenis stated

that condom use would decrease fear of unwanted pregnancy and thereby remove a major disincentive for premarital sex. A study in Ghana found that religiosity positively impacted subject's knowledge of HIV; however, it did not increase condom usage (Takyi 2003). This is not to say that Muslims are against sexual education and HIV prevention. Rather, it suggests that Muslims are receptive to sexual education, even for their children, if it is carried out within the context of Islamic values (Halstead 1997; Halstead 2007). Thus, condoms, while effective at reducing the risk of HIV, appear to be a culturally challenging intervention for Central Asia. Condoms may be the best intervention currently available; however, this should not prevent researchers from seeking more culturally viable options.

Collectivism and Familism

Society in Central Asian countries is collectivistic, and families are expected to defer to the greater good of the community. Moreover, the collectivist ideals of the majority trump the individualist inclinations of the few (Harris 2006). Family structure is extended and familistic: individuals are expected to place more weight and value on the needs of the family than their own needs. This standard is particularly expected of women. Along such lines, a significant number of marriages in Central Asia are arranged, sometimes with little input from the woman. The collectivist culture of Central Asia is responsible for structuring and guiding virtually all aspects of family life, including marriage (Harris 2004).

Collectivist traditions also dictate that a great deal of importance be placed on reputation within the community. Such emphasis on reputation can be devastating and yield significant implications with regard to HIV. Cultural norms surrounding sexuality and, in particular, female sexuality, combined with religious doctrine forbidding sexual relations outside of marriage, have led to HIV being highly stigmatised. People living with HIV are thought to have contracted the disease through immoral behaviour, and positive HIV status is a form of social death. However, it is not only stigma that keeps individuals from determining their HIV status but also the possibility that public knowledge of one's HIV status may interfere with the pursuit of life goals, particularly because social networks are extremely important in collectivist cultures, and ostracism can severely limit one's life options (Williams 2007). Along the same lines, sex workers in Central Asia may use negative test results to improve marketability by verbally reassuring clients that they have been tested and are HIV negative (Todd et al. 2007).

Men Who Have Sex with Men

Social taboos in Central Asia marginalise men who have sex with men, and reliable data on this population have been meager (Renton et al. 2006). Furthermore, Islamic law prohibits all sex acts outside of marriage, and there are specific prohibitions against homosexual behaviour as well. These two prohibitions may become particularly challenging in a cultural and economic environment in which men do not have the financial means to marry, the genders are often segregated as a cultural norm, and men are encouraged to form close relationships with one another. Moreover, men who have sex with men are considered a high-risk group for HIV due to higher risk practices such as anal sex. However, a study measuring HIV prevalence among IDUs in Tajikistan found that none of the 41 men who have sex with men in the sample were HIV positive (Stachowiak et al. 2006). Since this data conflict with the common knowledge of HIV vulnerability and prevalence, further research into this population is needed to gain clarity. Specifically, exploration into the likelihood of this population acting as a link for HIV into the heterosexual non-IDU female population may provide valuable insight into the growing prevalence of HIV in the heterosexual non-injection drug user population.

Polygamy

Polygamy, though a criticized custom by sub-sections of Central Asian society, is increasingly practiced in Central Asia. The former Soviet Union unsuccessfully attempted to eradicate it from Central Asia. Estimates of the percentage of marriages in Central Asia involving polygamous unions are not available; however, polygamy is commonly known to be practiced in Central Asia (Harris 2006; Harris 2004). The HIV pandemic has carried a new wave of criticism toward the custom. The most common criticism in a Muslim context is that polygamy can increase heterosexual HIV transmission because multiple concurrent sexual partnerships are a primary determinant of HIV transmission (Jacubowski 2008). This concern is valid; however, it does not fully capture the complexities of polygamy among Muslims and the possibility of polygamy being a protective factor against HIV infection. When polygamy is practiced with adequate financial resources on the part of the male, thereby enabling him to sufficiently provide for his various households, women may be less likely to engage in sex with multiple partners for economic reasons, often referred to as transactional sex (Hunter 2005). Polygamy may remove some women from the pool of those engaging in transactional sex because the spouse is providing necessary resources. If these women are removed from the pool of women available for transactional sex, the number of available partners for men seeking transactional sex decreases. However, even when economic resources provided by the husband fail, and married women engage in transactional sex or sex work, the sexual behaviour may be safer than that for unmarried women. For example, in one study, married female sex workers in Uzbekistan were more likely to use condoms with clients because they feared infecting their spouse (Todd et al. 2007). Additional insights on the association between polygamy and HIV risk reduction may be drawn from studies of Muslim African populations labouring under similar economic hardships to that of Central Asia.

Research from Africa

Polygamy was once an accepted way of life in Uganda. Over time, and largely due to colonial influences, sexual norms changed, and polygamy became culturally unacceptable. However, the practice of polygamy continues in an informal way. Second and later marriages are often hidden from the public eye. Without social pressure on the husband to provide financial support, and in the absence of social pressure on the wives to maintain fidelity, the protective qualities of polygamy are weakened and not reinforced by social norms. Women have less reason not to have multiple male partners, particularly if the outside male provides her additional economic resources. In other words, if the husband is not financially providing for all wives, then the wives may become vulnerable to offers of transactional sex with other males. As a result, HIV risk is intensified for all involved (Parikh 2007). Further evidence of the association between HIV and polygamy can also be found in other African countries. In Nigeria significantly more monogamous than polygamous men have extramarital sexual relations (Lawoyin et al. 2001). Though seemingly contradictory and confounding, polygamous marriages have the potential to reduce the risk of HIV transmission, particularly in areas where Islam is the majority religion, and it actively fuels social pressure to support the protective qualities of polygamy.

Islamic Revival

Since gaining independence, Central Asian countries have been experiencing an Islamic revival (Khalid 2007; McGlinchey 2005). The three generation gap in knowledge of Islamic principals resulting from Soviet suppression of religion has manifested in many Central Asian families, contributing to a separation between Islamic mandates and behaviours found in the population. This gap is one factor that differentiates Central Asia from other regions of the Muslim world, providing unique challenges and opportunities for HIV risk reduction. Now, in the post-Soviet period, the process of national identity formation is increasingly using Islam as an organising

feature. Religious leaders are promoting Islam as the solution to many of the problems Central Asians face in their daily lives. Moreover, within the difficult political and economic context, Islam provides a sense of spiritual hope for many Central Asians. The positive and negative roles of Islamic culture in both preventing and fueling the HIV epidemic are largely unknown.

The HIV risk reduction impact of the Islamic revival and Islam as a religion need to be further researched in the Central Asian context, particularly because Islamic principles govern virtually all aspects of both secular and non-secular behaviours. In this manner, and because of the aforementioned similarities between the two populations, research based on Muslims from Africa can be particularly insightful. At the same time, it is important to remember that certain differences are present between Islam in Central Asia and in parts of Africa. For example, African countries have not experienced the Soviet repression of Islam; therefore, a revival of Islam in Africa would be contextually different. The pre-Islamic traditions that integrated or coexist with Islam allow for cultural differences between the regions. Nonetheless, both regions are Muslim and share certain contextual similarities.

Research from Africa

Most studies on HIV prevalence and Muslims focus on sub-Saharan Africa and use adult male participants. Such studies have found that HIV prevalence in sub-Saharan Africa is lower among Muslims than non-Muslims (Gray 2004). A study measuring the prevalence of HIV in three Muslim districts of Cape Town, South Africa, showed that the Muslim population's prevalence of HIV infection is much lower than the national prevalence for South Africa (Kagee et al. 2005). Outside of sub-Saharan Africa, Muslim army recruits in Ethiopia showed lower prevalence of HIV than their Christian counterparts (Abebe et al. 2003). In Uganda and Senegal, collaboration with Islamic religious leaders is thought to have positively contributed to the success of HIV risk reduction programs and lower prevalence among Muslims (Kagimu et al. 1998; Meda et al. 1999). There are numerous factors that contribute to the explanation of the lower prevalence.

Several Islamic principles are thought to be protective against HIV risk behaviour, including the prohibition of alcohol. In Uganda, a positive correlation has been found between the consumption of alcohol and HIV risk behaviour (Mbulaiteye et al. 2000); that is, an increase in the consumption of alcohol corresponded with an increase in HIV risk behaviours. Because Islam forbids the consumption of alcohol, Muslims are less likely to consume alcohol than Christians. Consequently, Muslims may have fewer HIV risk behaviours. In Kenya, Muslim truck drivers were less likely to use the services of sex workers than were their Protestant and Catholic counterparts (Rakwar et al. 1999). However, a decrease in alcohol consumption and less engagement with sex workers are not the only factors to be considered.

Islam requires men to be circumcised. Circumcision has been associated with reduced HIV incidence in men in sub-Saharan Africa (Shaffer et al. 2007; Vardi et al. 2007). There is growing support for circumcision programmes in sub-Saharan Africa due to the cultural acceptability of circumcision among certain groups and its potential protective quality against HIV infection (Westercamp and Bailey 2007). This acceptance may grow if there is evidence that circumcision does not necessarily cause loss of sexual satisfaction and function (Kigozi et al. 2008).

Implications

Practice

While being cognisant of the gaps in research pertaining to HIV in Central Asia, there is a growing body of research that has identified multiple factors that place Central Asia at risk for

an HIV epidemic. Structural interventions need to be implemented and assessed in order to address contextual factors (Gupta et al. 2008; Parker et al. 2000). Among these factors, lack of viable economic opportunities, migrant workers, and cultural barriers all place the region at risk for a surge in HIV infection rates. Interventions that address economic factors could include teaching financial saving and budgeting strategies. Additionally, job training is a paramount need, as the job market has changed dramatically since the withdrawal of Soviet state industries and distribution networks. Moreover, cultural factors need not be seen as insurmountable barriers. It is widely acknowledged that culturally relevant interventions are more successful than other interventions, and they stand a greater chance of long-term success than do those that do not address specific regional, cultural, and religious conditions. In this manner, specific HIV risk reduction interventions may also benefit from greater contextualisation; for example, interventions focused on increasing condom use may need to be reconsidered for this region.

Muslim populations in Ghana and South Africa have positively received HIV interventions that are faith-based (Rowe 2007; Bazant and Boulay 2007; Paruk et al. 2006). Interventions that seek to promote culturally desirable attributes could also be beneficial to Central Asia. The existing moral code could be strengthened to encourage greater resilience to risk behaviour (Richardson 2002). In particular, behavioural interventions in cooperation with local religious organizations that seek to decrease HIV risk behaviour through enhancing traditional Central Asian masculine qualities could be promoted. Nurturing virtues that are vital to local masculinity, such as familial responsibility, may have significant influence on decreasing HIV risk behaviours (Smith 2007); furthermore, integrating HIV risk reduction strategies into the cultural norms that hold the male as the protector and provider of his family may serve as powerful and congruent elements of future interventions. The future of successful HIV research in Central Asia could be enhanced by focusing on and accentuating pre-existing positive characteristics that are deep-seated in the region.

Research

The gaps in contextual knowledge regarding HIV risk reduction in Central Asia are significant. The roles of religion and polygamy have not been explored adequately. The prevalence of polygamy needs to be measured, as does whether polygamy is a risk or a protective factor for HIV infection in the Central Asian context. The positive and negative roles of Islamic culture in both preventing and fueling the HIV epidemic need to be explored. How sex workers in Central Asia navigate familial and societal concerns over their sexuality in a Muslim context is understudied. Particularly, the context of sexuality that may predispose towards vulnerability (Aggleton 2004) and the role of HIV stigma (Parker and Aggleton 2003). Further investigation regarding major routes of transmission and progression of the epidemic in Central Asia and about cost-effective ways to reduce transmission is also necessary. Interventions that are partnered with faith-based organisations could lead to more culturally relevant policies and programs. Behavioural interventions that are informed by the contextual issues influencing HIV risk behaviour need to be developed and tested.

Conclusion

HIV risk behaviour in Central Asia occurs in a context of economic and political instability. The context is further shaped by religious and cultural elements. Gaps in contextual understanding exist and hinder the development of contextually congruent approaches to HIV risk reduction in the region. Incorporating Central Asia's cultural strengths into HIV risk reduction interventions is a concept that is largely missing from the current body of prevention literature, and interventions adapted to the local context are needed. Further research is needed to examine the structural components facilitating HIV risk taking in communities where both polygamy and Islam.

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Table 1HIV and AIDS Estimates ¹

Country	Number of people living with HIV	Adults aged 15 to 49 prevalence rate
Kazakhstan	12,000 [7,000 – 29,000]	0.1% [0.1% – 0.3%]
Kyrgyzstan	4,200 [2,300 – 7,700]	0.1% [0.1% – 0.3%]
Tajikistan	10,000 [5,000 – 23,000]	0.3% [0.1% – 0.6%]
Turkmenistan	Data not available	Data not available
Uzbekistan	16,000 [8,100 – 45,000]	0.1% [0.1% – 0.3%]

¹UNAIDS 2008. Epidemiological fact sheet on HIV and AIDS. Geneva: UNAIDS.

Table 2Muslim Population Estimates ²

Country	Percent Muslim
Kazakhstan	61%
Kyrgyzstan	80%
Tajikistan	97%
Turkmenistan	Data not available
Uzbekistan	91%

² US Department of State. 2008. International religious freedom report. Washington DC: US Department of State.