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**Understanding Women's HIV Risk Perception in Postsocialist Georgia:
Role of Knowledge, Behavioral, and Contextual Factors**

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**Understanding Women's HIV Risk Perception in Postsocialist Georgia:
Role of Knowledge, Behavioral, and Contextual Factors**

by

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Understanding Women’s HIV Risk Perception in Postsocialist Georgia: Role of Knowledge, Behavioral, and Contextual Factors

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Substantial empirical research has documented that HIV prevention and decision-making are heavily influenced by the knowledge and practice of values and beliefs regarding infection and behavior. Most HIV research is still concentrated among high-risk populations (IDU and FSW), leaving out women in long-term heterosexual marriage who have been considered “safe” and less at risk of infection. In addition, researchers have called for more comparative and cross-cultural studies focused on the interplay of health education, behaviors, context, and HIV risk perception.

The objective of this dissertation is to advance understanding of the factors sexually experienced women in Postsocialist Georgia consider important when they assess HIV perceived risk of which they are made aware by messages emanating from the social environment. A conceptual framework that integrates concepts from traditional social psychological theory and the constructs of context-specific factors to guide research intervention is applied.

Combined quantitative and qualitative approaches are used to achieve a better understanding of perceived HIV risk and its association with different factors. The testing of relationships from two national Reproductive Health Survey samples (1999 and 2005) demonstrate strong positive associations among increased HIV transmission knowledge, belief in accidental transmission, HIV testing practice, and HIV perceived risk, while controlling for sociodemographic factors. Characteristics associated with social norms and economic factors (including stigmatizing attitudes about the rights of PWAs, constrained attitudes concerning sexual control, and experienced migration) demonstrate a strong significant link with assessment of HIV risk perception.

Qualitative research with women strengthens the argument of superficial health education and helps to explain variations in perceived risk assessment. Through the interviews, HIV prevention practice is examined in relation to a myriad of cognitive components. This study finds health knowledge, misconceptions, stigmatizing attitudes, and beliefs in sexual and gender norms among the major factors constraining successful HIV/AIDS prevention practices.

An effective strategy for HIV/AIDS prevention will require enhancement of research, more emphasis on an integrated approach to target education efforts, training providers in information diffusion approaches, and promoting a general communication campaign.

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Chapter 1: Introduction

BACKGROUND OVERVIEW

This dissertation explores the influences of HIV knowledge, health behaviors, and context-specific socioeconomic and sociocultural factors on HIV perceived risk among women in the Republic of Georgia. For effective HIV/AIDS prevention, individuals who perceive themselves at some risk of contracting HIV are more likely to reduce risk behaviors (Catania et al. 1990). Theories of health behavior incorporate perceived risk as an important component of HIV prevention, but they fail to incorporate factors influencing that risk perception. How do HIV knowledge, health behaviors, stigma, perceptions of sexual control, and migration come together to impact women's individual perceived HIV risk? Exploring that as a central question, this dissertation aims to understand how women in low-prevalence settings construct perceptions of HIV risk. I examine a sociopsychological conceptual model in which HIV knowledge, health behaviors, stigmatizing attitudes, perceptions of sexual control, and migration experiences influence individual perceived HIV risk.

Despite new overall improved 2007 estimates and a leveling of world HIV prevalence, AIDS is still a leading cause of death globally. The annual numbers of newly reported HIV diagnoses are rising rapidly in the countries of Eastern Europe and Central Asia. Additionally, these countries with concentrated HIV pandemic episodes have laws, regulations, or policies that pose barriers to the use of HIV services for populations most at risk (UNAIDS 2008). These structural barriers often preclude not only risk-behavior practicing groups but also the general population from testing and prevention services. Therefore, the risk of infection increases when a person with unknown infection status engages in risky behaviors and ignores personal chances of infection (UNGASS 2008).

At the end of 2007, 33.2 million people across the world are living with HIV/AIDS, and 50 percent of them are women. Sub-Saharan Africa remains the most seriously impacted region, with 61 percent of all women and 68 percent of all people there living with HIV/AIDS (UNAIDS/WHO 2007a). In Eastern Europe and Central Asia, 40 percent of individuals registered with HIV are women (UNAIDS 2008). In St. Petersburg, Russia, there has been a 100 percent increase in HIV among pregnant women from 1998 to 2002, and in Ukraine 60 percent of registered infected individuals are women under the age of 25 (Inciardi and Williams 2005).

These statistics show that females are often at much higher risk of HIV and other STIs than are males, owing partly to higher biological sensitivity to HIV infection than men, and social constraints linked to gender and sexuality. The latter is often cited as a barrier to the access and adoption of sexual and reproductive health services among women (WHO 2003). In many cases, absence of prevention is the result of a lack of HIV knowledge coupled with ignorance in perceiving some risk of HIV infection, both of which are considered to be the main precursors in health-behavior theories (Fisher and Fisher 1992; Catania et al. 1990). For this reason, risk perception figures as a fundamental component in behavior-change interventions and is implicit in education campaigns focusing on HIV/AIDS.

Although researchers recognize the importance of assessing risk in health-behavior theory and intervention, perceived risk is still an understudied concept in the field of HIV infection (Obermeyer 2005). The study of risk perception is complex, mainly because we do not know the extent to which people use HIV knowledge and behavioral experience to assess their risk of contracting HIV. Moreover, due to uncertainty from the first exposure to an actual diagnosis of HIV, as well as the stigma of AIDS as a disease, individuals assess HIV risk differently. Often the response is not

accurate, but rather reflects unrealistic optimism and a systematic underestimation of personal risk. This phenomenon is known as *optimistic bias*, which refers to a belief that infection is more likely to occur in another person than in oneself (Weinstein 1989). In such situations, people adopt the stance “*it would never happen to me*” and assume that they are immune to infection for a variety of reasons (Weitz 1989). Such individuals perceive their risk to be zero or negligible. Thus, they may not modify their behavior even when their risk of infection is high.

However, zero exposure to HIV risk does not exist in reality, especially in the developing countries and ex-Soviet republics where violation of standard sterilization norms and unsafe donor blood can cause infection (UNESCO 2003; Irigoyen-Camacho et al. 2003). As consequence, people tend to perceive some minimal risk and reduce their chances of infection by adopting prevention strategies specific to the context. Others adopt a fatalist attitude in which they decide HIV infection is inevitable and see no point in modifying their behavior. Clearly, between these two risk-assessment attitudes a balance must be reached whereby people form realistic notions about their own risk-perception levels and have the option of making behavioral changes.

Because perception of risk is a personal assessment, it can reflect an individual's level of and access to HIV knowledge, information channels, societal views, norms, attitudes, and beliefs. Nevertheless, HIV risk perceptions are also influenced by objective behavioral experiences, but many investigators agree that people's perceptions of risk are based at least in part on factors that do not necessarily reflect objective reality or scientific fact backed by empirical evidence (Shrader-Frechette 1990). Therefore, the concept of perceived risk is more socially constructed, where social experiences influence the ways in which people perceive some identical risks. To understand the concept of perceived risk, we need to examine it in relation to the associated subjectivity of the

individual, as well as in relation to more broad social, cultural, and economic factors. Yet AIDS researchers frequently consider the behavioral consequences of perceived risk (Anderson et al. 2007; Prata et al. 2006) and the emotional responses to risks through which people make choices (Kershav et al. 2003; Joffe 1999), and rarely explore the cognitive and contextual sociocultural or socioeconomic determinants of perceived risk that might contribute to the process of HIV risk assessment.

Many theories in the area of HIV prevention focus on the cognitive determinants of HIV behavioral outcomes. *Cognitive determinants* are defined in the literature as the psychological result of perception, learning, and reasoning. The term *cognition* is also used to mean the act of knowing or knowledge, and may be interpreted in a social or cultural sense to describe development of knowledge and other concepts that result in thought and action (Lycan 1999). Within health-prevention frameworks, several cognitive factors have emerged as key predictors of perceived risk and preventive behaviors among women, but HIV knowledge, attitudes, perceptions, and beliefs are the most frequently examined factors in empirical research (London and Robles 2000; Bos et al. 2001; Woubalem 2005).

HIV knowledge, which an individual considers when assessing HIV risk, centers on the main modes of HIV transmission and misconceptions, including mythological or incorrect understanding of transmission modes, local beliefs created about the risk of infection, prevention knowledge, and channels of information. These HIV knowledge factors create the necessary background to understand the circumstances, causes of HIV risk, and prevention strategies, all of which help alter some perceived HIV risk among individuals. Thus, a gap in HIV knowledge still exists in many societies and is considered a key obstacle in the fight against HIV infection. Absence of HIV/AIDS education and information channels may leave women without incentives to assess personal risk,

especially if gender stereotypes and the subordinate status of women do not allow the reception of information on reproductive issues and sexual health, including HIV prevention.

Despite the consensus that health education and HIV knowledge about transmission are critical components of any HIV/AIDS intervention, it is not clear what effects to expect from information campaigns, particularly in low-prevalence countries where resources and access to information are greatly limited. Individuals who receive HIV information interpret it in the context of their own particular behaviors. Due to the lack of formal health education, reliable sources, and clear prevention messages, information about how the virus is transmitted and how individuals can protect themselves is often misunderstood, which leads to various transmission myths. The large proportion of respondents challenged by high HIV transmission misconceptions are likely to overestimate the risks posed by some forms of casual social contact with people with AIDS (PWAs). Belief that HIV can be spread through casual social contact is worrisome, feeds stigmata and negative attitudes toward PWAs, and poses practical barriers to HIV testing and prevention (Woubalem 2005). Different channels of information and the strategies used to deliver that information may also influence HIV knowledge level and risk perception. Clearly designed prevention messages and face-to-face communication with health-service providers have proved to be effective strategies for increasing HIV knowledge and assessing perceived risk. From this point of view, HIV knowledge is certainly a necessary condition and a motivational factor for risk assessment, especially if an individual is exposed to HIV risk behaviors (Fisher and Fisher 1993).

Furthermore, health behaviors such as HIV test experience, gynecological services, condom practice, STI symptoms, and number of lifetime sexual partners may

also influence decisions about perceived HIV risk. The influencing effect of HIV-related preventive and risky behaviors may vary depending on overall HIV prevalence, information, and cultural attitudes toward HIV-related behaviors. Access to health services through HIV tests and routine gynecology exams increase the familiarity of women to HIV prevention, and may therefore help to assess personal HIV risk. On the other hand, stereotyped behaviors related to condoms, STIs, number of sexual partners, or injection drug use may weaken women's ability to assess their HIV risk. This situation is especially possible in low-prevalence countries when individuals ignore HIV risk due to the infrequency of the disease and the distancing of HIV/AIDS associated with stereotyped groups and behaviors.

Additionally, behavioral components of risk assessment are an important aspect of understanding local patterns of behaviors, norms, and potentials. Due to certain social, economic, and cultural barriers, women are often at risk due to their partners' risk behaviors. In particular, women can be engaged in sexual or drug behaviors without knowing the HIV status of their partners. Women's concerns about health behaviors and perceived risk identify the factors and rationales that are specific for them. This approach helps target those behavioral factors that are more influential among women, and in low-prevalence settings can help prevent further spread of the infection among the heterosexual population.

Despite the importance of HIV knowledge and health behaviors in assessment of self-perceived HIV risk, some social and public-health scientists agree that women are unable to respond adequately to AIDS. In many societies, the incidence of heterosexual infection increases, and women face a higher risk of infection than men. According to WHO, most of the global burden of disease, as well as the bulk of health inequalities among women, are caused by social determinants (Irwin and Scali 2005). Some evidence

has highlighted the importance of contextual socioeconomic and sociocultural factors as pivotal determinants of HIV perceived risk outcomes (Logan et al. 2002; Malow et al. 2006).

In such circumstances, context-specific factors such as elements of social stigma toward PWAs, women's cultural perceptions of sexual control, and migration experiences can be additional social and economic factors included in the theoretical model for assessing HIV perceived risk among women. While collective social stigma are often constructed on the basis of moral and ethical aspects to distance from groups practicing stereotyped behaviors, women's perceptions of sexuality recognize culturally defined gender, power, and sexual imbalance to control their own sexual behaviors and desires. Such attitudes in collective societies create circumstances in which women are concerned about personal reputation, dignity, and social status, thus being more likely to ignore HIV risk. In particular, HIV perceived risk in the context of gender inequality implies that the quality and character of a relationship can outweigh health concerns in the decision-making process. Choices about perceived risk are ultimately constrained by societies' positions with respect to the vulnerability and severity of the HIV epidemic (Stansbury and Sierra 2004). As a consequence, women are strongly restricted and limited in their attitudinal and behavioral choices, despite their high education and employment status.

AIDS-related stigmata are also fueled by assumptions about the moral integrity, values, and norms related to PWAs. Socially and personally, people tend to associate AIDS with moral impropriety shaped by multiple factors, including instrumental (specific beliefs about modes of transmission) and symbolic (attitudes toward minority groups) components (Pryor et al. 1999). As mentioned, inaccurate knowledge about HIV transmission shows some stigmatizing reactions and increased perceived risk in casual contact with PWAs (Herek and Capitanio 1998). On the other hand, the stigmatizing may

also lead to a distancing of the self from the disease associated with the stigmatized groups. If personal behavior is not similar to the risk behavior of stigmatized groups, then people will see themselves at lower risk of HIV infection (Boero and Emons 2004). This distancing of self from the disease and stereotyping would actually undermine HIV protective behaviors and may have a profound impact on the effectiveness of HIV prevention, treatment, and care programs (Chen et al. 2007; Young et al. 2007; UNAIDS 2000). In this respect, for scientific and prevention reasons it is crucial to find the effect and strength of the stigmata on a decision of perceived HIV risk, when the setting is characterized by low tolerance toward PWAs, high misconceptions, and low follow-up knowledge on HIV development.

In contrast, labor migration and weakened social monitoring increase women's chances to experience behaviors that may alter their HIV perceived risk. Poverty and economic instability in the regions raise the potential for labor migration, risky behaviors, and HIV infection among migrant people. Studies indicate that migration and mobility increase vulnerability to HIV/AIDS – both for those who are migrant and for their partners back home (Shedlin et al. 2006). Some women become vulnerable without ever having left their homes, when their partner has gone abroad to work and comes home with HIV (Zuma et al. 2003). Changes in sexual relationships, with the suspension of social controls that accompany labor migration, frequently entail increased risks for infection (Stansbury and Sierra 2004). Such risk is often altered by peer or social networks, which may be associated with risk-behavior groups, especially unsafe sexual or drug behaviors. Individuals experiencing labor migration and becoming familiar with the problems of HIV/AIDS may also be likely to feel vulnerable and thus alter their risk perceptions.

By exploring the aforementioned elements of HIV knowledge, health behaviors, and context-specific factors, I can test how global prevention efforts as well as local environment reflect on decisions about HIV perceived risk among sexually experienced women in a low-prevalence setting characterized by political and economic instability and by the prevailing conservative norms of gender, sexuality, and HIV/AIDS (UNESCO 2005; Antadze 2000). The literature on determinants of HIV perceived risk remains incomplete in low-prevalence settings where HIV incidence increases among risky-behavior groups, injection drug users (IDUs), female sex workers (FSW), and homosexuals (MSM). Such settings often demonstrate heightened unsafe risk behaviors (low condom use and drug sharing with HIV-infected persons) among certain population groups, and structural weakness resisting further spread of infection among the general population (UNAIDS 2008). To strengthen the research based on a theoretical framework and to reduce the likelihood that a concentrated epidemic will become generalized, a study based on the assessment of perceived risk should also focus on potential partners of epidemiological bridges, such as the sex partners of IDUs, non-IDUs, those visiting FSWs, bisexuals, sexually experienced women, and those unaware of the HIV status and behaviors of their partners. Additionally, a woman assessing her personal HIV risk can also recognize the risk of her partner and advise others about HIV risk and prevention.

To assess the perceived HIV risk of infection among the population, it is important to know and discuss the change dynamics of HIV knowledge factors. HIV awareness, knowledge, and prevention-related changes can be linked to multiple structural factors, which can be more effective when considered all together for risk assessment (Okware et al. 2001). Clearly, understanding the pattern and trends of HIV knowledge and behavioral characteristics and how they correlate with the perceived HIV risk can be a key to understanding the link between HIV knowledge, health behaviors,

context-specific factors, and perceived risk, while controlling for individual sociodemographic factors. All these issues can be effectively included in a sociopsychological model, which is the focus of this research.

An integrated sociopsychological model of risk perception will be employed from the orientation that both individual and context-specific factors shape personal HIV risk perception among women. The Republic of Georgia, a country with a concentrated epidemic and an estimated prevalence rate of only 0.1 percent in 2006, can be a useful example for this model and investigation. Despite the low prevalence of HIV there, Georgia is considered to be at high risk for an expanding epidemic due to widespread injection drug use and population movement between neighboring high-prevalence countries such as Ukraine and Russia. In addition, the epidemic might be expanding on the general population due to the wide practice of drug sharing, the high prevalence of STIs, and the lowest rates of condom use among countries in Eastern Europe and Eurasia (CDC 2003; Westoff and Serbanescu 2008).

Georgia reveals a widespread lack of knowledge about sex and family planning, reluctance to HIV testing, absence of HIV/AIDS school education and shortage of cross-generational discussion on these issues (Goodwin et al. 2004, Buckley 2005a). In this collective society, several traditional cultural factors also contribute to a vulnerability to HIV/AIDS: a strong emphasis on family and prevailing male infidelity, an authoritarian dynamic between the older and younger generations, and very distinct roles for men and women—especially in regard to expectations surrounding sexuality, which are more prevalent in the mountain and rural areas of Georgia (Durglishvili 1997). Despite high rates of education, women in Georgia still face inequitable gender norms and gender-based violence that negatively influence their sexual and reproductive health choices (Amnesty International 2006).

The combination of the psychological and social traditions provides the background for understanding how women in Georgia construct perceptions of their individual HIV risk. To explore this topic, I specifically investigate and discuss the findings on HIV-related knowledge characteristics in 1999 and 2005. This approach can illuminate the development of prevention measures (progression or regression) and the correlation of these knowledge measures with the HIV perceived risk. Then I test the contribution of these factors and the relationship between HIV knowledge, health behaviors, and perceived HIV risk, while controlling for sociodemographic and other behavioral and knowledge characteristics in 1999 and 2005. Furthermore, to study the role of context-specific factors in a sociopsychological model and its contribution to an assessment of HIV risk, I test the impact of perceptions of sexual control, reactions to PWAs, and migration experience on perceived HIV risk, while controlling for sociodemographic, HIV knowledge, and behavioral variables. Finally, in terms of women's interpretations of situations and the findings on expected associations, I explore the cognitive factors and barriers in risk assessment that women address when discussing HIV risk and their perspectives on preventive behaviors.

RESEARCH QUESTIONS

This study has the following key questions:

(1) *Did women's HIV-related knowledge, perceptions, and beliefs about risk of infection change in a posttransition period in Georgia between 1999 and 2005? If so, how?*

For this question, I describe levels, patterns, and trends of knowledge of HIV transmission and prevention, common beliefs, misconceptions, channels of information, and perceptions of HIV risk in the posttransition interval from 1999 to 2005, when major

national and international AIDS-prevention programs were already established in Georgia. This approach explores the prevalence of HIV knowledge factors. In addition, it defines the dynamic of change that may be an important focus for a decision about perceived risk, as well as for targeting factors for prevention and policy development.

(2) What is the effect of HIV knowledge on perceived risk between 1999 and 2005? What is the relationship among HIV knowledge, health behaviors, and perceived risk? Controlling for the effect of knowledge, do socioeconomic contextual factors also influence HIV risk perception in 2005?

To answer this question, I examine how knowledge of HIV transmission, health behaviors, perceptions of sexual control, reactions to PWAs, and migration experiences influence women's HIV perceived risk, while controlling for sociodemographic variables and multiple measures of HIV knowledge, beliefs, and behavioral characteristics. This approach describes the relationship effect and the strength of the cognitive and contextual factors on the decision of perceived risk.

(3) How do sexually experienced women in Georgia discuss issues of HIV risk and behaviors? What cognitive strategies do they employ in explaining their risk perceptions and behavioral choices?

In this question, I focus on the women's personal interpretations of their experiences with HIV and on the cognitive factors of HIV awareness, knowledge, popular beliefs, and attitudes expressed in a conversation about HIV risk and behaviors. This process helps us understand the contextual environment and multiple factors contributing to the relevance of various complex and sometimes contradictory impressions of HIV infection risk, AIDS disease, attitudes toward PWAs, or prevention behaviors. Therefore, this part of the research is useful in terms of linking quantitative results to overall arguments about the hypothesized pathways of determinants of HIV

perceived risk. Finally, this question and the qualitative approach used to analyze it also provide directions for future research and policy decisions in this area of HIV/AIDS.

These questions draw on a combination of quantitative and qualitative methodologies. The purpose of this particular mixed-methods approach is *complementarity* to develop and expand understanding and connections between HIV knowledge and perceived risk and to explore other important determinants of perceived risk, yielding an enriched, elaborated, and comprehensive insight into that phenomenon. The description and analysis of this relationship are drawn primarily from the quantitative data, with a follow-up qualitative account to provide details on local context and personal experiences. The combined methods complement each other by making evaluations, predictions, and generalizations from the quantitative approach while clarifying the phenomenon of perceived risk and its determinants with the qualitative analysis. Specifically, the first two questions will be answered in quantitative analyses using two national cross-sectional Georgian Reproductive Health Surveys (GRHS), conducted in 1999 and 2005 (Serbanescu et al. 2001, 2007). The last question explores through qualitative in-depth interviews conducted with women in Georgia in 2006. These approaches can illustrate both the integrated sociopsychological models and the personal experiences through which individual and contextual factors affect the relationship between HIV transmission knowledge and perceived risk.

RESEARCH HYPOTHESES

The first key research question that this study seeks to address is descriptive and explores current HIV knowledge level among sexually experienced women in Georgia. The findings of the 2005 data are discussed in light of the available 1999 data. The single-item HIV knowledge measures are the basis for the multiple-item HIV

transmission-knowledge variable incorporated in the integrated model to test the influence of HIV transmission knowledge on the assessment of individual HIV perceived risk. As such, measures of HIV transmission and prevention knowledge, absence of misconceptions, prevalence of specific beliefs about HIV accidental transmission, channels of information, and perceived HIV risk are discussed in the posttransition period of socioeconomic development (1999 and 2005). The findings on individual characteristics of knowledge, perception, and beliefs are presented in chapter 5. The patterns and prevalence of HIV knowledge characteristics are important for guiding the measurement of HIV transmission knowledge, choosing the best strategy for testing relationships between HIV knowledge and perceived risk, and developing specific prevention interventions.

The particular elements of the second research question about possible predictors of HIV perceived risk are presented below and summarized in table 1-1. The first element of the second question is to examine the effect of HIV transmission knowledge on risk perception. I predict that HIV knowledge variables are significantly related to perceived risk. Specifically, women who lack HIV transmission knowledge are expected to have reduced perceptions of HIV risk, controlling for behavioral and sociodemographic characteristics. Further, women who have experienced protective health behaviors such as HIV testing and routine gynecological exams are expected to have increased perceptions of risk due to greater experience and personal communication with health practitioners.

An additional element of the second question is the examination of risk perception in relation to contextual social, cultural, and economic variables. The hypothesis tested here, however, is that context-specific variables account for additional variance, after controlling for HIV knowledge, behaviors, and sociodemographic

background variables. Specifically, women who disagree on sexual communication are expected to have reduced perceptions of risk because they tend to be passive and less aware of HIV sexual-risk behaviors in intimate relationships. Second, women with negative reactions to the rights of PWAs are expected to have reduced perceptions of risk, since most stigmatizing women associate risk with marginalized groups and evaluate it in moral terms. Lastly, I expect that women who have experienced migration, especially urban migration, will have increased perceptions of risk because of their greater exposure to both HIV risk behaviors and the networks of vulnerable groups.

The third central question, to be explored in the qualitative study, is to explain the findings from two research questions and the linkage of hypothesized pathways. Discussion with women about HIV risk and behaviors can interpret the hypothesis-testing results, suggest new areas for exploration, and make recommendations for future research, prevention, and policy.

In summary, all three research questions and their related linked hypotheses can be useful to answer the central question and to understand women's risk perceptions in the Republic of Georgia. The central question unites the effect of all HIV knowledge, as well as behavioral, contextual, and sociodemographic factors. It also identifies the strongest and most influential reasons women use to assess their HIV perceived risk in low-prevalence settings. A sociopsychological model that helps to conceptualize this link could be useful in moving forward with research, methodology, practice, and policy.

Table 1-1: Overview of Research Plan

Research hypotheses	Variables	Sources	Analyses
<u>Hypothesis 1:</u> Women who lack HIV transmission knowledge are expected to have reduced perceptions of HIV risk, controlling for behavioral and sociodemographic characteristics.	<u>Dependent variable:</u> Perceived HIV risk <u>Explanatory variables:</u> HIV transmission knowledge <u>Control variables:</u> Sociodemographic Preventive and sexual behaviors	1999 GRHS 2005 GRHS In-depth interviews	Descriptive Multivariate Content
<u>Hypothesis 2:</u> Women who have experienced protective health behaviors such as HIV testing and routine gynecological exams are expected to have increased perceptions of risk, due to personal communication with health practitioners.	<u>Dependent variable:</u> Perceived HIV risk <u>Explanatory variables:</u> Preventive behaviors <u>Control variables:</u> Sociodemographic HIV transmission knowledge Sexual behaviors	1999 GRHS 2005 GRHS In-depth interviews	Descriptive Multivariate Content
<u>Hypothesis 3:</u> Women who disagree on sexual communication are expected to have reduced perceptions of risk because they tend to be passive and less aware of HIV sexual risk behaviors in intimate relationships.	<u>Dependent variable:</u> Perceived HIV risk <u>Explanatory variable:</u> Perception of sexual control <u>Control variables:</u> Sociodemographic HIV transmission knowledge Preventive and sexual behaviors	2005 GRHS In-depth interviews	Descriptive Multivariate Content
<u>Hypothesis 4:</u> Women with negative reactions to the rights of PWAs are expected to have reduced perceptions of risk, since most stigmatizing women associate risk with marginalized groups and evaluate it in moral terms.	<u>Dependent variable:</u> Perceived HIV risk <u>Explanatory variable:</u> Reactions to PWAs <u>Control variables:</u> Sociodemographic HIV transmission knowledge Preventive and sexual behaviors	2005 GRHS In-depth interviews	Descriptive Multivariate Content
<u>Hypothesis 5:</u> Women who have experienced migration, especially urban migration, will have increased perceptions of risk, both because of their increased exposure to HIV risk behaviors and their greater exposure to the networks of vulnerable groups.	<u>Dependent variable:</u> Perceived HIV risk <u>Explanatory variables:</u> Migration experience <u>Control variables:</u> Sociodemographic HIV transmission knowledge Preventive and sexual behaviors	2005 GRHS In-depth interviews	Descriptive Multivariate Content

THEORETICAL AND PRACTICAL CONTRIBUTIONS

The investigation of women's individual perceived risk of HIV infection—focusing upon possible linkages between several aspects of HIV knowledge, preventive and risk-related behaviors, and collective contextual factors—could have important practical and theoretical contributions to medical sociological research on AIDS in Eastern Europe and Eurasia. Careful examination of the complex associations among knowledge, health behaviors, and risk can better inform HIV-related program efforts by targeting those factors that show the most influential and strong effects on HIV perceived risk. I hope this dissertation will contribute to the effective allocation of scarce resources available for HIV prevention in this region and help protect women from HIV/AIDS. Specifically, the findings and recommendations from this research can affect the success of programs and policies impacting carefully designed educational efforts to prevent HIV transmission, behavior, and attitudinal change. To develop gender-specific, as well as developmentally and culturally appropriate, intervention strategies, a clearer picture is needed of women's understanding of infection, prevention, and potential dangers due to individual or contextual risk factors in Georgia.

The broader theoretical challenge is to draw a body of data from HIV/AIDS social research, creating a comprehensive sociopsychological model incorporating individual HIV knowledge, behavioral, and contextual factors for understanding the human response to potential health risk. Such studies are explored from specific aspects of individual, collective, and cultural approaches in disciplines ranging from psychology to sociology and anthropology. The social-scientific study of people's responses to perceived risk tends to focus on either narrow cognitive or broad sociocultural roots. The current alternative approach combines these two poles and explains the subjective experience of perceived risk, connecting this experience to broader social, economic, and cultural

factors. The merged approach might also produce a more comprehensive understanding of the concept of perceived risk, for which both individual and contextual factors are important.

Identifying the pathways linking health knowledge, perceptions of risk, and health behaviors can contribute to the current lack of literature about effective behavior change, especially in non-Western societies. Investigating this relationship in a highly collective society such as the Republic of Georgia, where perceived risk is assessed and managed in specific ways, could be important for future recommendations and intervention strategies. The results of this study constitute an initial step in identifying determinants that impact women's HIV perceived risk and can provide an important case for examining the low-prevalence setting.

There are several reasons why a low-prevalence country should be considered for studying prevention in HIV risk assessment. First, prevalence of risk assessment among women in high- and low-prevalence countries can be similar, but underlying causes can vary. Assessment in low-prevalence nations can be more biased, due to less familiarity and lack of information, than in high-prevalence countries. Such subjective assessment can hamper women in their decisions about prevention and behavioral choice. Second, stigmatizing women in low-prevalence countries are also more likely to ignore HIV risk and distance themselves from stereotyped groups than those in high-prevalence countries. Nevertheless, it is recognized that ignorance is not a practical choice, when in reality some risk always exists due to the nature of the HIV virus and the complexity of HIV infection. Acknowledging personal vulnerability and assessment of some degree of risk even in a low-prevalence context is an important strategy for preventing further spread of infection. Third, countries with low rates of and concentrated epidemics often do not have the surveillance system needed to record HIV incidences among risky-behavior

groups. Such systems can lead to a hidden epidemic among certain population groups and a false sense of safety about personal risk and vulnerability. Finally, the cost and benefits of HIV prevention based on risk assessment might be more effective in low-prevalence countries than in high-prevalence countries. In this regard, priorities in high-prevalence countries are on treatment, care, and support of infected people, while in low-prevalence settings most resources can be effectively allocated to prevention.

THE STRUCTURE OF THE DISSERTATION

The body of this dissertation is designed to introduce readers to important areas of HIV/AIDS social research, focusing on the link between HIV knowledge and perceived risk. Chapter 2 provides a literature review on theories of HIV prevention and on the concept of risk perception. The examination includes reports of empirical studies on the contribution of HIV knowledge, behaviors, perceptions of sexual control, reactions to PWAs, population migration, and sociodemographic variables on HIV risk perception. The analytical framework focuses on the links among HIV transmission knowledge, behaviors, and risk perceptions, including factors of sexual communication, reactions to PWAs, and population migration.

Chapter 3 provides a detailed background for the selected case in the Republic of Georgia. In this chapter, I highlight the historical and epidemiological development of HIV in postsocialist Georgia, discussing HIV-related individual and context-specific structural, cultural, and traditional barriers relevant to the decision-making process of HIV risk assessment at the individual level. These factors illuminate the importance of Georgia for the testing of central questions and its connection with preventive behaviors.

The data and methodology are discussed in chapter 4, which provides further details about the rationale for and basic steps used in designing this mixed-method study.

I discuss in detail the data to be used: the 1999 and 2005 Georgian Reproductive Health Surveys and a series of interviews with adult women in Georgia. I also include facts concerning measurement, model construction, and in-depth interview data while linking the planned analyses to the three central research questions.

Descriptive and quantitative findings on the prevalence and determinants of HIV risk perception in 1999 and 2005 are presented in chapter 5. Here, I focus on the trends and patterns of characteristics associated with HIV risk perception. Using bivariate associations followed by advanced multivariate regression analysis, I examine the associations between HIV knowledge and perceived risk, controlling for behavioral, sociodemographic, and contextual factors.

Chapter 6 looks at the results from qualitative interviews conducted in the capital city, Tbilisi, in 2006. Through the detailed interview-coding analysis and quotations from the in-depth interviews, I explore the ways HIV risk is assessed and the cognitive processes women employ to discuss risk and prevention. The chapter presents qualitative insight on knowledge, attitudes, and beliefs; health action and practice; stigmata and attitudes toward PWAs; and perceived risk and protection action (where I offer insights on HIV intervention strategies that women believe would be most effective in Georgia).

Chapter 7, the conclusion, summarizes the three questions addressed in this project and the main findings of all chapters. After discussing the findings, I summarize the contribution of the results to the theoretical, methodological, and regional literature. At the end of this dissertation, I discuss the limitations and future directions for policy and research, focusing on the sociopsychological health prevention model and HIV-prevention strategies among women and the general population in Georgia.

Chapter 2: Literature Review

This chapter intends to provide a context of relevant research for understanding the factors influencing self-perceived HIV risk. It explains the contribution of this study to existing knowledge in the HIV/AIDS medical sociological literature and develops an alternative integrated model linking HIV knowledge, health behaviors, and contextual factors with HIV perceived risk. In doing so, this chapter focuses on theoretical justification of the central question that explores how HIV knowledge, health behaviors, stigmatizing attitudes, perceptions of sexual control, and migration come together to impact women's self-perceived HIV risk.

I begin by reviewing AIDS epidemiology to help understand the contribution of individual, collective, and contextual factors to development of the AIDS pandemic globally. The second part considers theoretical approaches to AIDS prevention, directed toward assessment of HIV risk perception and behavioral change. The third part assesses key findings and variables from research on HIV risk perceptions, including discussion of measurement approaches on risk perception, HIV knowledge, and behavioral variables. Using this strategy, the literature review addresses some of the strengths and limitations of HIV/AIDS research in low-prevalence countries overall. The final part describes an integrated conceptual model, incorporating insights from the psychological, social, behavioral, and methodological literature on the determinants of HIV risk perception.

GLOBAL HIV/AIDS EPIDEMIOLOGY

One potentially fruitful possibility in setting the stage for answering the central question is to summarize HIV/AIDS epidemiology by describing a clear direction of patterns of infection, causes and risk factors of transmission, and barriers on surveillance and effective prevention. These epidemiological components are linked to the complex

individual, collective, environmental, and institutional settings in which individuals develop risk perceptions. This approach is especially important in terms of such a stigmatized disease about which people often believe in local meanings and misconceptions relating to HIV infection.

AIDS (acquired immune deficiency syndrome) is a collection of symptoms and infections resulting from specific damage to the immune system caused by HIV (human immunodeficiency virus). According to AIDS research literature (amFAR 2007), this virus can be transmitted from an infected person to another through bodily fluids such as blood, semen, vaginal secretion, or breast milk. Of these four fluids, blood has the highest concentration and breast milk the lowest. The most common events globally that can result in HIV transmission are (a) unprotected sexual contact with someone who has HIV, (b) direct contact with HIV-infected blood (including drug-injection needles, blood transfusions, accidents in health-care settings, or certain blood products), and (c) transmission from mother to child before or during birth, or through breast milk, if the mother is HIV positive. HIV is not transmitted through food or air. There has never been a case where a person was infected by an HIV-positive person through casual or everyday contact such as sharing bathroom facilities, hugging, or kissing. Mosquitoes, fleas, and other insects do not transmit HIV. Screening the blood supply for HIV has virtually eliminated the risk of infection through blood transfusion in developed countries, but the problem of unsafe blood donation is still prevalent in many developing countries (Liu et al. 2005; WB 2008).

People infected with HIV may have no symptoms for ten or more years, but they can still transmit the infection to others during this symptom-free period if they do not use condoms and inject safely. The potential to infect others after an HIV diagnosis lasts lifelong, but the practice of safe health behaviors (condom use and safe injection) can

dramatically mitigate infection risk. Meanwhile, the immune system—the part of the body that works as a defense against germs such as bacteria and viruses—gradually weakens in infected persons until they develop AIDS, the final and most serious stage of the HIV disease. The immune system by this stage has been adversely affected, leading to a breakdown of the endogenous defense and resulting sooner or later in death.

To monitor the health of individuals living with HIV, treatment services and the common tests of viral load and CD4 count are available. These tests are responsible for measuring the amount of HIV and T-cells, reflecting the health of the immune system and the risk potential of developing AIDS. Anti-HIV medication, called antiretroviral treatment (ARV), is used to control virus reproduction and slow progression of HIV disease. The availability of ARV services has dramatically increased the survival time of HIV-infected people and prolonged the progression of HIV to AIDS (UNAIDS/WHO 2007b).

To provide infected people with necessary treatment and monitoring tests, surveillance and case reporting should be available and in place. While most of the countries with generalized epidemics have functional and appropriate sentinel surveillance systems, countries with low and concentrated epidemics often do not have the observation systems to record HIV epidemics properly. This problem clearly exists in Russia, Ukraine, Caucasus, and Central Asian regions (Buckley 2008; WHO 2001). No country in the area has set up the type of systematic surveillance for high-risk groups, including their STI and behavioral indicators, required to yield clear information on major risk groups or the effectiveness of AIDS prevention programs. This shortage of clear information has led to a lack of visibility, the continued perception of low risk, and inadequate levels of protection, which is also partly attributed to the history of epidemics in both a global and local context.

Since the Centers for Disease Control and Prevention (CDC) reported on the first U.S. AIDS cases in 1981, many more cases followed. The increase included homosexual as well as heterosexual persons engaged in risky behaviors and monogamous women infected by their husbands. In the early 1980s, the extent of the disease was restricted, conceived of primarily as a “gay plague.” All members of identified homosexual risk groups in North America and the USSR in the late 1980s were seen as potentially contagious (Fee and Krieger 1993; Feshbach 2006). Later, when AIDS started to spread among drug users and commercial sex workers (in North America, Russia, Central Europe, Central Asia, and Southeast Asian countries) and made its way through their sexual partners to the heterosexual population, it came to be seen as a social chronic infectious disease and persistent pandemic, with its long time frame and global impact (Fee and Krieger 1993; Godinho et al. 2006).

By the late 1990s, after the introduction of an effective ARV therapy, AIDS was transformed from a death sentence to a manageable, chronic lifelong disease. With treatment, HIV-positive people can live for decades with the condition and improve their quality of life, but these HIV medications, monitoring tests, and skilled professions are not widely or equally available to citizens within resource-limited countries. Thus, millions of people are still dying from HIV/AIDS. In 2007, over 6,800 persons became infected with HIV every day, and over 5,700 persons died from AIDS (UNAIDS/WHO 2007b). This continuing nature of infection, growth of the pandemic, and limited resources for surveillance and prevention lead individuals to construct the idea of “risky society” and to perceive some degree of infection risk, even in countries with low epidemics. Such a transforming pattern of HIV infection implies that policy and research agenda should be focused not only on individual HIV education and behavioral aspects, but also on societal and structural aspects of particular settings.

AIDS PREVENTION MODELS

Social science and behavioral scientists organize their research findings into several health-prevention models, which highlight important factors explaining why people are resistant to changing their health-related behaviors. These models separate the parts of the decision-making and action processes to understand the factors that affect each step. Individual decisions regarding assessment of HIV perceived risk figure in these models and have important consequences for decreasing or increasing the risk of HIV transmission.

The two main individual (known as psychological) and community (known as social) frameworks dominate the theoretical and empirical literature of HIV risk perception. The first and most predominant individual-level psychological models generally created using cognitive-attitudinal and affective-motivational constructs (Kalichman 1998). These models contend that individuals who recognize that their actions place them at risk of infection are more likely to adopt less risky behaviors than those who do not acknowledge their threat. To be familiar with behavior and adopt preventive action, individual models of health behaviors focus primarily on knowledge, attitudes, intentions, and behaviors (Fisher 1997; Fan et al. 2004). Knowledge involves information collection, synthesis, and weighing. Attitude condenses this information into a conclusion that can result in a decision of HIV risk assessment. Intention involves a readiness to take action, and behavior is the action actually taken.

The oldest Health Belief Model identifies three main variables to explain and predict health behaviors (Becker 1974). The first variable is the person's perceived susceptibility to a risk infection, and if a person believes that he or she is not at risk, no matter what the actual degree of risk may be, that person will not begin the process to take action to protect. Preconditions for such recognition are knowledge of how infection

can occur and the undesirability of infection consequences, as well as a certain awareness of HIV/AIDS cases in the immediate social environment. The second and third important variables are an individual's assessment of the severity of the threat and evaluation of the effectiveness of the recommended health-promoting or illness-preventing action.

The other AIDS prevention models view risk perception and behavior change as products of individual cognitive decision making (Ajzen and Fishbein 1980; Bandura 1986; Catania et al. 1990; Prochaska et al. 1994). They assume risktaking to be the outcome of individual decisions based on the perceived costs and benefits of risk behavior. Many of these models are linear or unidirectional (i.e., knowledge leads to heightened perceptions of risk, which leads to behavior change) and helpful in that they are complementary and provide different perspectives on health attitudes, behaviors, or location of the individual in the behavior-change process.

These individual-level theories of health behaviors were very useful in the early days of HIV prevention to identify an individual's perspective on decision making and behaviors associated with HIV transmission. They also help in understanding study results and continue to provide important guidance to interventions in formulating design and evaluation with diverse populations in a wide variety of settings (Aggleton 1994; UNAIDS 1999).

Focusing solely on cognitive-level determinants, however, undermines the overall research capacity to understand the complexity of HIV risk perception. In the case of HIV/AIDS, the decision-making process is particularly complex due to the probabilistic nature of HIV risk, varied infection prevalence in different countries and among different population subgroups, and the stigmatized nature of the AIDS illness. Focus only on the individual and on the psychological mechanism ignores the interactive relationship of

health decisions in its social, cultural, and economic dimension, thereby missing the possibility of fully understanding the determinants of HIV risk perception.

In addition, Amaro (1995) identified several features of the models of HIV prevention that limit their applicability to women. First, models tend to be individualistic, neglecting the broader social and cultural context in which HIV risk can be assessed. And second, models tend to ignore the extent to which sexual behavior is constrained by culturally determined factors, including gender roles, sexual values, and norms that typically create a power differential between men and women. In response to these limitations, the social approach that incorporates perception of HIV risk in relation to community factors is advised from a social-science perspective (Sumartojo 2000; Parker et al. 2000). According to this viewpoint, effective theoretical efforts can focus on the development of strategies that concentrate on individual barriers, as well as social, cultural, and gender norms for heterosexual women.

The Model of Health Decision, which is a revised version of the Health Belief Model, incorporates sociodemographic factors, social interactions, health beliefs, past experiences, and knowledge (Eraker et al. 1984). Decisions about health actions are often made in the context of other people. The social context is especially important in the case of HIV-risk assessment, which is not only an individual decision but also a decision made by interactions of individuals. This expanded model acknowledges that a decision is made with some attention to a particular set of knowledge and beliefs that may explain an individual's health risk-related decision.

Some other theories of information diffusion, social networks, gender, and power (Rogers 1983; Helleringer and Kohler 2005; Parker 2001; Logan et al. 2002) also argue that a health decision is not determined solely by individual choice, but rather by those social relationships and structural and environmental factors constraining people's

options for risk assessment. Specific factors include social pressures, peer influences, cultural expectations, sexual negotiation, cultures of drug and alcohol use, economic factors affecting available resources, political and religious ideologies, and limitations of public and private resources that impair the quality and adequacy of AIDS intervention programs (Aggleton 1994, 343).

Integrated sociopsychological theories are used increasingly with populations that are especially vulnerable to HIV due to power imbalance in a relationship and in a community. In particular, using these theories to guide HIV risk assessment among women in heterosexual relationships can help investigate how a woman's commitment to a relationship and attitude toward negotiating safer practices can influence her decision about risk (Saul et al. 2000; Langen 2005).

Not surprisingly, attempts to influence perceived risk are implicitly or explicitly included in many AIDS intervention programs built on social health-behavior models. The emphasis placed on perceived risk in high-prevalence countries is supported by empirical studies indicating that perception of HIV risk is associated with both protective and risky behaviors (Akwara et al. 2003; Prata et al. 2006; Cerwonka et al. 2000; Cleland 1995). The process of understanding HIV risk and insights into the determinants of risk assessment are therefore essential for low-prevalence limited-resources countries, often indicating tendency for risk behaviors among the general population. As heterosexual transmission is on the rise among women, assessment of HIV perceived risk based on HIV-related behavioral variations can be important because "in reality we are all at some HIV risk unless we live in a protected cell without any contact with other humans" (Fan et al. 2004). Yet the factors that determine an individual's perception of risk are still not well understood, while they are considered the "most salient psychodynamic feature in the leading models of health behavior" (Prohaska et al. 1990).

RESEARCH ON HIV KNOWLEDGE AND HIV PERCEIVED RISK

The research question that most studies seek in assessing HIV risk perception is to investigate who feels at risk of getting AIDS and what people do to prevent infection. Unfortunately, most of these studies are conducted in high-prevalence African countries or in Western societies among different population groups (migrants, minorities, adolescents, and other groups engaged in risky behaviors). The limited research on low-prevalence and concentrated-epidemic countries focused mostly on the descriptive reports from different international organizations and NGOs. Therefore, for this section I review available mixed literature from both developed and developing countries and compare the findings on individual knowledge-behavioral determinants of risk perception that could incorporate a sociopsychological model for the case of low-prevalence setting.

HIV knowledge in the context of risk assessment has been defined and studied in several ways. Most of these studies use cross-sectional data and others are based on lower-scale experimental analyses. The cognitive elements of HIV knowledge and prevention messages include what HIV is, how it is and is not transmitted, how likely people are to become infected, the consequences of AIDS, and how AIDS can be prevented. Sometimes this method involves conveying new information and other times it involves correcting misinformation about misleading beliefs, myths, or “compensatory” health beliefs focused on moral considerations (Knäuper et al. 2004).

Bernardi and Mencarini (2004), in a study of risk assessment among Italian young people, investigate characteristics of those who are more aware of the personal risk of HIV infection. This research, where low-prevalence context is characterized by increased HIV incidence among well-educated and heterosexual individuals, hypothesizes that risk perception influences by the type of knowledge and by past behaviors. In other words, once individuals know that they are likely to engage in risk

behavior (having ever had occasional sexual intercourse without a condom) and they hold correct beliefs about infection mechanisms, they will feel more at risk when asked.

The dependent variable of risk perception is measured as a categorical indicator that represents three levels of perceived risk (not at all, low, and high). The HIV knowledge variable is assessed by combining several measures on documented and undocumented modes of transmission. Results from an ordered logistic model found a significant relationship between the HIV knowledge variable and perceived risk. Specifically, uninformed students think that they are relatively safe, yet misinformed students are more likely to consider themselves at risk compared to the reference category of the well informed. These results demonstrate that uninformed students underestimate the risk in situations that are likely to lead to infection, and misinformed students overestimate their chances of getting infected by acknowledging undocumented modes as effective.

Other risk assessment studies in the United States find that college students and female injecting-drug users (IDUs) tend to deny their risk of HIV, despite increased transmission knowledge and participation in various behaviors with the potential to increase their risk (Brown 1998; Poppen and Reisen 1997). Denial to minimize HIV perceived risk among nondrug-using college students is the result of framing HIV risk-behaviors in terms of risk-groups membership rather than interpreting personal risk behaviors. In these studies, students compared their sexual behavior with that of other college students or high-risk behavior groups like IDUs, whom they described as engaging in riskier behavior than themselves. It is inferred that students use judgmental heuristics¹ as denial, distancing, and downward comparison, which can be viewed as

¹ Decisions are based on probabilistic information, which sometimes yields reasonable estimates and quite often leads to systematic errors or biases in judgments, depending on the task and the heuristic used (Fan et al. 2004; Bailey and Hutter 2006).

cognitive coping strategies to lower their HIV risk perception (Brown et al. 2000). A similar study, to assess the perceptions of heterosexual college adolescents about their own vulnerability to AIDS, found that knowledge was related to the accuracy of risk estimates, but was not predictive of preventive behavior (Mickler 1993). These findings imply that HIV knowledge is a necessary precondition for assessing the personal HIV risk, yet it is not a sufficient indicator, since its effect on perceived risk or on health behavior may be filtered by incorrect knowledge, misconceptions, or other myths and stereotyped beliefs.

Increased misconceptions about HIV transmission among a well-informed population suggest that folkways and culturally specific beliefs about contagion and disease act to filter and transform understandings of medical-scientific information (London and Robles 2000). Such complexity in understanding of HIV infection may be a result of anxiety and uncertainty about the modes of virus transmission, prevention, and stigmatization that attached to the AIDS disease and infected people. Research in El Salvador among women aged 15-49 shows that knowledge of correct information about HIV-transmission mechanisms does not necessarily erase other beliefs about transmission modes that are not correct (London and Robles 2000). Therefore, the results from adjusted multinomial logistic regression indicate that both persons with higher correct and higher incorrect HIV-transmission knowledge positively and significantly associate with any HIV perceived risk, but the effects of correct and incorrect knowledge operate differently for uncertainty about risk perception. Women with correct knowledge are significantly less likely to be uncertain about perceived risk, and women with incorrect knowledge are more likely.

In addition, the study by London and Robles (2000) found that some sexually inactive women perceived themselves to be at risk for HIV, with a small proportion

perceiving themselves to be at high risk. Thus, even in the absence of sexual risk for HIV, social and cultural beliefs about contagion or fears of future sexual activity translate into perceived risk. Such attitudes indicate some support for a relationship among fatalism, knowledge variables, perception of HIV risk, and subsequent behavior (Ramirez et al. 2002; Ross et al. 1983).

Associations between HIV-transmission knowledge and perceived risk are not always reported in studies conducted in high-prevalence African countries. Women who are aware that a person could have HIV without having symptoms are found to be significantly more likely to classify themselves at high risk of getting HIV, but knowledge about sexual transmission of HIV was not related to their perceptions of personal risk (Sarker et al. 2005). A study in rural Malawi found a positive association between HIV-prevention knowledge and perceived risk for women, when using three single-item questions to measure HIV-prevention knowledge and controlling for risk-related behaviors and demographic characteristics (Barden-O'Fallon et al. 2004). So the idea is that more in-depth knowledge of symptoms and prevention to avoid unprotected sex is an important strategy to perceive those at risk in high-prevalence countries. Another culturally sensitive video-education research project demonstrated higher AIDS risk knowledge at postassessment among students who were worried about getting AIDS (Stivenson 1995). In a study of South African teachers, those who underwent HIV education training gave higher estimates of HIV prevalence, and their own perceived risk of HIV infection increased significantly after the training (Chao et al. 2007). These studies demonstrate that to assess personal risk accurately and precisely in terms of information received and behaviors practiced, specific aspects of HIV knowledge should be considered for specific contexts. Yet this knowledge can also have ineffective results

unless it is communicated and delivered through appropriate information and education channels.

Various sources—including radio, television (TV), newspapers, peers, family, health educators, and doctors—are used primarily as effective channels to disseminate HIV/AIDS prevention messages worldwide (Khan et al. 2004; Benefo 2004; Buseha et al. 2002). The studies demonstrate that access to more sources of information can create better knowledge of HIV/AIDS, and low awareness (of hearing about HIV/AIDS) may be due to limited access to health information, and unavailability of adequate health care services (Khan et al. 2004).

In many studies, TV, radio, and newspaper/magazines are identified as the main sources of AIDS information. TV was found to be a rich source for promoting AIDS awareness and safer sex to the general public. Radio was reported as a powerful and credible medium in most developing countries (Benefo 2004). Peer education is often advocated by international NGOs to address reproductive and sexual-health information among young people in postsocialist countries, while information from medical personnel and family members is rarely accessed by young women (Buckley 2005c; Kimzeke 2003). Health-care workers and formal educators appear to be preferred sources for providing HIV/AIDS and sexual risk information (Buseha et al. 2002).

Some mass-media advertising campaigns in Kenya demonstrated an effect on risk perception, self-efficacy, and other behavioral predictors (Agha 2003). Regression analysis to determine the impact of exposure to mass-media messages on risk perception reveals that branded advertising messages are significantly more likely to increase the risk of acquiring HIV and to believe in the severity of AIDS. In other words, appropriately tailored and branded messages can increase individual perceptions of risk and can change the balance of costs and benefits to behaviors, after adjusting for

characteristics of respondents that might predispose them to positive attitudes toward condom use.

Other findings support the contention that some mass-media campaigns are designed to induce fear and uncertainty, which appears to be less effective in promoting behavioral change, but some more carefully designed campaigns can promote accurate knowledge and healthier behaviors (Woubalem 2005; Stein 2001). This result may be due in part to the tendency to tune out information not in line with people's existing beliefs. In general, these researchers also agreed that the most effective way of motivating an individual for risk decision appears to be interpersonal communication, including interactive face-to-face education and counseling, where messages are tailored to the specific needs of individuals (Stein 2001). As an example, HIV/AIDS information received from health workers appears to be a strong positive predictor of high risk perception among young rural women in Africa (Sarker et al. 2005). These arguments could have implications for understanding HIV knowledge influences on HIV risk assessment, particularly in countries at an early stage of the epidemics. In a context where HIV/AIDS remains mysterious, low HIV knowledge prevails, and discussions among social networks are limited due to social taboos and low prevalence, decisions regarding risk assessment may be influenced by different communication channels differing by location as well as by population, gender, or risk status.

RESEARCH ON HEALTH BEHAVIORS AND HIV PERCEIVED RISK

From an individual perspective, groups of behavioral indicators also demonstrate some link with HIV perceived risk. A majority of studies show that risk perception may shape HIV risk-related behaviors in both directions, but these studies also acknowledge that past or current sexual behaviors are likely to be the dominant factors affecting risk

perception (Akwara et al. 2003; Gerrard et al. 1996). Findings about the relationship between risky HIV-related behaviors and perceived risk show some inconsistency and vary across behaviors, population groups, and context.

Significant positive association between behavioral indicators and higher degree of perceived risk is found in a study by Bernardi and Mencarini (2004). Independent of HIV-transmission knowledge, some variation by gender is also found among frequency and type of sex encounters, number of sexual partners, and use of condoms. These differences suggest that when women expose themselves to potential risk situations, they have less power to decide whether or not to protect. In addition, having at least one occasional unprotected sexual encounter correlated positively with a higher degree of perceived risk, but direct experience with STI and HIV testing does not change the degree of risk perceived for male or female students.

The study among women in Kenya found strong positive association between risk perception (moderate or great risk) and the score of risky sexual behaviors (Akwara et al. 2003). A qualitative study in provincial Thailand found that men engaging in risky behavior were aware of the risks and acknowledged they were at high risk—that is, the higher the perception of risk, the more likely the men were not to be using condoms (Havanon et al. 1993). On the other hand, a study among U.S. racially diverse and sexually experienced adolescents (Ellen et al. 1996) could not find a link between perceived risk and past condom use, number of lifetime partners, or STI- and HIV-related beliefs.

The prior experience of unprotected sexual behaviors and STI symptoms may affect perceived risk because actual life experiences have a larger impact on beliefs about hazards than secondhand information. Direct experience is more obvious, more easily recalled from memory, and entails a higher degree of personal involvement. The

experience of STIs or symptoms may provide vivid reminders that one's sexual behavior can lead to acquisition of another type of STI, such as HIV. Concern about disease (as reflected in perceived risk and HIV testing) as well as increased condom awareness promoted by information channels might also increase condom use for STI protection. Research indicates that women who are most concerned about contracting HIV are also highly motivated to protect themselves against the disease (Prata et al. 2006). It may also be that the process of testing for HIV solidifies a woman's awareness of the need to take the necessary steps to protect herself from diseases that can be transmitted during sexual intercourse (Gorman and Bohon 2001).

Other research found that those who had been tested were more likely to feel at risk even after receiving results, while testing feedback often includes counseling regarding the increased risk of HIV infection (Kalichman 2003; Lapidus 2006). A study among female family-planning clients, however, found that HIV testing increased the odds of no longer feeling at risk. Partner testing was also associated with no longer feeling susceptible (Hoffman et al. 2000). Yet the reality is that an HIV test provides useful information, particularly about the effects of past risks, but it does not provide a guarantee of no HIV risk for the present or the future (Fan et al. 2004). The context of an HIV test provides an excellent opportunity for many people to learn about modes of transmission and to consider personal risk analysis, as well as the possibility for changes in personal attitudes and behaviors.

In addition to risky sexual behaviors, the number of potential transmission routes may also be part of a person's prior life experience influencing perceptions of risk for contracting HIV. These routes include having received a blood transfusion and having a history of injection drugs, where people with these types of experiences expect to perceive themselves at greater risk of HIV than people without such experiences.

Several quantitative and qualitative investigations provide some evidence that a partner's risky behaviors are an important determinant of risk perception and worries among women (Hoffman et al. 2000; Moore et al. 2004; Kohler et al. 2007). Smith and Watkins (2005) found that rural Malawi women worry most about their husbands as a source of infection, and may discuss with them the importance of avoiding contagion—even using divorce to reduce their risk. The partner's sexual behavior was also the most common reason for risk perception in Uganda among adult women, whereas condom use with the last casual partner was not significantly associated with risk perception (Kengeya-Kayondo et al. 1999). A more recent study among urban women in North America indicates that greater reliance on a partner's behavior is associated with lower perceptions of risk, but a greater number of partners with increased risk perceptions (Masaro et al. 2008).

A study in an area of San Francisco with high rates of STIs found that having a history of sexual partners who used injection drugs was the only risk behavior associated with a high perceived likelihood of HIV, while other behavioral variables (such as unprotected sex, number of partners, STI history, blood transfusions, and being tested for HIV) were not associated with the perceived likelihood of contracting HIV (Dolcine et al. 1996). A few descriptive studies in different time periods among Russian citizens and IDUs demonstrate some dramatic pictures, but progression in terms of association between risk behaviors and risk assessment is also visible. It is found that many IDUs believe that Russia is insulated from the epidemic, and therefore do not believe in the need for protection (Somlai et al. 2002). IDUs who share needles and trade sex for money with multiple partners do not perceive themselves at risk of infection (Benotsch et al. 2004). A more recent study among STI clinic patients shows that individuals who worry about HIV would try more strategies in the future to protect, and individuals who

perceived AIDS as more severe are more likely to use condoms during their most recent encounter (Benotsch et al. 2006).

This discussion about scientific contributions to research on HIV knowledge and behavioral determinants of perceived HIV risk shows that consistencies and clear direction of associations often conflict research findings. Specifically, in terms of individual characteristics, selection of knowledge and behavioral factors, as well as measurement approach and specifics of low-prevalence context in terms of knowledge and behaviors should guide the research agenda when exploring HIV risk perception among heterosexual women. It is evident, however, that mixed findings indicate the relevance of knowledge, behaviors, and perceived risk to the HIV/AIDS prevention efforts. From this review, it is evident that characteristics of association, strength, and direction among HIV knowledge, behaviors, and perceived risk are largely specific to other contextual factors influencing risk perceptions and those situational norms that are still not understood.

MEASUREMENT OF HIV PERCEIVED RISK

Inconsistencies in the measurement of perceived risk (including construct confusion, a mixture of measures, and temporal factors) compromise comparisons and synthesis across studies (Kowalewski et al. 1997). In the AIDS Risk Reduction Model, the authors have distinguished two constructs: first, perceived risk in relation to personal behaviors, and second, perceived susceptibility to contracting AIDS (Catania et al. 1990). Dolcini and her associates (1996) examined the perceived risk of contracting HIV using assessments of the likelihood of becoming HIV infected, coupled with the level of worry about being infected, and contrasted the two as cognitive and emotional elements of risk assessment. The psychological literature uses multiple items to assess risk perception,

where some items such as “I am concerned that I will get AIDS” are a measure of risk susceptibility (Kalichman et al. 1992). In other studies, with items assessing subjects’ perceptions of their chances of contracting AIDS, perceived-risk items are used to assess perceived vulnerability (Mickler 1993).

Some investigations have assessed perceived risk using comparative items, such as “Compared to other people your age, what do you think your chances are of getting the AIDS virus in the future?” Others have used items that ask subjects to estimate their actual risk based on their own behaviors, such as “What do you think are the chances of your getting the AIDS virus?” (Ellen et al. 1996; Klein et al. 2003; Smith and Morrison 2006). The literature argues that subjects tend to underestimate their risk of infection when they compare themselves with others, but less is known about whether there are systematic differences in risk assessments between the comparative and absolute measures (Kowalewski et al. 1997).

Methods often used to assess risk perception are questions that can contain multiple choices, scales with different values, true/false questions, or questions with a blank to fill in. Other possibilities are interviews and self-administered questionnaires, as employed in a study of Planned Parenthood Clinic clients in New York (Hoffman et al. 2000). In general, most of the recent studies in health sociology used only a single Likert-type scale item to measure risk perception, such as “Do you think you have no risk, a small risk, a moderate risk, or a great risk of getting the AIDS virus?” Others construct a measure of perceived risk by summing two to six Likert-type scaled items for a total score. Research has demonstrated that summated scales can provide an assessment of overall HIV perception, although people may perceive risks from certain behaviors but not from others (Kalichman and Demetria 2005; Lauby and Bond 2006).

In some studies, subjects were asked to assess their current risk in light of their past and present behaviors. Other studies asked about assessments of risk based on perceptions of future, current behavioral risks, or risks incurred during a particular time period (Kershaw et al. 2003). Moreover, studies have measured subjects' beliefs about whether they have already contracted HIV, rather than their assessments of the risk of contracting HIV in the future based on their current or intended future behaviors (Chao et al. 2007; Kengeya-Kayondo et al. 1999).

Framing the risk of HIV infection in terms of risk groups, rather than risk behaviors, may influence perceptions of risk and be biased toward people who define HIV as a problem of risk groups but not directly related to their own behaviors. Group characteristics such as gender, class, ethnicity, migration, and cultural norms have been found to be related to risk perception.

MEASUREMENT OF HIV KNOWLEDGE

In terms of HIV knowledge, there are also huge variations in the questions used and in the approaches to operationalize concepts. HIV/AIDS knowledge continues to be subject to much misconception, but it is important to understand how accurate and inaccurate knowledge may contribute to risk perceptions. Questions about knowledge and misconception often ask respondents whether, or how much, they agree or disagree with specific facts or with common misconceptions about prevention, transmission, treatment, and symptoms of HIV/AIDS (Horizons 2006).

Questions about prevention typically ask the respondent what is safer sex and what is not. More in-depth queries ask what prevention methods are available, and how to use them correctly. Questions regarding transmission typically ask how HIV can and cannot be transmitted. An innovative approach could first ask the respondent to list all

known modes of transmission (without prompting), and then investigate particular issues that may have emerged using “yes/no” statements. Treatment questions inquire about the respondent’s holistic views on treatment and resources—for example, “Is there a cure for AIDS?” Another aim of the researcher would be to determine what the respondent knows about available treatment options, care and support, or vaccine availability. Questions about symptoms often aim to measure the respondent’s knowledge about particular physical signs of AIDS. These questions may have more than one possible answer, with “yes/no,” “true/false,” “agree/disagree,” and “don’t know” options.

The commonly used approaches to operationalize HIV knowledge are to use one single-item dichotomous or categorical measure (Barden-O’Fallon et al. 2005; Sarker et al. 2005), to combine several questions in a summated score of HIV knowledge by counting the number of correct responses (Woubalem 2005; London and Robles 2000), or to use a categorical measure constructed by differentiating patterns of HIV knowledge structures (Lew-Ting and Hsu 2002; Akwara et al. 2003).

MEASUREMENT OF HEALTH BEHAVIORS

Questions about risk and preventive behaviors are also problematic in reporting, particularly if the social norms conflict with the behaviors (Obermeyer 2005). Although there is evidence that self-reported behaviors can accurately reflect actual behaviors, concerns about over- or underreporting of various behaviors still remain. In this case, the use of other data-collection techniques can provide additional support to report behaviors. The most common questions asked in HIV/AIDS research are about condom use (such as frequency over a period of a few months, or use during first and/or last sex) and number of sexual partners (marital, casual, sexual networking). Survey respondents are also usually asked about STI experience. Since some respondents are not familiar with the

scientific names for the diseases, questions about STI symptoms in a specific time period are typical, too (Horizons 2006).

These approaches used to measure HIV-related concepts in different studies have demonstrated the importance of an integrated theoretical model of perceived risk and prevention behaviors. The socioeconomic context in which decisions about health risks and behaviors are made, as well as the knowledge and behavioral constraints that individuals face in making their choices, are thus taken more seriously.

RESEARCH ON CONTEXTUAL FACTORS AND HIV PERCEIVED RISK

According to sociocultural theorists, the set of factors facilitating or impeding individual rational choices are beyond a person's control. In particular, a growing number of scientists recommend examination of sociocultural contexts to understand HIV risk perception, as opposed to individual elements (Amaro and Raj 2000; Sumartojo 2000; UNAIDS 2001; WHO 2003; Yang and Xia 2006a).

In a context where the prevalence of HIV/AIDS is low but incidence among heterosexual individuals is on the rise, it is important to ascertain the variations in contextual characteristics of those who are aware of the risk of incurring HIV infection. Due to the tendency of infection increase among women (and their biological, epidemiological, and social vulnerability), context-specific components of gender norms, disease stigmata, and migration experience may have additional predictive power for the assessment of HIV risk.

Perceptions of Sexual Control and HIV Perceived Risk

Because gender norms shape attitudes toward information on sex, sexuality, sexual risk taking, and marital relationships, they play a critical role in determining the course of the pandemic. Because the risk of HIV infection in women has been linked to

the sexual norms that affect power in interpersonal relationships, conceptual development also requires intensive attention to both gender and sexuality issues. Several intervention studies have targeted women's ability to negotiate and discuss sexual relations and safe-sex options as important variables to incorporate into HIV-prevention interventions. To capture the women's agency component, researchers have attempted to measure women's decision-making power either as the outcome of interest, or as an intermediate factor affecting other outcomes. Mason (2005) suggests that a promising line of research is to use subjective measures that reflect women's perceptions of themselves, along with a combination of survey research and observational study to measure women's empowerment and gender norms in a context. This suggestion implies that the important issue in the assessment of HIV risk may be women's perceptions about their sexual communication with their partners or spouses. Disclosure of sexual wishes, predispositions, preferences, and standards promote some degree of control and acquisition of sexual knowledge among couples (Raffaelli and Suarez-Al-Adam 1998).

A diverse body of literature has emerged regarding the importance of the negotiation of AIDS, safe sex, and injecting practices on women's HIV/AIDS protective behaviors (Margillo and Imahori 1998; Brimlow and Ross 1998; Chin 1999; Amaro and Raj 2000; Bowleg et al. 2000; Saul et al. 2000; Takyi 2000; Sanders-Pillips 2002; Kelly et al. 2004; Langan 2005; Yang and Xia 2006b; Tang 2008). Only one study among migrant Chinese women in Hong Kong, however, found empirically that women with less opportunity to discuss sexual matters with their husbands also had scarce information to estimate their vulnerability of contracting HIV from their husbands (Tang 2008). These women endorsed the most rigid gender norms about sexuality and sexual decision making, possessed inaccurate knowledge about AIDS, and held the most negative attitudes toward condom use. There is also some evidence to suggest that the financial,

social, and emotional dependence of women on their partners in a collective culture contribute to a sexuality and power imbalance that makes women less concerned about their own health and welfare (Amaro 1995; Liu et al. 2006).

The qualitative part of a study examining the relationship between HIV/AIDS risk perception and protective behavior among sexually active young Nigerians found that sexual power disparities and the inability to negotiate safe sex limit the capacity of females to transform their knowledge into protective behavior even when they have high risk perception (Adedimeji et al. 2007). A woman's attitude toward intimate communication and her ability to negotiate safer sex in a relationship are important sociocultural variables that can shape her decisions about risk and protective behaviors. While the studies are limited to test the relationship among women's negotiation ability and HIV perceived risk, results from the behavioral investigations clearly indicate the role of conservative gender and sexual norms in HIV research. Such conservative norms and morality toward sexuality also may impact psychologically on those people who are infected and affected by HIV/AIDS.

Stigmatization and HIV Perceived Risk

Stigmatizing views and discrimination are other collective social factors associated with AIDS disease. They exist as social discourse and draw on existing forms of social prejudice and power, and are therefore enacted by individuals to reduce perceptions of personal risk (Joffe 1999; Deacon 2006). Stigmata are identified as major barriers to the successful control of HIV and the quality of life of PWAs. People are reluctant to participate in education and prevention activities where stigma exists (UNAIDS 2003; Yang et al. 2004). Much work on AIDS-related stigmata comes from social and psychological literature that brings together individual and social dimensions

of this phenomenon, attempting to understand cognitive, emotional, behavioral, and social responses of target population groups (Parker and Aggleton 2003; Joffe 1999).

Evidence shows that there is little difference in the way stigma is expressed, whether the epidemic is concentrated within subgroups, or if it has spread to the general population. In countries with low prevalence, HIV/AIDS is often associated with immorality, homosexuality, and drug use (Herek 2002; Balabanova et al. 2006), and concentration of the epidemic within already stereotyped individuals makes the presence of symbolic stigmata not surprising (Pryor et al. 1999; Herek and Capitanio 1998). Research on AIDS-related stigmatization also identified perceived contagiousness and fear of disease as factors for instrumental stigmata (Herek 1999; Herek and Capitanio 1998). The last element of stigmatization is perceived responsibility for becoming HIV infected, which is closely related to blaming patients for their HIV infection (Herek 1999; Bos et al. 2001). All these determinants can be manifested in stigmatizing attitudes and may vary in degree, depending on preexisting prejudices within cultures and the local epidemiology of HIV (Balabanova et al. 2006; Nyblade and MacQuarrie 2006; Woubalem 2005; Lev-Ting and Hsu 2002).

While expressing stigmatizing attitudes, individuals use emotional and cognitive components to distance self from the fear of HIV infection, and facilitate them to ignore or underestimate their own risk. Fear of AIDS is very common, especially in societies where HIV information and access to health resources are limited. Because the general public perceives AIDS as an unpleasant, painful, and life-threatening condition, fear and the risk of infection could be closely related to moral attitudes of PWAs. In other words, stigma serves to give a person a sense of invulnerability to control anxiety, but not the HIV infection (Stein 2003).

The association of stigma with risk perception is clearly related to how stigma is measured. The indicators of stigmatizing attitudes vary across culture, research, and population groups, but very often they are measured as a single-item or multiple-item score on public reaction to frequently debated issues of PWA rights and behavioral intentions in social interactions (Parker and Aggleton 2003; Nyblade and MacQuarrie 2006). A population-based study in China examines discriminatory attitudes by using a composite score derived by obtaining the average score from twenty items (Lau and Tsui 2005). Another study among married Chinese couples in rural areas differentiates the score on public and felt stigmata to examine interrelationships among HIV knowledge, perceived worry, stigmata, and intention to disclose HIV testing results (Liu et al. 2006). A study of mediation analysis of stigmata between HIV misconceptions and willingness to disclose HIV status also assesses stigmata through four statements about attitudes toward PWAs (Yang et al. 2006). Other studies focus on single-item questions on negative attitudes toward PWAs and unwillingness to interact with them (Woubalem 2005; Chen et al. 2007).

Empirical studies to investigate determinants of public reactions toward PWAs help to understand the effects of stigmatization and how people assess risk in the case of HIV/AIDS. More specifically, researchers interested in examining perceptions of HIV risk with stigmatizing attitudes show some significant relationship between the two concepts. Bos, Kok, and Dijker (2001) conducted a study among the general population in the Netherlands to assess public reactions to PWAs and to investigate cognitive and emotional determinants of willingness to have personal contact with PWAs. In line with previous research (Dijker et al. 1996), this study hypothesized that higher HIV risk perceptions and stronger blaming would be related to lower willingness to engage in personal contact with PWAs. Risk perception, measured as risk from everyday social

contacts with PWAs, significantly correlated with stronger fear ($r = .23$), stronger anger ($r = .16$), and positive attitudes toward homosexuals ($r = -.22$). Regression analysis, to measure the contribution of risk perception and blaming in predicting willingness to have personal contact with PWAs, demonstrates support for the hypothesis. In particular, risk perception, blaming, and fear are significantly associated with less willingness to have personal contact with PWAs, when controlled for attitudes toward homosexuals, pity, anger, gender, age, and education. Additionally, this study showed that respondents with knowledge about highly active antiretroviral therapy (HAART) report lower risk perceptions and more positive attitudes toward homosexuals, with stronger willingness to have contact with PWAs, compared to respondents without knowledge about HAART.

Two other studies in the United States and Ethiopia, despite very different contexts and research approaches, also found some association between stigma and perceived HIV risk (Burkholder et al 1999; Woubalem 2005). Research on social stigma, HIV/AIDS knowledge, and sexual risk among U.S. late adolescents investigates self-perceived HIV risk and condom self-efficacy as mediating constructs between six independent factors (stigmatizing of PWAs and gay persons, family communication, passive classroom learning, media influence, knowing of PWAs, and perceived transmission knowledge) and sexual behavior risk. Using multiple-items to measure stigmatizing attitudes, self-perceived HIV risk, and other independent factors, structural equation modeling analysis found a negative association between stigmatizing and perceived risk, and a significant positive association among media influence, knowing of PWAs, and perceived risk (Burkholder et al 1999). A study by Woubalem (2005) in Ethiopia that examines the relationship between HIV-transmission knowledge and stigmatization controls for the three variables associated with seriousness and contagiousness. These three variables (AIDS is incurable, AIDS threatens humankind,

and AIDS affects everybody) have different effects on stigmatizing reactions. In particular, only those who believe that “AIDS affects everybody” are significantly less likely to have an unfavorable reaction to PWAs, suggesting that self-perceived HIV risk assessment may be closer to this cognitive component than to the “AIDS is incurable” and “AIDS threatens humankind” factors.

In contrast, some other studies in China and Russia find a positive association between stigmatization and perceived risk (Chen et al. 2007; Liu et al. 2006; Balabanova et al. 2006). A study among married couples in Eastern China shows a strong positive relationship between HIV perceived worry and public stigmata, when controlled for age, gender, education, and job (Liu et al. 2006). Variables of stigma and perceived worry are measured as the composite score using multiple-items. The separate path analyses for males and females generate similar association patterns; however, female respondents demonstrate stronger association between worry and stigma, compared with male respondents. Qualitative focus-group discussion in Russia demonstrates that discriminating attitudes are strongly associated with misperceptions regarding transmission and frequent overestimation or risk from casual contact and iatrogenic transmission through unsafe medical injections (Balabanova et al. 2006). Incorrect beliefs are a cause of stigmatization of infected people, as well as of those perceived to be associated with the epidemic in a variety of ways. Belief in accidental HIV transmission is also reported in other studies and often leads to obsessively careful behaviors and alters risk perception (Cleland 1995; Irigoyen-Camach et al. 2003). Such conviction is likely to develop into increased discrimination toward individuals living with HIV and their families. Understanding more about public reactions toward PWAs and the consequences they have on risk-assessment support in low-prevalence settings is essential for adequate response to HIV interventions.

Migration and HIV Perceived Risk

The final contextual factor to be discussed in this literature review is the increased risk of migrant people for exposure to HIV/AIDS infection (UNAIDS 2001). Many studies identified migration as a factor related to HIV infection (Shedlin et al. 2006; Stansbury and Sierra 2004; Lee 2008). In a number of countries, regional migration increases vulnerability to HIV/AIDS for both migrants and their partners back home. In addition, the rural-to-urban migration of young people often leads to erosion of the extended family as the unit of authority, with consequent loss of family control over social and sexual behavior. People away from their families in a modernizing society experience a social and sexual freedom not available in their original homes. This trend is particularly significant in the context of HIV/AIDS risk (Morrison 2006; Lie et al. 2005).

Findings from the studies suggest that high mobility among migrants is associated with increased infection risk, and that migration itself is an independent risk factor for HIV (Lurie et al. 2003). To date, the reasons for this relationship are not well explored. Some researchers have found no difference in sexual behaviors between migrants and nonmigrants. Other studies have documented a correlation between the migration experience and sexual risk behaviors (Mundandi et al. 2006; Li et al. 2007).

The association between migration and HIV is often amplified by poor health knowledge and sexual inequality. Women with migrating spouses are especially vulnerable and face both relational and behavioral risks (Stansbury and Sierra 2004; Buckley 2005a). Male extramarital or drug behaviors and exposure to HIV infection can cause infection in both husband and wife, as observed in a South African mining community and among wives of Mexican labor workers and Indian truck drivers (Magis-Rodriguez 2004; Zuma et al. 2003; Mishra 2004). The risk of infection for women also

operates indirectly, through the absence of the husband and the relatively powerless position of women.

Increased urbanization and social mobility is also associated with increased vulnerability for women migrants (Yang and Xia 2006b; Singhanetra-Renard 1997). The absence of social monitoring and family networks, or poverty and unemployment, may increase the risk of infection at the place of destination. In a society with strong gender and sexual inequalities, women can be targets for economic or sexual exploitation (Marin 2005). Cultural and linguistic barriers further limit accessibility to information and the illegal status of migrants may cause them to avoid health services (Lee 2008). On the other hand, the experience of living and working in urban or international locations with large social networks and social interactions may enhance the status and credibility of migrant women, making them more aware of risk (Lindstrom and Hernandez 2006; Lindstrom and Munoz-Franco 2005).

Shedlin and colleagues (2006) found some support for increased HIV risk perception among new Hispanic, West Indian, and South Asian immigrants in New York City. This qualitative study identified some factors affecting HIV/AIDS vulnerability and perception of HIV risk. While a majority of migrants perceive some degree of HIV risk infection, some perceive less risk in their hometowns where they knew everyone, and others perceive increasing risk in their countries due to new freedoms and the increase of poverty, instability, and prostitution among many young women. Most women perceive risk from their partners and they are aware that their partners are engaged in other risky sexual or drug behaviors when men stay alone. They also noted the great visibility of HIV/AIDS prevention messages, more education on HIV, and acceptance of condom use within U.S. society as compared to their countries of origin. Nevertheless, increasing perception of HIV risk and the need for condoms are believed to be related to a greater

risk in the multiple casual relationships that New York City fosters because of “anonymity” and large context. Indian immigrants from the South Asia group are more likely to deny any personal risk of HIV, and that may be influenced by lack of health knowledge and a desire to differentiate themselves from some highest-risk behavior groups in India. This research highlights the idea that women experiencing migration or being partners of labor migrants in a country of origin may perceive increased risk of HIV due to unprotected behaviors that migrant women and men are exposed to when they are separated from each other and from the close-knit nature of communities in their home countries.

In sum, the findings of these studies help show how the marginalization of women in society and in sexual relationships guides them to assess self-perceived HIV risk. Social scientists interested in preventing HIV among women are exploring more factors and conditions that determine whether a woman will be concerned about contracting the disease and how these characteristics aid or hinder her perceptions of risk. The literature reports a number of factors associated with risk perception, but the findings often conflict across studies and produce inconclusive results that preclude effective synthesis. Carefully selected factors and conceptualized measures, logically suitable for specific epidemiological and sociocultural settings, can improve the conceptual framework and lead to more effective prevention in the HIV/AIDS field.

INTEGRATED CONCEPTUAL MODEL

In attempting to understand how perceived risk is assessed and which factors from the discussed psychological and social theories might be associated with it, I start with a visual illustration of the conceptual model (figure 2-1). There have been limited attempts to interpret overall differences in perceived HIV risk among psychological and societal

models for a general population of women ever sexually active in low-prevalence settings. The literature lacks contextual accounts that detail how relevant issues for women are put into actual practice. The model introduced is an effort to fill this knowledge gap by pulling together various factors in the literature seen as helping or hindering individual risk assessment, and promoting individual-level health in a social context.

Unlike the individualistic frameworks, which are more psychological and attitudinal in nature, the proposed alternative integrated framework emphasizes some cognitive, behavioral, context-specific, and sociodemographic background characteristics that may influence the process of perceived risk construction. In a more traditional and collective society, AIDS prevention requires greater collectivist notions of health and intervention, where women with their communal orientation tend to encourage others to be involved in their behavioral health decisions more effectively.

HIV Knowledge Factors

The cognitive HIV knowledge factors in the conceptual model are represented by several measures related to HIV-transmission knowledge, prevention knowledge, channels of information about HIV/AIDS, and beliefs about accidental transmission. These measures refer to knowledge that can influence perceived HIV risk. If an individual can correctly identify all documented modes of HIV transmission and reject major misconceptions about HIV transmission, then this demonstration implies well-informed transmission knowledge (including sexual, blood, mother-to-child, and sharing infected syringes). Conversely, an individual can be fairly or poorly informed when holding some degree of misconception and false beliefs about HIV transmission modes (e.g., beliefs that HIV is transmitted by mosquito bites, kisses, touching an ill person, and so forth).

Rejecting major misconceptions about modes of HIV transmission is as important as correct identification of the true modes of transmission. For example, a false belief that HIV is transmitted through mosquito bites can weaken motivation to adopt safer sexual behavior, and a false belief that HIV can be transmitted through sharing food reinforces the stigma faced by people living with HIV, thereby lowering the risk perception of acquiring the infection from actual HIV transmission routes. HIV knowledge includes information about possible forms of protection (abstinence, faithfulness, and condom use), often provided by health centers or by specific programs aimed at the adoption of preventive behaviors.

Channels of information about HIV/AIDS that are used as tools for health promotion include conventional mass media and interpersonal sources such as health practitioners, peers, or family members. The channels utilized and their effectiveness vary, but most countries can employ media channels, especially if there is little access to formal education. These channels have an essential function in social learning and in raising awareness and knowledge by changing attitudes and behaviors that influence risk perception.

As a collective cognitive component, the model adds a psychological factor that measures popular beliefs about accidental transmission of HIV. For example, a belief that one can be infected during surgical and dental treatment, or from a manicure or pedicure, signals a broad distrust of sterilization practices in health clinics and beauty parlors. In a stigmatized society in which doctors and patients are reluctant to discuss HIV, or doctors are ill equipped to advise their patients or take medical histories, there may be popular beliefs about accidental transmission and possible risk from the health-care system itself (Smith 2003; Irigoyen-Camacho et al. 2003; UNESCO 2003). In addition, an unsafe blood supply and a history of injection drug use may help the spread of beliefs about

potential transmission from surgery, dental treatment, or sharing barber instruments (razors and scissors). People with these types of beliefs or experiences are expected to perceive themselves at higher risk of HIV infection than are people without such beliefs.

There is evidence that having some correct information about transmission does not necessarily eliminate the possibility of holding other false beliefs in undocumented modes of transmission. Correct knowledge of HIV transmission and the absence of misconceptions must also include knowledge of transmission routes that might affect perceived risk perception. According to health-behavior theories, knowledge directly alters the process of risk assessment, but according to social theories, prevalent misconceptions, popular health practices, and socioeconomic or cultural factors may also influence and modify the relationship between HIV-transmission knowledge and perceived risk.

HIV Behavior Factors

It is important to understand the context of HIV risk perception in relation to an individual's preventive and sexual behaviors. According to health-behavior theories, the combination of knowledge and health behaviors may be important in the process of risk assessment, but the relationship may be modified by the presence of misconceptions or other popular beliefs about diseases. Preventive as well as sexual-health behaviors contribute to the process of risk construction in our integrative model.

Some health practices related to HIV testing and routine gynecological exams can be associated with risk perception, particularly in a context where patterns of risk are socially shaped and the health-care system is economically weak. In a context where accidental medical transmission and needle sharing are common, individuals may blame their risk on health providers who are beyond their control. Contact with health professionals, communication and utilization of health care through HIV testing, or

gynecological counseling can all influence the decision-making and risk-assessment process. They can also modify the association between HIV-transmission knowledge and perceived risk. Our model includes a routine gynecological exam and HIV-testing experience as factors associated with the risk-assessment process.

As mentioned earlier, the review of quantitative and qualitative studies demonstrated that individuals are more likely to underestimate than to overestimate their risk of HIV infection regardless of the nature of their sexual behaviors. People often rationalize risk-taking behaviors using a range of socially constructed criteria that could explain the mismatch between objective and perceived risk. The stigmas associated with sexual behaviors, STIs, and condom use may prevent individuals from disclosing their behavior and consequently from assessing their risk. To test the importance of sexual behaviors, the model includes variables for STI symptoms experienced in the last twelve months, reasons for condom use ever, and number of lifetime sexual partners as factors associated with HIV infection.

Context Specific Factors

Research shows that a far more complex set of social, cultural, and economic factors mediate the structure of risk in every population group, and that the dynamics of individual psychology cannot be expected to explain the risk fully without taking broader issues into account (Parker 2001). In addition to cognitive and behavioral characteristics, the model also incorporates a host of context-specific characteristics related to women's perceptions of sexual control, reactions toward PWAs, and migration experiences. These factors reflect aggregate phenomena but are measured at the individual level. Some of the factors may bear more weight than others, but all may plausibly play a role in HIV risk assessment.

Individual perception of sexual decision making and possible means to control and negotiate their own sexual desire may affect the vulnerability of women to HIV infection. The degree to which individuals feel a sense of control over sexual regulation may be related to their ability to initiate and maintain sexual risk-reduction behavior. Women who feel powerless in their relationships are less likely to protect themselves against HIV exposure, to demand condom use, or to refuse sex. Power imbalance can be associated with perceived risk in two directions. In a low-prevalence and collective society, powerless women may have less access to HIV education and not perceive themselves at risk because they do not know what they should fear. Or they may be aware of HIV, but conservative sexual norms and standards are stronger and the powerless women simply trust their partners. Conversely, in a high-prevalence setting, women with low power are more aware of infection and perceive themselves to be more at risk because of low self-control. Therefore, a measure of perception on sexual control over sexual regulation is included in this conceptual framework.

The studies carried out on HIV stigma and discrimination tend to focus heavily on the reactions of those who are perceived to stigmatize others. The negative reactions to PWAs, in turn, often are linked to poor HIV knowledge and distancing from stigmatized risk-behaviors and groups associated with these behaviors (Herek et al. 2002). Misconceptions also become a defining cause of stigmatization in relation to PWAs. Such discriminatory attitudes can also be related to underestimating perceived HIV risk, where women can deny perceived risk of HIV in settings with low prevalence.

Another dimension of context included in the model is migration experience that incorporates that of women and the current labor migration of their husbands. Migration should be considered an important element in relation to AIDS if there is extensive population movement from one country to another, and these countries differ in their HIV

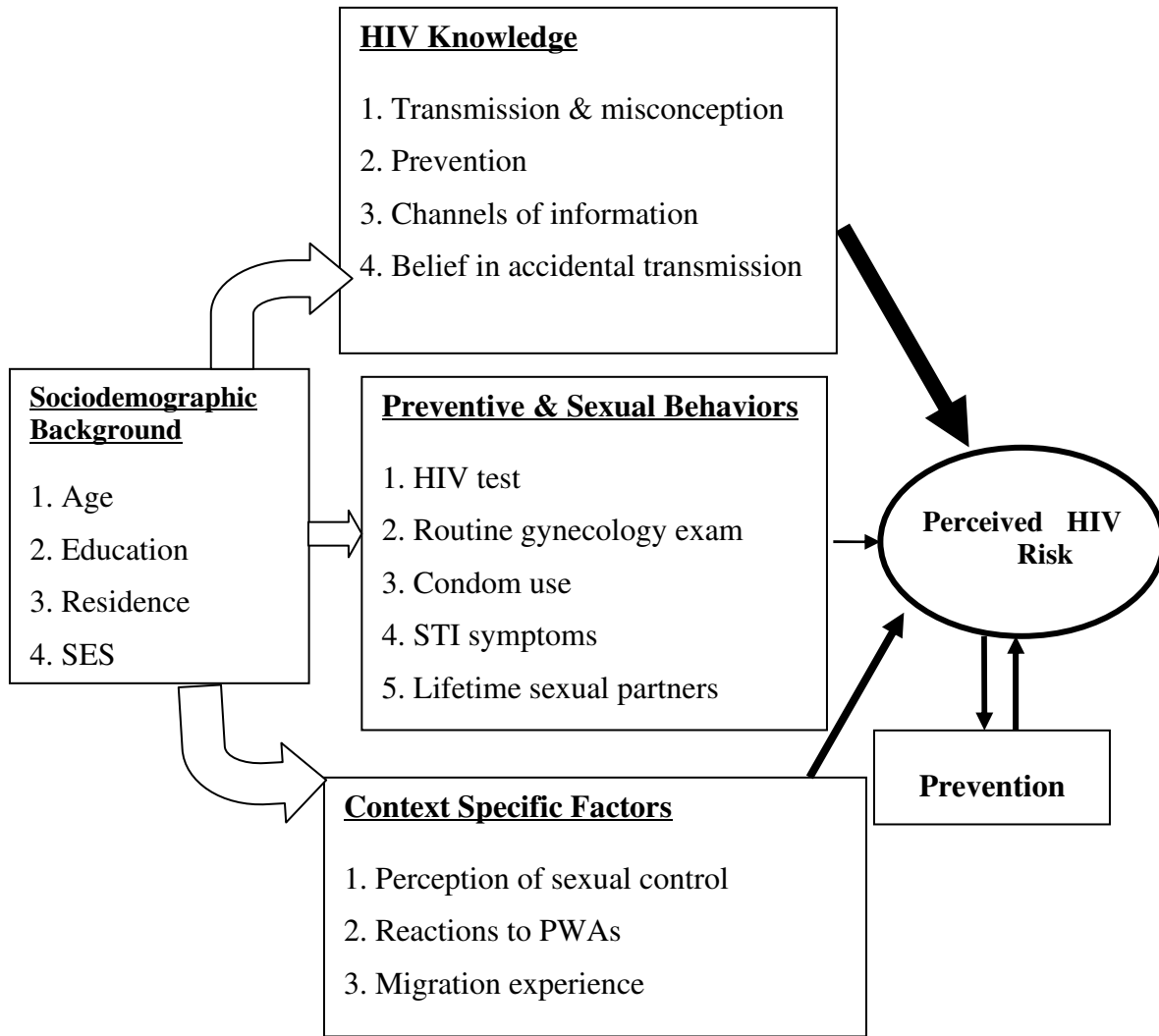
profiles and prevention efforts. Migration-related stress and risky sexual or drug behaviors facilitate the transmission of infection from one person to another. Gender differences in sexual behavior as a consequence of migration make women migrants more vulnerable to risk behaviors and HIV. The experience of personal migration, husbands' separation from family, and exposure to new environments where life is anonymous may encourage migrants to break away from social norms. Opportunities for risky sexual behaviors may alter the process of risk assessment. Migration experience may expand the social networks of women, so that through peer influence and solidarity they are more likely to have risky behaviors and also be more aware of personal risk of infection.

Sociodemographic Background

The conceptual model includes some sociodemographic control variables, such as age, education, residence, and socioeconomic status (SES) status. These variables may influence the HIV-related knowledge-behavioral and context-specific characteristics of women and their process of risk construction. Given the disproportionate impact of HIV on poor women and its association with poverty, it is important to include variables such as education and SES that may increase women's access to some health resources and HIV education that are associated with perceived HIV risk. There is evidence that younger women are more at risk because of a lack of health education and experience than older women, who may have had some health education from health providers. Therefore, middle or older reproductive-age women may be more aware of their HIV risk than younger women. While there are some regional and residential differences in HIV prevalence, women living in high-prevalence regions compared to other geographic regions may be more aware of HIV and risk.

This theoretical model assumes that knowledge-behavioral and aggregated context-specific variables operate through a range of background controls and other unobserved factors that may influence perception of risk and further preventive behaviors. To help justify the inclusion of the variables listed above in the model, the following chapters describe the application of the conceptual model and how each component plays a part in assessing HIV perceived risk among women ever sexually active in the Republic of Georgia. To understand this idea, the roles of local epidemiology, culture, traditions, and norms are extremely important. The next chapter describes the setting in which the conceptual model and hypotheses will be tested.

Figure 2-1: Integrated Conceptual Model for the Study of HIV Risk Perception



Chapter 3: Country Background

This chapter describes the context and existing factors that make the setting of Georgia an important case for examining how women construct perceived HIV risk. It highlights the major epidemiological and socioeconomic risk factors, as well as their development, that might be connected with perceived HIV risk. Given the epidemiological picture of low prevalence with concentration of the epidemic among IDUs, FSWs, and MSMs, Georgia is conducive to further increase in HIV infections due to current socioeconomic hardships, political unrest, poor public health services, increased migration, lack of knowledge about infection, and the practice of risk-elevating behaviors among risk-behavior groups. Through such elements, Georgian culture provides an excellent opportunity to explore the ways in which health knowledge, behaviors, and context-specific socioeconomic and sociocultural factors affect the perceived HIV risk among sexually experienced women. Cultural specifics and traditions, such as constrained norms of gender and sexuality as well as existing high-level AIDS stigmata, make women in Georgia especially suitable for analysis in the sociopsychological conceptual model discussed in chapter 2.

To understand the logic of the central question and posited hypothesis about the determinants of HIV perceived risk, I review the sociodemographic background of Georgia, including historical, political, and medical responses to the HIV/AIDS infection; epidemiology; and related factors and barriers for HIV prevention education. These components describe the context of a central question based on a sociopsychological model of establishing the HIV epidemic in Georgia. In addition, I review cultural attitudes to HIV/AIDS, going beyond the impact of structural factors that need to be taken into account in a highly stigmatizing society when focusing on HIV risk assessment.

SOCIODEMOGRAPHIC BACKGROUND

Georgia, a part of the Soviet Union before 1991, is now known officially as the Republic of Georgia. A country in Eurasia east of the Black Sea, it shares borders with Russia to the north, and Turkey, Armenia, and Azerbaijan to the south. Most of the country is located in the South Caucasus, while a portion lies in the North Caucasus near Chechnia.

Georgia declared independence in 1991, before the collapse of the Soviet Union. Currently implementing wide-ranging reforms and occupied with efforts to settle political conflict with Russia, Georgia has attracted the attention of a range of other countries and international organizations with different interests and motivations as it seeks to achieve territorial integrity, democracy, and economic stability. For example, the World Bank, USAID, and Global Fund are the main donor organizations in the public-health areas, while other consulting firms are providing technical and managerial assistance in sexual and reproductive health, including HIV/AIDS prevention.

According to the most recent census in 2002, Georgia has approximately 4.3 million citizens, 52 percent of whom live in urban areas and 25 percent in the capital city, Tbilisi. The country has an area of 69.7 thousand km² with a density of 76 people per km². It is divided into 12 administrative units and 63 regions, including Abkhazia and South Ossetia, two regions with ongoing political conflicts (Beridze et al. 2004). Ethnic Georgians represent 84 percent of the total population, and Armenians and Azeri are the largest ethnic minority groups. The main religion is Georgian Orthodox Christian, while minor religious groups include Muslims, Armenian-Apostolic, Catholics, and Jews.

Since the dissolution of the Soviet Union, Georgia has suffered a serious population collapse, due in part to internal conflicts in Abkhazia and South Ossetia, and a fragile economy. Severely limited job opportunities have led hundreds of thousands of

Georgians to emigrate in search of work, especially to Russia. The unresolved internal conflicts have displaced approximately 300,000 persons and widened social disparities since 1992-1993 (Buck et al. 2000). Political violence and conflict with Russian military troops in August 2008 are expected to increase the number of Georgian internally displaced populations from part of South Ossetia (UNHCR 2008). The ethnic minority proportion of the population has roughly halved in the last fifteen years as a side effect of this instability. A considerable number of Georgian migrants now live in Russia and Ukraine, two countries with severe outbreaks of HIV/AIDS (UNAIDS 2006).

The government continues to reform economic, health care, and social systems, but financial constraints and interrupted funding provisions slow the process, making it painful for the general population. Although the 2003 “Rose Revolution” politically transformed Georgia, its economy remains stagnant and health care resources scarce. The country is still far from its pre-1991 level of economic development. Poverty affects more than half the population, with 17 percent living in extreme poverty on less than \$2.15 per day (IMF 2006). Poverty increased slightly in 2005, but a downward trend has appeared since 2006. The poverty level decreased in urban as well as rural areas. One of the main determinants of poverty is unemployment, which reached 13.8 percent in 2005 (IMF 2006).

Poverty and unemployment are key factors contributing to high external labor migration and internal mobility. Many Georgian men migrate abroad alone in search of jobs. The women who remain have become more flexible, adaptable, and willing to take risks. Some women gain greater opportunities for geographic mobility, and travel to neighboring countries for petty commerce. Others stay inside Georgia but move from rural to urban areas, experiencing many difficulties adapting to greater social freedom and dealing with different police and organized crime (Dudwick 2003). Due to current

economic hardships, some women turn to survival sex work to provide financially for their families, but the unsafe environment, discrimination, and violence often expose them to STI/HIV and risk-elevating behaviors including unsafe sex and injection drug use (Bersenadze 2006).

The economic crisis and low national budget allotments to the health sector create deterioration of public-health standards, increased out-of-pocket payments, and reduced access to general services. Such conditions produce a rise in physical illness and psychological distress, particularly among the poor and most vulnerable—those who tend to avoid doctors and hospitals until their illnesses turn into serious emergencies.

Declines in the population's health, along with limited access to services, are direct results of the economic crisis (UNFPA 2005). Georgia now has poorer maternal and child health indicators than it did during the Soviet regime (Tsuladze et al. 2005). The growing rate of sexually transmitted infections (STIs), malignancies of the reproductive system, and infertility are among the highest in the Commonwealth of Independent States (UNDG 2004; UNFPA 2005). The causes of poor reproductive health include inadequate quality of services and limited access. Risk-taking behavior and late referral are considered to be immediate determinants of many health problems. Overall low awareness—combined with financial constraints, mistrust of service quality, gender-related issues, and cultural traditions—also undermine access to services. Sociocultural constraints, as well as the lack of result-oriented supportive policies and mandatory health education, contribute to limited awareness of sexual and reproductive health and rights among the general population. Limited involvement in reproductive health issues and limited access to comprehensive reproductive health information and services are of great concern for HIV/AIDS control and prevention.

HISTORICAL CONTEXT OF HIV/AIDS

To understand the spread of HIV/AIDS in Georgia, it is imperative to address the historical process that led to increased HIV infection in the region. Several factors contributed during the early days of the HIV/AIDS epidemic in the former Soviet Union. Certain aspects of history, political attitudes, and local culture are tied to the construction of myths and knowledge about HIV/AIDS during this period. At the beginning of the 1980s, cultural perceptions about HIV and AIDS reflected the global tendency to consider the disease restricted to homosexuals (MSM) and commercial sex workers (CSWs). Social propaganda from government officials, denial of the existence of promiscuity, homosexuality, drug use, and commercial sex work created an atmosphere of ignorance, a false sense of security, and fear—all of which led citizens to respond to the infection with avoidance and confusion (Feshbach 2006).

At the same time that government officials denied the existence of HIV and related social problems, some medical doctors and health authorities viewed HIV/AIDS as a disease that would remain isolated in certain deviant groups rather than spread throughout society. Most people did not understand the scope of the problem or how it affected them. As a result, a stigma was created that still persists (Wallander 2006).

Although the existence of social problems and HIV was officially denied, risky behaviors and HIV infection clearly existed. After the first case was diagnosed in 1987, the Soviet government took initial steps to provide HIV/AIDS legislation, focusing primarily on punitive measures and creating an infrastructure for disease prevention and treatment, with very limited financial resources (UNESCO 2003). This initial anti-HIV legislation generated tension and fear between possibly infected people and medical authorities, while supporting an atmosphere of discrimination against people living with HIV. Instead of enlightening the public about prevention, the authorities neglected

information, education, and counseling, resulting in scandals over each diagnosed case. Such media-induced disgrace and fear often led either to positive change or to panic and feelings of fatalism and hopelessness.

Several outbreaks of iatrogenic HIV infection occurred among children, notably in several hospitals in southern regions of Russia (Medvedev 1990). Inadequate information control was a concern. Being ill prepared for the spread of HIV was not only ideological but also economical and practical. Shortages of disposable syringes, needles, and means of sterilization contributed to the spread of HIV in hospitals. Reports indicated that the children's hospital in Elista (Kalmyk Autonomous Soviet Republic) had particularly poor infection-control practices. The continued spread of HIV from Elista to hospitals in other areas revealed a deep structural problem in the universal lack of disposable sterile syringes and the reuse of unsterile syringes (UNESCO 2003). As a result, society stigmatized infected people and directed anger against the health care system. Many people perceived more risk from unsafe medical procedures than from personal behaviors (Gisselquist 2002). Given the limited monitoring system at the time, along with the prejudiced view that HIV was a Western problem, one can understand how medical personnel could have spread HIV to patients through ignorance and thus contributed to growing distrust of the health care system.

Blood supply safety, not surprisingly, was also a regional concern during the late 1980s and early 1990s. Shortages of test kits sometimes led to interruptions in testing blood donations. In addition, the poor quality of HIV test kits created widespread suspicions of inaccuracy (Medvedev 1990).

In Georgia, the National AIDS Surveillance System was launched in 1985, with the first case of HIV infection registered in 1989. The Government of Georgia has since identified HIV/AIDS among the country's top priorities by developing a national

HIV/AIDS program in the early 1990s. The Law on HIV/AIDS was adopted in 1995, with amendments following in the year 2000 (UNGASS 2006).

Since 2003, the Global Fund to fight AIDS, TB, and Malaria (GFATM) has supported projects and become a major source of public-private investment in a national response to HIV in Georgia. Through GFATM support and coordination of the National AIDS Center, Georgia has ensured universal access to antiretroviral therapy for all registered AIDS patients since December 2004 (UNGASS 2006, 2008). In 2005, four separate existing programs became operational through the Ministry of Health, the National AIDS Center, and partner organizations: the National AIDS Prevention Program, the National Blood Safety Program, the National AIDS Treatment Program, and the Program on Prevention of Mother to Child Transmission (PMTCT). To fill existing gaps in service delivery for the highest risk groups, as well as needs for technical assistance and expertise, UN agencies (along with USAID, WHO, WFP, IOM, and other donor organizations) implemented several complementary projects with GFATM.

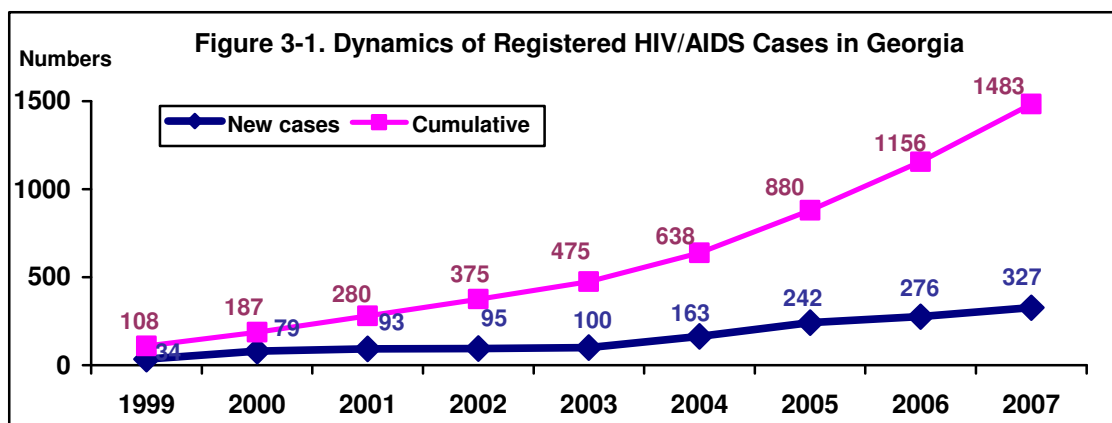
EPIDEMIOLOGY OF HIV/AIDS IN GEORGIA

In the range of 0.1-2.7 percent estimated HIV prevalence, Georgia is categorized as a low-prevalence country with a concentrated HIV epidemic (WHO 2006; UNGASS 2008). According to UNAIDS and WHO experts, the country is facing a growing number of HIV infections. An estimate of HIV/AIDS cases ranges between 2,700 and 18,000 infected people (WHO 2006). Official statistics indicate that by the end of September 2008, a cumulative total of 1,776 persons were infected with HIV—of which 906 developed AIDS, including 381 who died (National AIDS Research Center 2008).

Injection drug use is the most common mode of HIV transmission (59 percent), followed by heterosexual contacts (33 percent), homosexual contacts (3 percent), mother-

to-child transmission (3 percent), and blood transfusion (1 percent). Those most vulnerable to HIV/AIDS infection are IDUs, FSWs, and MSMs. Experts estimate 200,000-275,000 individuals in Georgia were addicted to narcotics in 2004, with 14,400 officially registered as injecting users of opioids (Gamkrelidze et al. 2005). MSMs are a particularly stigmatized group, as many are thought to be involved in sex work (Quinn 2007). Available data suggest that HIV prevalence still remains low in these high-risk groups: 1.3 percent for FSWs, 3.2 percent for IDUs, 4.1 percent for MSMs, 1.8 percent for prisoners, 0.36 percent for STI patients, and 0.67 percent for TB patients (WHO 2006; Gamkrelidze et al. 2005). Yet the most recent HIV testing data for the 2007-2008 period reveals 1.3 percent of HIV-positives among clients of three voluntary counseling and testing centers (in two cities), 6.6 percent among clients of six needle exchange centers (in five cities), and 13 percent among clients of three substitution therapy centers (in two cities) of Georgia (Lochoshvili 2008). Most people living with HIV/AIDS are 25-40 years old, with 75 percent male. The worst affected areas are Tbilisi, the capital city, and the Black Sea coastal regions of Samegrelo and Ajara where infection is also concentrated among risky-behavior groups.

Even though Georgia has a relatively low number of registered HIV/AIDS cases, it is considered ripe for an expanding epidemic due to widespread drug trafficking and injecting drug use, intensive population movement between neighboring high-prevalence countries (Ukraine and the Russian Federation), low HIV knowledge, and risky sex and drug behaviors (Buckley 2005a). Social and economic factors can enhance high-risk behaviors among threatened groups. In addition, stigmata and fear of discrimination encourage infected people to conceal their HIV status, thereby increasing the chances of contracting HIV for noninfected people (Janelidze 2007).



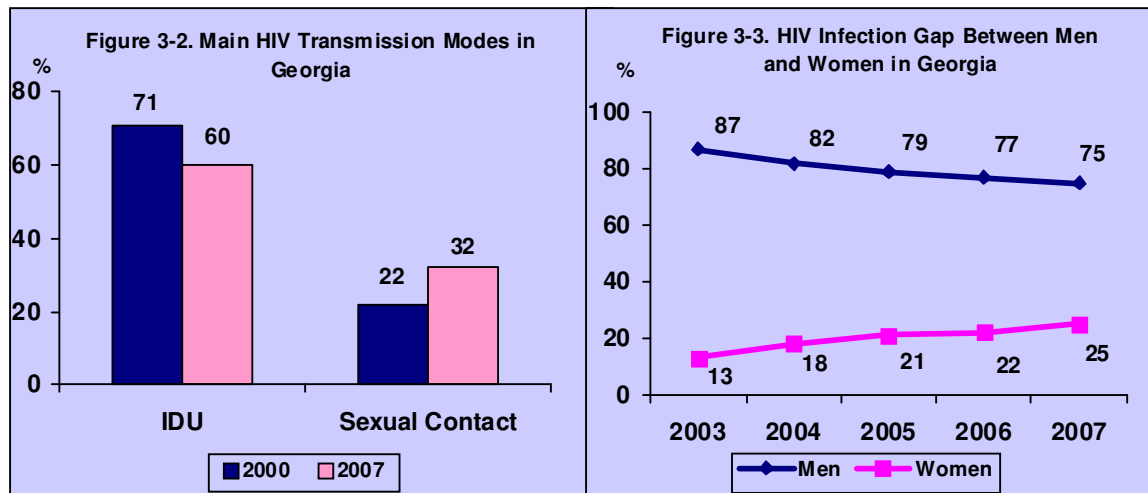
Source: WHO (2008). Centralized Information System for Infectious Diseases (CISID).

The first registered HIV cases in Georgia, which were spread mainly through homosexual and heterosexual contact, strengthened broad-based myths about deviant behaviors, thereby fuelling stigma and discrimination. Prior to 1999, very few cases of HIV were registered in Georgia (see figure 3-1). In 1999, the number of cases of HIV infection doubled. Subsequently, annual infection rates remain relatively stable, progressing slowly with sporadic outbreaks (EuroHIV 2007).

After 1996, the rise of injecting drug use became the primary route of HIV transmission. This situation does not imply social exclusion, because drug use recently became more widespread among young people in elite social classes, rather than limited to marginalized social groups (Kobalia 2007). The main source of increased drug use is the trafficking of illegal substances, primarily opiates and cannabis from Afghanistan and Central Asia. Georgia is located along common drug routes, with weak border controls at checkpoints (Radimecky et al. 2006; Gamkrelidze et al. 2005).

Data since 2001 indicate that transmission has become more heterosexual as women show an increase in the proportion of infected cases (see figures 3-2 and 3-3). At least some of their infected partners contracted HIV through IDU. The increasing numbers of new HIV infections attributed to heterosexual transmission indicate that risk

groups of IDUs and FSWs may serve as a bridge population, facilitating widespread sexual transmission. The balance of men and women infected with HIV currently is 3:1, whereas in 2001 it was 6:1.



Source: AIDS and Clinical Immunology Research Centre in Tbilisi, Georgia. (Accessed January 20, 2008)

The practice of HIV testing is also linked with the HIV prevalence rate. Officially reported cases are identified through passive surveillance carried out under HIV voluntary counseling and testing centers (VCT) and satellite diagnostic laboratories (Tkeshelashvili-Kessler et al. 2005). Among the general population, voluntary testing for HIV is not a priority. Mass screening of citizens, including foreigners, was the main mandatory strategy of HIV/AIDS control in 1986 in all former Soviet countries. This approach changed with independence in Georgia, when all compulsory testing stopped except for blood donors. Blood-screening laboratories and centers do not equally meet international requirements in different regions and locations, and none of them follows any Standard Operating Procedures (UNGASS 2008). In particular, the use of unlicensed and unregistered test supplies is common in some Georgian regions, accidentally infecting children and women (Kakabadze 2006).

In 1993, Georgia joined the Riga Declaration on Human Rights, reorienting national policies toward more liberal and democratic values (Tsertsvadze 2001). The new approach was based on trust and voluntary cooperation with the populace, shifting the emphasis from mandatory HIV testing to broad-scale prevention activities intended to respect human rights and prioritize public education.

Consequently, the number of annual HIV tests dropped considerably, with counseling and testing of key target populations receiving priority. Blood donors are subject to mandatory testing. Since 2005, pregnant women are offered universal access to voluntary HIV counseling and testing services. Testing as well as pre- and posttest counseling is strictly confidential and anonymous. Among patients with advanced HIV at the end of 2007, a total of 334 (70.2 percent) adults and 15 children received antiretroviral treatment under the Global Fund program (UNGASS 2008).

Due to extremely tight finances, the cost of testing, and a fear of being positive, however, people tend to delay visits to physicians until symptoms become severe. Local capacity for diagnosis and reporting is also uneven for different locations. While every blood donor is screened, effective epidemiological surveillance is lacking and systematic monitoring of special risk groups is infrequent and hampered by local sensitivities. These facts, together with stigmata and a passive surveillance system, may have led to an insufficient prevalence and underreporting of the problem's true extent in Georgia, where the majority of registered cases are identified through blood-donor screening (Buckley 2008).

Thus, the surveillance system undertaken in the country shows that about one-third of all HIV cases have been discovered through HIV/VCT centers established in Georgia's twelve major cities. Additionally, all pregnant women are offered free HIV/VCT services supported by the GFATM and Vishnevskaya-Rostropovich

Foundation. An assessment study among pregnant women found that only 74 percent were being tested for HIV/AIDS, and only four out of five tested received information on HIV (Chkhatarashvili et al. 2006).

The evidence, however, is improving, and recently there has been greater attention to the epidemiology and behavioral dimensions of the epidemic. Cases among vulnerable IDU and FSW groups have been spotted through behavioral and biomarker surveys (BBS) conducted in 2002, 2004, and 2006 in two major cities of Georgia, with no more than 5 percent in any defined risk group until 2008 (Dershem et al. 2004a, 2004b; Lochoshvili 2008). IDUs who attend specialized health care institutions are also tested for HIV on a regular basis. But drug users and addicts still hesitate to register officially in such centers for fear of being arrested. Despite the low prevalence of HIV among endangered groups, their sizes, interactions with the general population, and practices of high-risk behaviors are on the rise, suggesting great potential for further increases in HIV infection rates and no reason for complacency (UNGASS 2008; Lochoshvili 2008).

HIV KNOWLEDGE, ATTITUDES, AND BEHAVIORS

The theoretical model that links HIV knowledge, behavioral variables, and assessment of HIV perceived risk can also be applied to different population groups in Georgia. The components of health knowledge, cognitive understanding of risk behaviors, and practicing of HIV-related behaviors shape individuals in their local social environments. The different patterns of health knowledge, attitudes, and behaviors lead to different degrees of and decisions about perceived risk, which for prevention depends mostly on kind of information, methods of information delivery, and target groups.

While there is no HIV/AIDS-related health education in Georgian public schools, several organizations (including the National AIDS Center, GFATM, and UNICEF—

along with other members of the UNAIDS Theme Group and about twenty local NGOs) work on a variety of prevention programs (Stvilia et al. 2006a). These interventions include a peer-education program, VCT, needle exchange, cultural-education events, information distribution, education, communication, and condom promotion through mass media or public events. These programs rarely reach the general population because they are targeting groups with risky behaviors. People who are poor, less educated, minorities, or hard to reach are least likely to have access to mass media and professional services, and a very low level of information about reproductive health and HIV/AIDS in particular (Serbanescu et al. 2001; 2007).

Misconceptions about HIV transmission exist alongside accurate knowledge about documented modes of transmission. Research from two Georgian Reproductive Health Surveys in 1999 and 2005 reveal that all women ages 15-44 hold different misconceptions regarding casual transmission from HIV-infected persons (41 percent in 1999 and 39 percent in 2005), mosquito bites (48 percent in 1999 and 46 percent in 2005), and even supernatural means of HIV transmission—15 percent believe or are uncertain about in 2005 (Serbanescu et al. 2001, 2007). Concurrent inaccurate beliefs about undocumented modes of transmission reflect cultural understandings of disease, which are often shaped by the local history of HIV transmission and make the population unaware of the specifics of HIV infection. Such incorrect knowledge stems largely from the historical context of structural characteristics caused by propaganda to ignore both information and disease in the early days of HIV. Therefore, individuals may create different stories, rumors, and myths combining some solid facts with misinformation, and placing infected persons at risk of discrimination.

The awareness level and its correspondence with the behavior of the general population are unclear. An Adolescent Health Survey in 2002 found a low level of

knowledge about HIV/AIDS among youth (Khomasuridze et al. 2002). Nearly half of the respondents refused to believe that anyone, especially themselves, could acquire HIV. According to another study, young men and women generally have sufficient knowledge about HIV/AIDS, yet are insufficiently aware of the personal HIV risks they face (Kachkachishvili 1999). The majority of respondents, especially girls, reported a belief that they had practically no risk of contracting HIV. The stereotype expressed by statements such as “*AIDS cannot happen to me*” or “*This will not concern me*” is still common. Such an erroneous image leads to a refusal to use prophylactics and an inclination toward risky behavior, even among people who have been informed about the risk. The perceived confinement of HIV to subpopulations such as IDUs, FSWs, and MSMs (along with low HIV prevalence among even these core groups), may have supported the development and maintenance of false beliefs among the wider population. It may also have deepened the sense of fatalism surrounding HIV/AIDS and discouraged sexually active young people from getting tested, encouraging them instead to believe that they are not at all at risk of HIV.

As members of a collectively oriented society, both men and women in Georgia have few sexual partners, rarely use condoms, and hardly ever belong to high-risk groups (UNESCO 2005; Goodwin 2003). The reluctance to use condoms is dangerous because extramarital sexual contact is not taboo for Georgian men. More than that, women may be unable to convince their husbands or partners to use condoms, and they may even be unable to refuse to have sex. In Georgian culture, a married woman may have an increased risk of HIV due to her limited sexual experience and inability to recognize her husband’s risk behavior (Gotua et al. 2002).

The most important indirect risk factor for a woman would probably be unsafe sexual or drug behaviors by her husband, if he is unaware of his infection status and

continues to practice unsafe sex in the marriage. An approximate 20-percent increase in STIs was reported in 2005 compared to 2004. In the reporting year of 2007-2008, though, the Global Fund revealed that 70 percent of FSWs were diagnosed with STIs in the three main cities of Georgia (Bersenadze 2006; Lochoshvili 2008). The gender statistics of STI prevalence in Georgia show that syphilis and gonorrhea are much more prevalent among males than females (MoHLSA 2004), probably because males have more sexual partners than do females and are less likely to use condoms. As a result, a man who contracts HIV is more likely to pass it on to an unprotected female sex partner. Social norms that accept men's extramarital and premarital sexual relationships make women more vulnerable to HIV. For such women, remaining faithful is not adequate protection. Recognition of risky relationships and behaviors are important for heightening the perception of HIV risk.

Drug-injection behaviors are also a factor for HIV infection. Keeping metal non-disposable and used disposable syringes at home to self-inject drugs for either medical or recreational purposes is commonly accepted, with a general belief that injected drugs are more effective than oral ones. Drug or needle sharing is typical among IDUs as a symbolic expression of friendship, trust, and brotherhood (Wouter et al. 1999). The high prevalence of hepatitis B (55 percent) and hepatitis C (69 percent), as well as the association of sexual risk factors with HIV among IDUs in Georgia, likely reflect risky sexual behaviors and significant sharing of needles and drugs (Butsashvili et al. 2001; Shapatava et al. 2006; Stvilia et al. 2006b). A study conducted in 1999 revealed that almost 73 percent of IDUs shared needles and syringes, with the majority of the equipment borrowed from friends (84 percent), sexual partners (3.2 percent), and dealers (1.3 percent) (Tkeshelashvili et al. 2005). Although public use of drugs and a street-based drug industry are not observed, at some level the activity is accepted by friends and

acquaintances. At the individual level, drug use is highly stigmatized and kept secret within the family for fear of shame or problems with police.

Drug use among women runs counter to cultural and traditional norms. Women injecting drugs face discrimination on the basis of both drug use and gender, increasing their vulnerability to HIV and distancing them from life-saving care (Pinkham and Malinowska-Sempruch 2007). Due to strict public opinion, no data are available on high-risk behaviors or STI/HIV prevalence among drug-using women. Experts from the South Caucasus Anti-Drug Programme and the Georgian Research Institute on Addiction have recorded an increase in drug use among women and young schoolgirls in recent years (Gamkrelidze et al. 2005). Husbands infect most women, according to Georgian AIDS research experts, exacerbated by a reluctance to practice safe sex within marriage (Akhmeteli 2006). Punitive, stigmatizing policies and practices also violate women drug users' reproductive and human rights, and challenge women in seeking harm reduction and reproductive health services (IHRD 2008).

GENDER AND MIGRATION

Gender issues and women's status are critical components of the context for HIV/AIDS in Georgia (UNESCO 2005). The traditionally different roles for men and women remain deeply ingrained and widely adhered to in contemporary Georgian society. Although gender disparities in higher-education enrollment are not considerable, and the educational levels of both men and women in Georgia are high, the male-dominated political and economic environment limits women's leadership and income-generating opportunities.

The economic or social dependency of women on men results in an increased vulnerability to HIV. The imbalance of power between men and women in

socioeconomic and cultural contexts puts a limit on women's ability to negotiate with men about their preference and desire in sex. Increased trafficking and domestic violence also developed as HIV risks among girls and women in Georgia during the past decade (Amnesty International 2006).

Under traditional standards, men are dominant within Georgian families. Sexual behavior models are different for men and women. Along with the cult of motherhood, there is the cult of "the real man." The traditional interpretation of masculinity offers men greater power than women in gender relationships. In the sexual domain, this position is manifested by a masculine preference for controlling the initiative. Men are judged by a different standard and forgiven their pre- and extramarital sexual exploits. Young men consider themselves more knowledgeable than their female partners in sexual encounters. This interpretation of masculinity usually encourages boys to take risks due to incorrect understanding, knowledge, and ideas about sex.

On the other hand, female sexuality is widely recognized only in relation to the needs of men. Women are expected to come to marriage as virgins and remain faithful to their husbands. Women's sexuality is closely monitored and restricted. Women who do not marry are generally viewed with suspicion and are not expected to engage in sexual relationships. As a rule, women are quite concerned about their public images, with a strong sense of responsibility toward their families that often reflects an inability to make decisions about their own sexualities or even to negotiate with their partners and to discuss issues openly (UNESCO 2005; Durglishvili 1997). Such attitudes and perceptions toward women's sexuality can also influence negatively the assessment of personal risk, as well as increase the chance of avoiding discussion about HIV/AIDS with husbands or of negotiating issues of sexual risk factors with children and adolescents.

Risk factors associated with HIV/AIDS in couples differ by gender. Men tend to take greater risks for drug and sexual behaviors while women are more likely to be infected. Women's vulnerability to AIDS is often determined by the fact that, due to gender stereotypes and ensuing dependency, a woman cannot be fully in control of her body and her sexuality. For example, in the Adolescent Reproductive Health Survey (2002), only 4 percent of male adolescents report that they had criticized their male peers for sexual activity before marriage. In contrast, 40 percent of female respondents had criticized their female peers for the same sexual activity (Khomasuridze et al. 2002).

Another factor contributing to HIV infection is the widespread growth of temporary, typically male, labor migration into neighboring higher-prevalence regions. About 79 percent of registered HIV cases in Georgia can be traced to risky behaviors of drug use or sexual activity while in Ukraine or Russia (UNESCO 2005). Approximately 150 HIV/AIDS diagnosed patients live outside Georgia (Gulua 2008), but additional undiagnosed migrants exposed to risky sexual or drug behaviors may also infect others with HIV.

Most migrants from Georgia are undocumented, a fact that probably increases their likelihood of either using drugs or alcohol or practicing risky sexual behaviors, often in attempts to cope with the stress of resettlement (IOM 2003; Lowndes et al. 2003). Returning migrants can pass sexually transmitted infections to nonmigrating spouses, especially when the latter are unlikely to question a partner's behavior or safe-sex practice. Migrant spouses may also turn to HIV risk-related coping behaviors at home, such as unsafe sexual behaviors, or drug use. They use such actions to cope with the challenges of migration within the family system, which experiences weak social monitoring or the economic strains of irregular financial support (Buckley 2005b; IOM 2003).

Economically motivated internal migration and displacement occur more often among women in Georgia. Internal mobility, a common survival strategy for Georgian families, means working at informal low-paying and low-skilled jobs in the main urban areas (Dershem and Khoperia 2004). Women from rural areas, in particular, are able to find unofficial employment as traders and can thus support their families. Poverty, unemployment, and an inability to go abroad have turned some women toward commercial sex work, which has recently grown dramatically in the capital city of Tbilisi where more STI cases have been reported among FSWs (Dershem 2004b; Bersenadze 2006). Because of the large internal population migration and an economic crisis, there also appears to be an increase in adolescent sex workers who are more likely to become infected with HIV during unprotected intercourse. In such an environment, sexual experience, exposure to risky behaviors, and familiarity with STI/HIV may alter women's vulnerability and risk of infection.

SOCIAL BARRIERS AND HIV/AIDS PREVENTION

Although the national HIV/AIDS Action Plan sets out strategies and priorities for effective control, many state facilities continue to serve key populations in a stigmatizing and discriminatory manner, together with forced diagnosis and treatment (Stvilia et al. 2006a). Medical aid is often refused to an infected person, making the individual aggressive and therefore less concerned about transmitting the virus to others (Janelidze 2007). Due to such attitudes and scarce resources, the AIDS Center and other health care institutions have arranged support from the Global Fund treatment program. Most AIDS patients receive free medication from this source. Among HIV positive patients in an early stage of infection, however, only five are being treated through state support and twenty-two are covering expenses themselves. The limited access to drugs deepens the

sense of vulnerability surrounding HIV/AIDS, and the disease is usually concealed and treated in secret. Stigma and its resulting discrimination constitute great barriers to the prevention of further infection and the provision of adequate health care. The lack of palliative care services is filled by families of AIDS patients, placing a burden on female family members—the primary caregivers in Georgia.

Many factors (such as ignorance about the disease, myths about HIV transmission, the assumption that AIDS is incurable, or social fears about sexuality) increase the HIV/AIDS stigma and make it a symbol of moral corruption. This situation causes social exclusion and humiliation of AIDS victims. After a blood donor in Georgia infected nineteen people through the Kutaisi blood bank in 1998-2001, only one woman (who had a blood transfusion during pregnancy complications and later gave birth to an HIV-infected child) spoke openly about her disease (Datiashvili 2007). Such bravery brought avoidance from neighbors and acquaintances, ultimately causing her to withdraw her infected son from kindergarten. The family was eventually forced to move to a different house. AIDS patients and their children have many problems in educational establishments and with surroundings. One man was evicted from a flat he rented. After his landlords discovered that he had HIV, they threw all his things into the street. All these cases demonstrate that social stigmata and discrimination are still very common in Georgia, deeply embedded in the underlying structures within the normative and ideological layers of society, and therefore pose problems in effective prevention and public education.

Attempts to develop formal school-based prevention programs have faced serious social and cultural opposition from the leaders of the Orthodox Church (Stvilia et al. 2006a). The Union of Orthodox Parents strongly objects to the introduction of HIV prevention materials into school curricula, saying that “sexual education [is] genocide for

the nation” (Japaridze 2007). Regardless of the subject’s merit, public opinion about sex education is still divided. According to the 1999 Women’s Reproductive Health Survey, 85 percent of women aged 15-44 believe that HIV and STI prevention information should be delivered in Georgian schools (Serbanescu et al. 2001). Some people with conservative views, however, believe that teachers and parents should promote Georgian family traditions based on abstinence and premarital virginity, and to refrain from teaching safe-sex principles.

Until HIV prevention education is accepted in public schools, several small-scale pilot projects have been introduced to promote HIV awareness among schoolchildren, parents, and teachers. Such projects aim to break down cultural barriers and promote sexual awareness and responsibility by using an intergenerational approach to influence gender norms and inequalities (CARE 2007). To reduce the vulnerability of young people to HIV and substance abuse through the GFATM project, the educational program was piloted in 84 secondary schools out of 326 in the capital city of Tbilisi during 2005-2006. The endeavor reached 127 teachers and 21,593 students (UNGASS 2008). Another USAID-sponsored project developed a culturally sensitive Healthy Lifestyle Course, targeting students from 95 secondary schools in the Imereti region during 2006-2007. This undertaking covered 4,000 students, with IEC materials distributed to an additional 6,000 youth (Darshem 2006). These missions make a clear distinction between sex education and HIV-prevention education. The focus is on HIV prevention skills rather than on safe-sex promotion among adolescents that can be delivered effectively from different information channels (Wargan 2007).

The government as well as NGOs utilize different information channels in IEC efforts to disseminate information about HIV/AIDS, reduce misinformation, and induce behavioral changes. The role of the mass media in HIV prevention is unclear, since the

messages do not always have accurate information, are not educational, and rarely reach all regions and ethnic minorities. Specifically, 70 percent of women respondents from the Kakheti region and 79 percent of women of Azeri ethnicity did not see, hear, or read any information on HIV/AIDS from the mass media during the past six months before the survey in 2005 (Serbanescu et al. 2007).

Sometimes media imagery poses a difficult challenge for public health education, often causing misconceptions. Alarming TV and media messages pointing toward the health care system as a potential source of blood-borne infections are likely to play a role in risk assessment. Single infections and medical malpractice cases are widely discussed in all news media. These instances exacerbate negative attitudes and do not help people understand their own risks fairly, despite the fact that after the last iatrogenic infection in 2005, the quality of tests and donor-blood diagnosis improved significantly (Pannier 2007; Public TV 2006; Lochoshvili 2008). The exaggerated concern about exposure to the virus through improperly sterilized medical equipment also implies that risky sexual behaviors may not play an important role in women's perception of risk. The high prevalence of mistaken ideas concerning transmission only serves to stigmatize and marginalize people living with HIV.

The more accurate educational materials are mostly distributed by donor organizations and are available in a small-print media format (brochures, posters, or booklets). Materials are often limited in quantity, targeting a restricted number of schools, clinics, and counseling centers. Most reliable sources recommend professional consultations with health practitioners and gynecologists, but such consultations are limited to pregnant women and not always accessible and affordable to young adults (Butsashvili et al. 2004; Chkhatarashvili et al. 2006). Peer channels of information are popular among young adults, but the accuracy of such information is questionable. Peers

are sometimes the sources of myths and misconceptions. Considering the social, cultural, and outreach effects of peer channels, GFATM, UNICEF, and UNFPA support capacity building in peer education, along with outreach programs among youth and other vulnerable groups (Tatanashvili 2000; UNICEF 2003).

The Government of Georgia clearly realizes the seriousness of HIV/AIDS, ranking it among the top public-health priorities. Although substantial efforts to improve blood screening have been successful, the country lacks the medical system to raise standards for sterilization and disinfection (Pierson 2005). Georgia's severe economic situation does not allow the health system to carry out full-scale prophylactic measures to prevent the spread of HIV/AIDS. In particular, the national budget allocated to the AIDS Prevention Program remains limited—actually decreasing by 12 percent in 2005, even though the total budget of the four main HIV/AIDS government programs increased by 31 percent (UNGASS 2006). The support of the international community is therefore of vital importance for Georgia's national policy.

Finally, despite some progress in HIV/AIDS prevention and registered low prevalence of infection, the Georgian setting indicates a need to study assessment of HIV risk among reproductive-age women ever sexually experienced, a group that demonstrates increasing incidence of HIV sexual transmission and practices risk behaviors within or outside marriage. Understanding that women make decisions about personal risks not only with factual information and behaviors but also in terms of their social, cultural, and economic contexts may lead to more effective preventive initiatives in this traditionally collective environment. Sociocultural aspects such as traditions, beliefs, gender relations, and family structures are closely linked with behavior patterns. If we would like to act on a long-term basis, then it is vital to incorporate these factors into prevention when women assess their HIV infection risk. According to international

experience, a successful anti-HIV effort is possible only during the early stage of this epidemic (as in Georgia). In the event of a large-scale outbreak in a country with the limited economic resources of Georgia, HIV/AIDS prevention is virtually impossible. To justify the use of these discussed factors in an analysis for testing theoretical pathways, I describe the data methodology and strategies fully in the next chapter.

Chapter 4: Data and Methods

The present chapter explains research methods used to develop and analyze the data in this dissertation. Both quantitative and qualitative techniques are utilized to provide a broader understanding of HIV perceived risk and to clarify pathways through which HIV knowledge, health behaviors, and socioeconomic factors influence HIV risk perception. A mixed-method approach is employed to add insights and understandings that might be missed with only a single method. This chapter describes a strategy for the mixed-methods approach, using a sequential model that relies on the principle of complementarity. Priority is given to the quantitative data analysis, with qualitative data used primarily to augment the quantitative data. Such a design is particularly useful for explaining relationships and/or findings, especially unexpected ones (Hanson et al. 2005).

The mixed-methods approach in this dissertation will lead to a more comprehensive understanding of HIV perceived risk and HIV prevention practices among women ever sexually active in Georgia. Quantitative and qualitative techniques help to clarify women's reasoning and motivations when they assess and discuss perceived risk, behaviors, and consequences. I will attempt to test research hypotheses with the quantitative data, and to extend our understanding of cognitive linkages between perceived risk and safe prevention behaviors with the qualitative data. Both approaches work together to test and interpret the pathways through which HIV-related knowledge and behaviors, along with the sociodemographic and socioeconomic factors of context, come together to affect women's perceptions of HIV risk in Georgia.

This chapter is organized to present the quantitative approach first—including a description of the data, variables, and models employed to identify nationwide trends and patterns as well as the main determinants of HIV perceived risk—and to test the effects of HIV knowledge, health behaviors, and contextual factors on HIV perceived risk. The

chapter offers the qualitative approach next and describes the ethical issues in research involving human subjects. The collection and analysis of qualitative data help to interpret the quantitative results by exploring how women discuss HIV risk and what cognitive strategies they employ to explain their perspectives.

QUANTITATIVE APPROACH

Data

This research employs quantitative analysis to examine questions about how HIV-related knowledge, perceptions, and beliefs change over time and how these factors contribute to the process of HIV risk assessment. I use data from the 1999 and 2005 Georgian Reproductive Health Surveys conducted by the National Center for Disease Control and Medical Statistics in Tbilisi, Georgia, with assistance from the Centers for Disease Control and Prevention in Atlanta, Georgia, USA (Serbanescu et al. 2001, 2007). Both surveys are nationally representative of women ages 15 to 44, obtained from stratified multistage cluster samples of households. The 1999 sample consists of 7,798 women and the 2005 sample of 6,376 women. Eligible respondents are selected randomly from each household, regardless of marital status (excluding the conflict regions of South Ossetia and Abkhazia). Interviews are conducted at the homes of respondents, with response rates of 98.8 percent and 99 percent in 1999 and 2005, respectively.

Variables

Both surveys include data on HIV/AIDS from measuring risk perceptions, transmission knowledge, prevention methods, misconceptions, and other reproductive health, demographic, and socioeconomic characteristics. In addition, the list of questions asked in the 2005 survey is expanded beyond those in the 1999 survey. More variables

about HIV stigma and context, specifically migration and gender-related questions, are included.

The dependent and independent variables for this study are listed below. An operational definition is provided for each variable. In addition, details are supplied on the items used to construct the variable.

Dependent Variable

HIV perceived risk. To operationalize women's perceptions of personal HIV-infection risk, I use the question: "Do you think you have any chance of getting AIDS?" Response categories are: "Great risk, moderate risk, little risk, no risk at all, and don't know." The ever sexually active respondents who answer "don't know" (3.3 percent in the 1999 sample and 5.1 percent in the 2005 sample) are removed from the analysis. Following Prohaska et al. (1990), Macintyre et al. (2004), and others, I collapse the responses into a dichotomous measure. Few women in either survey give responses of "great" or "moderate." Therefore, "small risk," "moderate risk," and "great risk" are coded 1 on "HIV perceived risk" and labeled "HIV risk perception" (34.0 percent in the 1999 sample and 43.5 percent in the 2005 sample). The women who perceive no risk at all are coded 0 on "HIV perceived risk" (66.0 percent in the 1999 sample and 56.5 percent in the 2005 sample) and labeled "absence of HIV risk perception" (see table 4-1). In the following analysis and text, I use the term *risk perception* to indicate any perceived risk at all.

Table 4-1: Distribution of HIV Perceived Risk Among Women Ever Sexually Active, Aged 15-44 in Georgia, GRHS (1999 And 2005)

Perception of HIV personal risk	1999 N=5,260		2005 N=4,053	
	%	N	%	N
Great	0.9	46	0.2	9
Moderate	2.8	152	3.5	151
Little	29.2	1585	37.5	1607
No risk	63.8	3459	53.7	2298
Do not know	3.3	177	5.1	217
<i>HIV perceived risk*</i>				
HIV risk perception	34.0	1789	43.5	1762
Absence of HIV risk perception	66.0	3471	56.5	2291

Note: *Percentage indicates HIV risk perceived after “do not know” cases were removed from the analysis, which uses weighted data.

Independent Variables

HIV transmission knowledge. I use six items regarding knowledge of HIV transmission. They include four correct routes (blood transfusion, sex, mother-to-child, and sharing needles and syringes) and two incorrect ones (mosquito bites and sharing food and objects with an infected person). The latter two routes are probably the most commonly mentioned myths among women in Georgia. Responses to the six knowledge items are “yes,” “no,” and “do not know.” The “do not know” response was merged with the incorrect category to produce a stricter measure of HIV knowledge. Combining the responses to all transmission-route and casual-contact items (with a mean of 4.3 for both the 1999 and 2005 samples), I construct a measure of HIV transmission knowledge by clustering the respondents into three groups. The term *well informed* applies to respondents who correctly answer all six items, *fairly informed* to respondents who correctly identify all transmission routes but not casual-contact means (1 to none correct), and *poorly informed* to those who miss at least one of the four transmission route items (3 to 0 correct).

HIV prevention knowledge. The three standard prevention questions are: “Can people reduce their chances of getting the AIDS virus by...,” with the choices being: “abstaining,” “having just one sexual partner,” and “using condoms” (A, B, and C). The answers are used to assess respondents’ knowledge of HIV prevention. The possible responses for these items are “yes,” “no,” and “do not know.” The category “do not know” is considered to be incorrect and is merged with the “no” response. The answers are categorized into three groups: “mentioned 3 methods,” “mentioned 2 methods,” and “mentioned 0-1 methods.”

HIV information sources. To assess the most important HIV/AIDS channel of information, I employ a single-item question: “In general, what has been your most important source of information about AIDS?” The possible responses are collapsed into four groups: “television,” “family/peers,” “radio/media,” and “medical.” This variable includes both formal and informal channels. Family and peers are informal channels with less accurate information, while others (TV, radio, media, and health professionals) are formal channels with more structured and accurate information.

HIV accidental transmission. This measure of HIV transmission describes whether the respondent believes that it is possible to be infected accidentally from procedures in health care clinics. This belief is associated with a cultural perception that health care services are a significant source of risk for contracting HIV. A single question about whether one can be infected during dental or surgical treatment is used as a dummy variable with a value of 1 if the respondent believes in accidental transmission and 0 as a reference category if answered otherwise.

HIV test. The single question about whether the respondent was ever tested for HIV is used to assess the chance of counseling that might be related to HIV knowledge

and risk assessment. The variable is dichotomized with a value of 1 if the respondent was ever tested for HIV and 0 as a reference category if answered otherwise.

Gynecology exam. I include a variable measuring access to a routine gynecology exam as an indicator of health-service access, which may increase familiarity with STI/HIV and the option for counseling if testing were performed during a routine exam. Responses to a single question about the date of the last routine gynecology exam are categorized into three groups: “one year ago,” “two or more years ago,” or “never. “

Condom ever used. A person’s self-assessed risk of HIV might be based on the extent to which he/she takes preventive actions, including condom use. Because condom use at last sex does not necessarily reflect typical or long-term behavior, I use this variable to assess whether a condom has ever been used and the reasons for use. A single question is asked: “Have you ever used condoms for...?” The possible responses are: “birth control only,” “disease prevention only,” “both,” or “never used a condom.” From the answers, I construct three groups: “birth control only,” “disease prevention only/both,” and “never used.” The responses “disease prevention only” and “both” are merged because relatively small numbers of women use condoms only for disease prevention. The recoded measure combines all women who ever used condoms for disease prevention.

STI symptoms. The presence of STI symptoms increases the likelihood of contracting other STIs if the respondent is exposed to HIV through risky sexual behaviors. The measure combines responses to the question: “In the past twelve months, have you had any of the following symptoms?” The categories are: “vaginal discharges with a bad smell” and “sores, ulcers, or warts in the genital area.” A dummy variable has the value of 1 if at least one symptom is present, and 0 as a reference category if both symptoms are absent.

Number of sexual partners. A single question is utilized to capture the sexual behavior associated with HIV risk exposure: “With how many different men have you had intercourse?” within life (in the 1999 survey) and within the past three months (in the 2005 survey). The responses were dichotomized with a value of 1 if the respondent had two or more partners and 0 as a reference category if the respondent had only one partner.

Perceived sexual control. This measure, available in the 2005 survey, describes the respondent’s sociocultural perception and empowerment regarding the negotiation of safe sex with partners. The variable is based on two questions about whether women can refuse sex or demand condom use when a partner has an STI (the correlation between the items is 0.744). The response set for these items is: “agree,” “disagree,” and “do not know.” Due to the high level of overlap between the last two categories, they are combined into a single dummy variable, with 1 indicating that the respondent holds a negative perception of safe-sex communication and 0 indicating a positive perception of safe sex communication as a reference category.

Reactions to PWAs. This measure, also available in the 2005 survey, is a context-specific sociocultural variable associated with the negative, stigmatizing, and discriminatory reactions of respondents toward PWAs. The variable is constructed by combining two questions about whether the respondent would buy food from an HIV-infected seller or accept an HIV-infected female teacher to instruct in school (correlation between the items is 0.681). Presented as a dummy variable, 1 indicates that the respondent rejects the rights of PWAs in both conditions, and 0 otherwise.

Migration experience. The respondent’s migration experience as a contextual socioeconomic variable is used to help understand the complex mechanisms involved in HIV risk among migrant populations. The measure is based on a single question: “Just before you moved here, did you live in an urban place, a rural place, or outside Georgia?”

After comparison with the current place of residence, respondents are categorized as “urban migrant,” “rural migrant,” or “nonmigrant.”

Labor migrant partner. A variable summarizing the husband’s migration experience is an indicator of the risky behavior of labor migrants and the risk of infection while outside Georgia. A single question about whether the respondent’s husband is currently away for work in another country is used. Answers are coded 1 if the husband is away, and 0 otherwise.

Control Variables

Several sociodemographic and economic variables that are potential correlates of HIV knowledge and perceived risk are used in this study. These control variables may influence a woman’s perceived risk and protective behaviors in indirect ways, as well as through their effect on her social environment.

Age. The reported age of respondents is categorized into three groups: 15-24, 25-34, and 35-44. The mean age is 32.5 in 1999 and 33.0 in 2005. The youngest age category (15-24) is the reference group.

Education. Education is measured with the highest level of instruction completed. This information is recoded into a dichotomous measure, with 1 indicating that the respondent was ever enrolled in some university or postgraduate education, and 0 otherwise (for completed secondary and less education).

Residence. Region of residence is also associated with HIV incidence. Of the eleven official administrative regions, Tbilisi has the highest incidence of registered HIV cases. A dichotomous variable is coded 1 if the respondent resides in Tbilisi, and 0 otherwise.

Socioeconomic status. Wealth indicates relative access to financial and material resources. This variable is measured with a composite of ten household amenities:

television, automobile, refrigerator, videocassette recorder, cell and landline phones, flush toilet, heating system, vacation home, and having more than one room per household member. Following the strategy described by Bollen et al. (2002), I add 1 to the total number of amenities reported, take the natural log, and treat the result as a continuous measure of women's socioeconomic status. The mean number of amenities is 4.5 in 1999 and 4.7 in 2005.

Analysis

In the analysis, the sample is restricted to women ever sexually experienced who had heard about HIV/AIDS and are not missing data on any variables of interest. These restrictions reduced the sample to 5,260 cases in 1999 and 4,053 cases in 2005. To account for the sample design and be representative of the population in each survey, I employ sample weights and correct for clustering. Weights and cluster codes are provided by CDC in both data files (Serbanescu et al. 2001, 2007).

The first part of the analysis uses descriptive statistics on selected indicators. Proportions and percentages are given for HIV knowledge, preventive and risky sexual behaviors, perceptions of HIV risk status, and other sociodemographic and context-specific variables.

A bivariate analysis using simple chi-square tests is performed to identify statistically significant associations between independent variables and dependent variables at the $p < .05$ level. Multicollinearity diagnostics used to test for collinearity among the independent variables do not reveal any pairs of variables that were too highly correlated. The largest correlations observed are between HIV transmission knowledge and belief in accidental transmission in 1999 ($r=0.36$) and between SES and residence in 2005 ($r=0.46$).

In the second part of the quantitative analysis, logit regression models are used to test the effects of HIV knowledge and behavioral variables on HIV perceived risk, controlling for sociodemographic and economic factors. Logit regression is used for three main reasons. First, logit models are statistically more appropriate than least-squares when the outcome is binary (Cleary and Angel 1984). Second, logit regression represents the probability of an outcome rather than group membership. Third, logit regression generates odds ratios that can be interpreted and may promote better knowledge of the underlying relationships of the variables (Polit and Hungler 1991).

I calculate three logit models (Models 1, 2, and 3) with the 1999 and 2005 samples to examine the effect of HIV knowledge and health behaviors on HIV perceived risk. Corresponding to the first hypothesis about possible associations among HIV transmission knowledge and HIV perceived risk, Model 1 tests the effects of HIV knowledge variables on perceived risk while controlling for only the sociodemographic variables. Model 2 adds two preventive-health behavioral variables to Model 1. Model 3 adds sexual behaviors to Model 2. Models 2 and 3 correspond to hypotheses one and two.

In a similar approach, three models (Models 1, 2, and 3) are applied to the 2005 sample with three additional predictor variables--perception of sexual control, HIV stigma, and migration--added step by step. This approach clarifies the importance of context-specific sociocultural and economic variables on perceived HIV risk while various HIV knowledge, behaviors, and sociodemographic characteristics are controlled. These models correspond to the last three hypotheses (3-5), which predict a link among context-specific factors and HIV perceived risk. Results of the multivariate models are presented as odds ratios, with significance levels indicated by asterisks.

QUALITATIVE APPROACH

The second stage of this research employs qualitative analysis to explore interesting or conflicting findings that are not well resolved or explained by quantitative data alone. More specifically, the results of the secondary data analysis guide me in developing interview protocol by identifying important questions to ask during individual in-depth interviews. This approach yields insights on cognitive determinants that women bring to their experiences when they discuss HIV risk and behaviors. The in-depth interviews address how sexually experienced women perceive and interpret HIV risk in Georgia, which cognitive strategies and language they use, and how these relate to their behaviors.

To investigate perspectives on and meanings of HIV risk and behaviors, and to obtain significant answers to sensitive questions on personal topics, interviews are restricted to ever sexually experienced women, who are better sources of relevant insights. The quantitative analysis is similarly limited to ever sexually experienced women. Keeping in mind that the findings cannot be generalized to the entire population, the qualitative analysis illustrates the knowledge, beliefs, and attitudes as well as the context, motivations, intensities, and basic reasoning of the selected group. Such focus is often useful and more efficient in terms of time and resources (Creswell 1994).

Bryman (1988) claimed that the most fundamental characteristic of qualitative research is its express commitment to viewing events, actions, norms, and values from the perspective of the people under study. This need is even more important for a sensitive issue such as HIV/AIDS, where belief and meaning have an important influence on perception of HIV risk and prevention behaviors (Power 1998). These insights should help understand and interpret the expected pathways in the theoretical model and improve prevention practices by designing appropriate intervention programs. From this point of

view, the current qualitative stage of this research involves creating texts and reviewing participant statements on questions related to HIV perceived risk and behaviors. By using in-depth interviews, I seek to identify cognitive strategies that women use to guide their decisions in assessment of personal HIV risk that may influence their future behaviors.

Ethical Considerations

A research study that collects personal information that can be linked to individual human subjects must be designed and conducted in an ethical manner that protects the research subjects (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). In accordance with the ethical guidelines for protecting human research subjects, I carefully develop and implement the research protocol and questionnaire. I obtain ethical approval to conduct the research from the Institutional Review Board (IRB) of the University of Texas at Austin (USA) in September 2006.

The in-depth interviews I conduct in Tbilisi, the capital city of Georgia. This metropolis of 1.1 million people, located in the center of the eastern part of the country, is a major administrative and commercial hub. Of the officially registered HIV-positive people, 35 percent are from Tbilisi. Apart from a higher prevalence of HIV, the capital city is selected because of the pervasiveness of risky behaviors, diagnosed STIs, and size of displaced population. Also considered in site selection is an increased awareness and openness of the respondents to talk about HIV/AIDS due to less conservative attitudes toward sensitive topics, relative to other urban and rural places in Georgia (Doliashvili and Buckley 2008).

I conduct in-depth interviews with twenty-six sexually experienced women by using purposive stratified snowball sampling strategy, also known as chain referral

sampling (Atkinson and Flint 2001). More information on the sampling techniques, characteristics of the sample, and data analysis are detailed in chapter 6.

I design interview protocol guidelines and open-ended probes after obtaining preliminary results from quantitative analyses and reviewing reports of international organizations on important areas of investigation in Georgia (UNESCO 2005; UNGASS 2008). The protocol includes information on the project's background, goals, and procedures; the questionnaire; and the consent form and personal information sheet on sociodemographic characteristics (see appendices 2, 3, and 4). I describe the purpose, risk, and benefits of the research to potential respondents in local language, so that they have the information needed to decide whether to participate in the research.

I use face-to-face interviews with open-ended format, allowing for extensive rapport and providing opportunities to explore complex, ambiguous, and sometimes potentially sensitive material. To minimize the impact of the topic's sensitivity, I utilize a strategy of responding in a caring manner, presenting a postinterview debriefing about interesting questions, addressing any misinformation after the interview, and offering to refer participants for additional information if they request it.

Interview questions are directed toward understanding respondents' cognitive backgrounds on HIV knowledge, experiences, or situations expressed in their own words, as well as unexpected kinds of information. The questions are selected from several questionnaires adapted for HIV/AIDS studies and included in the AIDSQuest survey library (Horizons, July 2006). Use of legal borrowed questions is not only efficient, since they have already been tested for the validity and reliability of the responses they elicit, but it also improves the comparability of findings resulting from different studies. Based on the research interest in finding pathways between HIV knowledge components and HIV perceived risk, participants are asked for specific information about HIV/AIDS

knowledge (signs, transmission, prevention, and treatment), source of information, lifestyle, and contextual issues of stigma, gender, migration, and other barriers and facilitators for preventive behaviors.

After completion of the interviews, I take all necessary steps to ensure confidentiality, and remove the names and identifying characteristics of participants from my records. Signed consent forms are stored in a locked safe box located in my home office under security. Full names on the forms are not linkable to participant questionnaires. I also decide to take the additional precaution of removing all participant contact information from my personal computer and paper files. I retain respondents' telephone numbers until completion of individual interviews in a password-protected file on my personal computer.

After translating and transcribing all interviews into English, I enter all data into an Atlas.ti data analysis software program and start analysis. Information relevant to cognitive components of knowledge, attitudes, beliefs, choice, practice, and perceptions are identified by reading and coding the transcripts thoroughly. These codes and interpretations are given for the main themes of the applied conceptual model and explain the information obtained from the quantitative analysis. Extracted quotes presented in chapter 6 demonstrate the pattern diversity of perceived HIV risk, and clarify the variety of (or lack of) established associations between HIV knowledge, health behaviors, collective contextual factors, and HIV risk within a selected sample of women.

The sample interviewed for this research is not claimed to represent the overall picture of how women perceive HIV risk and prevention strategies, however, but the results can be compared with similar quantitative and future studies on the subject. The selected verbatim examples represent a diversity of arguments that women give in support of their decisions, and may be utilized by researchers and policy makers. Since

previous understanding of the behavioral and sociocultural contexts of HIV and the health care system was rather unclear, this qualitative analysis can be particularly useful.

SYNTHESIZING QUANTITATIVE AND QUALITATIVE RESULTS

In this type of sequential explanatory study, data analysis of the quantitative and qualitative segments is closely connected. Integration usually occurs at the data interpretation stage. Due to a lack of work on HIV/AIDS risk among the general population of women in Georgia, and in the region overall, integration of quantitative and qualitative findings makes important contributions toward understanding the roles of knowledge, behavior, and context in HIV risk assessment. The quantitative approach creates measurements and analyses that are replicable by other researchers. The method also provides means and percentages, describes trends, indicates whether the phenomenon is common or rare, and shows the relative sizes of various risk categories. Quantitative findings are inadequate, however, for conveying individual ways of reasoning, which can be expected to vary from one respondent to another.

Through in-depth interviews, individual women express their knowledge, beliefs, attitudes, and social norms in distinct terms and provide interpretation for the established patterns and associations (or lack of associations). This approach identifies and provides an insider's view of the social structures and processes shaping perceived risk. The meetings can also uncover cognitive linkages between private and public expressions about HIV risk and behaviors. Results from these interviews cannot be generalized easily though.

Finally, different components of the research are also important in the complex cultural context of Georgia. Movement toward democracy has caused social institutions such as health, education, politics, and the economy to undergo transformation in recent

years. In such complex cultural settings, both quantitative and qualitative data are needed to identify trends, patterns, and specific meanings associated with HIV/AIDS.

The remainder of the dissertation will refer back to the three primary research questions described in chapter 2, focusing specifically on establishing associations between HIV knowledge, health behaviors, socioeconomic factors, and HIV perceived risk, and explain these associations (or lack of associations) in the Georgian context. The next two chapters will draw on separate quantitative and qualitative findings to identify and interpret the expected pathways of HIV risk assessment.

Chapter 5: Prevalence and Determinants of HIV Risk Perception

This chapter uses quantitative methods to illuminate the processes by which HIV knowledge, health behaviors, and contextual factors are linked to HIV perceived risk in Georgia. The primary goal is to answer the first two key questions of the dissertation. The first research question is whether women's HIV-related knowledge, perceptions, and beliefs about risk of infection changed in Georgia between 1999 and 2005. The second question is whether, and to what extent, HIV knowledge, health behaviors, and socioeconomic contextual factors affect HIV risk perception.

To answer these questions, I begin with a description of levels and patterns of important HIV-related cognitive characteristics such as HIV transmission and prevention knowledge, misconceptions regarding transmission possibilities, cultural beliefs about accidental and medical exposure to HIV infection, and perceived risk of HIV infection. To explore the nature and extent of HIV knowledge and behavioral influences on HIV perceived risk, I test the relationships among HIV transmission knowledge, HIV testing experience, routine health-service access, and HIV perceived risk—while controlling for knowledge, behavioral, and sociodemographic characteristics. In addition, to explore and test the effects of the contribution of contextual determinants of HIV perceived risk, I investigate the connection of women's perceptions of sexual communication, reactions to the rights of PWAs, and migration experiences, with HIV perceived risk, while controlling for HIV-related knowledge, and behavioral and sociodemographic characteristics.

The findings will present the overall levels of HIV knowledge, perceptions, and behaviors, and quantify the changing effects of these factors on the HIV risk-assessment process in Georgia during the posttransition period (1999 and 2005). It is hoped that the

information will deepen the understanding of HIV risk perception in low-prevalence, concentrated epidemics, as well as the need for clear HIV information.

DESCRIPTIVE ANALYSIS

HIV/AIDS Awareness and Knowledge

The approach to HIV-related knowledge begins with a description of the prevalence and patterns of HIV transmission and prevention knowledge, misconceptions about transmission, and other cultural beliefs about transmission and risk. Table 5-1 shows the percentage distribution of women ever sexually active who were interviewed in 1999 and 2005 regarding knowledge of HIV, having heard about HIV, and assessment of personal HIV risk.

Of all women ever sexually active, 94 percent in 1999 and 95 percent in 2005 had heard about HIV/AIDS. Overall HIV knowledge is high in both years, with moderate improvements from 1999 to 2005 in some components of HIV prevention knowledge and declines in knowledge of certain modes of transmission. Particularly, women's knowledge about vertical transmission of HIV from a mother to her baby through pregnancy, delivery, and breastfeeding is less in 2005 than in 1999. Almost half the women of reproductive age ever sexually active have no idea that HIV infection can occur during breastfeeding if the mother is infected. Knowledge about sexual transmission is highest, followed by transmission through blood transfusion and by nonsterile drug injections, which shows a slightly declining trend from 94 percent in 1999 to 90 percent in 2005.

There is a substantial increase in knowledge of global HIV prevention measures (abstinence, behavior change, and condom use) between 1999 and 2005. Spontaneously mentioned responses on how to prevent HIV transmission, however, are low in both

samples. Since the sharing of contaminated injection drugs is the principle route of HIV transmission in Georgia, it is alarming that in 2005 only 21 percent of respondents mentioned “do not share razors, blades, needles, or syringes” and 5 percent cited “avoid sex with IDUs” as prevention measures.

Table 5-1: Percentage of HIV/AIDS Knowledge Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 1999 and 2005)

HIV/AIDS knowledge-related characteristics	1999 N=5,260		2005 N=4,053	
	Know	No/DK	Know	No/DK
<u>Knowledge about HIV transmission</u>				
Heterosexual transmission	98.5	1.5	98.1	1.9
Homosexual transmission	93.2	6.8	95.5	4.5
Parenteral blood transfusion	92.9	7.1	90.9	9.1
Nonsterile drug injections	94.2	5.8	89.8	10.2
Transmission during pregnancy/delivery	89.9	10.1	81.3	18.7
Through breastfeeding	76.6	23.4	56.4	43.6
<u>Knowledge about HIV prevention</u>				
Abstinence	71.9	28.1	90.4	9.6
Be faithful	65.4	34.6	95.0	5.0
Condom use	59.6	40.4	86.1	13.9
Avoid injections*	8.2	91.8	12.8	87.2
Do not share needles/syringes*	19.5	80.5	20.5	79.5
Avoid sex with IDU*	-	-	5.0	95.0
<u>Rejected misconceptions</u>				
Casual, sharing food and objects with infected	40.8	59.2	44.5	55.5
Mosquito bites	21.2	78.8	29.6	70.4
<u>Beliefs in HIV accidental transmission</u>				
Through dental and surgical treatment	85.1	14.9	85.2	14.8
Through procedures in beauty salons	77.6	22.4	75.4	24.6
<u>Channel of information on HIV</u>				
TV	67.0	33.0	54.8	45.2
Family/peers	13.0	87.0	20.5	79.5
Printed media	14.5	85.5	13.8	86.2
Doctors/nurse/teacher	5.5	94.5	10.9	89.1
<u>HIV risk perception</u>				
Perception that HIV is asymptomatic	56.8	43.2	55.9	44.1
<u>Knowledge about place of HIV testing</u>				
	22.6	77.4	49.3	50.7

Notes: *Answers are only spontaneously mentioned to a question: “What can a person do to reduce the risk of getting AIDS?” ‘-’ Question not available in a 1999 survey questionnaire. Analysis uses weighted data.

The most frequently mentioned transmission myths in both surveys are sharing food and objects (plates, forks, or glasses) with someone who has HIV/AIDS, and transmission through mosquito bites. Both misconceptions are strongly rooted. More than half of women believe in transmission through casual contacts with an infected person and three quarters believe in transmission through mosquito bites. Compared to 1999, the proportion of all respondents who correctly rejected common misconceptions improves slightly in 2005.

Many women in both surveys believe in the possibility of accidental infection through medical exposure to dental or surgical procedures, as well as through a manicure, pedicure, or haircut with unsterilized instruments in beauty parlors. In both samples, approximately 85 percent of women believe in surgical transmission and 75 percent in transmission through beauty parlor procedures, with no substantial change from 1999 to 2005.

Channels of HIV information are assessed by asking women to list the most important sources of HIV information. Television is mentioned by 67 percent in 1999 and 55 percent in 2005. Formal information channels (including professional advisors such as medical doctors, nurses, and teachers) are the least-mentioned sources. The percentage listing doctors and other professionals, however, almost doubles from 1999 to 2005. The professional source of information most mentioned by women in 1999 is a gynecologist, but in 2005 it changes to a doctor of infectious diseases, followed by a schoolteacher. This pattern suggests that, while information on HIV/AIDS may be obtained from a gynecologist, that source is less popular among women of reproductive age and that they prefer a doctor of infectious diseases. This difference may also reflect the numbers and availability of physicians with different specializations. Friends, family members, and peers stated as sources of information also increase from 1999 to 2005, while the role of

TV and print media slightly decreases. In the 1999 sample, 70 percent of women (80 percent in 2005) mention peers as the most important source of information about HIV, whereas parents are the least-mentioned source (not shown).

Respondents in both samples are asked to rate their own personal risk of getting HIV/AIDS. As shown in the description of dependent variables in chapter 4, the percentage of women stating that they are not at risk of HIV infection decreases by 10 percent from 1999 to 2005, while the percentage of women stating that they are at little risk of infection increases by 8 percent (table 4-1). An additional 3 percent in 1999 and 6 percent in 2005 state that they do not know what their risk is. In general, the perception of any risk of getting HIV among women increases from 34 percent in 1999 to 44 percent in 2005, which motivates further investigation of the underlying determinants and causes of increased risk perception.

In addition to the questions about HIV knowledge, women are asked about the nature of the infection and about HIV testing. Respondents in both surveys are queried about whether a person can be infected without showing symptoms of the disease. Slightly more than half of the respondents in both samples are aware that an infected person can be asymptomatic, which of course leaves nearly half unaware of this fact. Women are asked if they had ever been tested and whether they know where to have an HIV test. Relatively few, only 7 percent of respondents in 1999 and 21 percent in 2005, had ever been tested for HIV (see tables 5-3 and 5-4). Awareness of where to obtain an HIV test increases from 23 percent in 1999 to 49 percent in 2005.

The 2005 survey assesses awareness of cures and treatment of HIV (not shown). Although 78 percent of women correctly state that there is no cure for AIDS, only 7 percent know of treatment to prolong remission. On a question about the existence of drugs to reduce the likelihood of mother-to-child HIV transmission, only 16 percent

know that such drugs exist. Another 35 percent incorrectly believe that nothing can be done to reduce the risk of getting AIDS.

Trends and patterns of HIV/AIDS awareness and knowledge indicate that women in Georgia ever sexually active lack knowledge on specific issues. Most of the women are aware of the main HIV transmission modes, but a knowledge gap exists about behaviors that do not transmit the infection. Low knowledge levels about mother-to-child transmission as well as infection from contaminated equipment and sexual contacts with IDUs, lack of knowledge about HIV drug treatment, and limited professional advice from doctors are important public health issues that can lead to a higher chance of HIV exposure for healthy people, a shortening of the lifespan for infected people, and the stigmatizing of parts of society. There are still knowledge deficits that need to be corrected soon. Most injection drug users in Georgia are young and sexually active. It is dangerous when injecting drug users or their HIV-infected partners engage in unsafe sex without knowing their HIV status.

Sample Characteristics and HIV Risk Perception

The descriptive analysis will present univariate statistics and bivariate relationships between the outcome variable of HIV perceived risk and the selected explanatory variables related to HIV knowledge, behaviors, and socioeconomic and demographic characteristics. The analysis will focus first on the patterns of HIV knowledge, or cognitive profile, inherent in the responses to the questions about transmission. The responses are regrouped into a variable and presented in table 5-2. Most of the respondents correctly identify four major HIV transmission routes (84 percent in 1999 and 74 percent in 2005), but knowledge of risk from casual contact is relatively poor (15 percent in 1999 and 19 percent in 2005).

Combining the answers to the questions about transmission route (blood transfusion, sexual transmission, mother-to-child transmission, and sharing needles and syringes) and the questions about casual contact (mosquito bites, and sharing food and objects with an infected person), I construct the variable “HIV transmission knowledge” that clusters the respondents into three categories. The first, or “well informed” category, includes respondents who correctly answer all six knowledge items and appear to have fully grasped the nature of HIV transmission. The second, or “fairly informed” category, includes those who correctly answer the four contagious route items but fail to reject one or both of the casual contact pathways. These respondents are fully knowledgeable of the contagious nature of HIV transmission but only partially recognize the harmlessness of casual contacts. Finally, the third, or “poorly informed” category, applies to all remaining respondents. Women in this category are insufficiently aware of the risk of HIV transmission, as well as accept transmission through casual contact.

Table 5-2 shows that more than half the total sample (70 percent in 1999 and 59 percent in 2005) is fairly informed. The remainder are both poorly informed (16 percent in 1999 and 26 percent in 2005) or well informed (14 percent in 1999 16 percent in 2005). The differences between the two time periods indicate that transmission knowledge has improved by 2005, with a slight increase in well-informed respondents and a decrease in fairly informed respondents. The percentage of respondents who are poorly informed actually increases, however.

Table 5-2: Association Between Transmission Knowledge and HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 1999 and 2005)

HIV knowledge variables	1999		2005			
	HIV risk perception		Total	HIV risk perception		Total
	%	χ^2	%	%	χ^2	%
Contagious-route knowledge (4 items)						
4 correct	38.2	210***	83.6	52.3	370***	74.0
3 correct	18.8		9.1	26.2		16.1
0-2 correct	5.2		7.3	6.0		9.9
Casual-contact knowledge (2 items)						
2 correct	50.7	260***	15.2	57.4	190***	19.3
1 correct	43.0		31.7	51.3		35.5
None correct	24.0		53.2	31.4		45.2
Overall knowledge						
6 correct	53.6	380***	13.9	66.1	430***	15.6
5 correct	43.9		29.9	53.8		32.3
4 correct	28.5		43.4	39.3		33.6
0-3 correct	8.9		12.8	14.1		18.5
HIV transmission knowledge [#]						
Well informed	53.6	280***	13.9	66.1	390***	15.6
Fairly informed	35.1		69.7	48.6		58.5
Poorly informed	12.7		16.4	18.5		26.0
Total percent	34.0		100.0	43.5	34.0	100.0

*** $p < .001$ (Two-tailed χ^2 -test).

Notes: [#]*Well informed*: correct answers to all six items; *fairly informed*: correct answers to all four contagious-route questions but incorrectly answered at least one of the casual-contact questions; *poorly informed*: all others. Analysis uses weighted data.

The analysis will next examine the relationship between HIV knowledge and HIV risk perception using different indicators of knowledge. Overall, as shown in table 5-2, more correct responses are associated with increased risk perception. In 1999, the chi-square statistic suggests that HIV perceived risk has a stronger association with the casual-contact items than with the transmission-route items. In 2005, HIV risk perception is more strongly related to transmission-route items than to casual-contact items. When both aspects of knowledge are taken into account to form a summary measure of overall knowledge, the distribution is closer to that between HIV risk perception and casual-route

knowledge in both samples. Thus, casual-contact knowledge, which has a smaller range of 0 to 2, is a more important source of variation than transmission-route knowledge, which has a wider range from 0 to 4.

The relationship between HIV transmission knowledge and HIV risk perception is also strong in both samples, as indicated by highly significant chi-square statistics. The highest assessment of HIV risk is found in the well-informed group (54 percent in 1999 versus 66 percent in 2005). Fairly informed respondents have a modest perception of risk (35 percent in 1999 versus 49 percent in 2005), and the poorly informed group has the lowest perceived risk (13 percent in 1999 versus 19 percent in 2005).

It appears that perceptions of HIV risk vary not only by the total scores of HIV knowledge, but more importantly by the respondents' cognitive frames and to what extent they are knowledgeable about transmission routes and believe in casual-route transmission. These two groups differ in their assessments of HIV risk.

Tables 5-3 and 5-4 present data for the 1999 and 2005 samples to clarify further the relationships of other HIV knowledge, health behaviors, and sociodemographic variables with HIV perceived risk. In a test of multicollinearity among the predictor variables, only modest relationships between socioeconomic status (SES) and residence are observed, within the tolerance level of 0.46 in the 2005 sample. Chi-square tests of independence between both the independent and dependent variables are reported in the tables.

The 1999 survey shows that women lack knowledge about HIV prevention. Only about 30 percent of women mention all three methods of prevention and 25 percent mention one or no method of prevention (table 5-3). By 2005, however, there is a substantial increase of prevention knowledge, with about 82 percent of women listing all three methods of prevention and only 7 percent listing one or no methods (table 5-4).

Table 5-3: Descriptive Statistics of Key Variables Used in All Analyses Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 1999)

Variables	HIV risk perception		Total sample	
		%	%	N
TOTAL:		34.0	100.0	5,260
HIV transmission knowledge***				
Well informed		53.6	13.9	728
Fairly informed		35.1	69.7	3,670
Poorly informed		12.7	16.4	862
HIV prevention knowledge***				
Mentioned 3 methods		32.2	30.2	1,589
Mentioned 2 methods		33.1	45.1	2,371
Mentioned 0-1 method		37.8	24.7	1,300
Channel of information on HIV***				
TV		34.6	67.0	3,525
Family/peers		44.8	14.5	760
Other media		20.0	13.0	686
Medical		31.2	5.5	289
Belief in accidental transmission***				
Belief		40.0	77.6	4,081
Do not believe/Don't know		13.1	22.4	1,179
HIV test***				
Ever tested		53.0	7.0	369
Never tested		32.6	93.0	4,891
Routine gynecology exam***				
Had 1 year ago		39.0	30.6	1,607
Had 2+ years ago		35.2	42.1	2,214
Never had		26.7	27.3	1,439
Ever used condom***				
Birth control only		47.1	15.1	795
Disease prevention only or both		53.7	1.5	80
Never used		31.3	83.4	4,385
STI symptoms*				
Have		38.2	26.5	1,394
Do not have		32.5	73.5	3,866
Lifetime sexual partners**				
One partner		33.5	96.5	5,074
Two or more partners		48.3	3.5	186

* $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed χ^2 -test).

Note: Analysis uses weighted data.

Table 5-3 (Continued): Descriptive Statistics of Key Variables Used in All Analyses
Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS
1999)

Variables	HIV risk perception	Total sample	
	%	%	N
Age***			
15-24	26.2	16.3	857
25-34	35.8	39.6	2,083
35-44	35.3	44.1	2,320
Education***			
University	47.0	29.5	1,550
Less than university	28.6	70.5	3,710
Residence***			
Tbilisi region	46.2	27.0	1,420
Other regions	29.5	73.0	3,840
SES (mean)***	5.0	4.5	

* $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed χ^2 -test).

Note: Analysis uses weighted data.

Reports of preventive behaviors show that in 1999, about 7 percent of women had ever been tested for HIV, 31 percent had received a routine gynecology exam in the past year, and more than a quarter of women ever sexually active had never been to a gynecologist for a routine exam. Corresponding figures for the 2005 sample show that while prevalence of HIV testing improves, increasing from 7 percent to 21 percent, the percentage visiting a gynecologist during the year before the survey decreases from 31 percent to 21 percent—and about two-fifths of the respondents never had a routine gynecology exam.

Having ever used condoms shows a slight increase in the second survey. An intention to use condoms for disease prevention only or for dual protection, however, is still rare (1.3 percent in 1999 versus 3.3 percent in 2005). Respondents are asked questions about STI symptoms in the last twelve months. The prevalence of one or two STI symptoms (vaginal discharges or sores, ulcers/warts in the genital area) is about 27 percent in 1999 and 19 percent in 2005. The number of sexual partners possible is very poorly reported, because more than one partner is not socially acceptable. About 4

percent of women reported having two or more lifetime sexual partners in 1999, while in the 2005 sample, 3 percent reported so for a shorter time period (the past three months).

Tables 5-3 and 5-4 include several socioeconomic and demographic variables. The mean age of respondents is 33 in both samples, with an increasing proportion of women in older age categories (44 percent in 1999 versus 47 percent in 2005). More women have university and higher education in 2005 than in 1999. Specifically, about 30 percent of respondents in 1999 and 35 percent in 2005 report university education. In both samples, less than one-third of the women are residents of the Tbilisi region, which includes the capital city. The indicator of wealth and material well-being suggests that the majority of women have middle socioeconomic status. Of the ten household goods and amenities, women in 1999 possessed a mean of 4.5 items in 1999 and a mean of 4.7 items in 2005. Tables 5-3 and 5-4 also show that 34 percent in 1999 and 44 percent in 2005 perceive themselves at risk of HIV. Most predictor variables in the analysis have significant chi-square ($p < .001$) association with perceived HIV risk, but the strength of relationships of HIV prevention knowledge, STI symptoms, and number of sexual partners with HIV perceived risk is slightly less in the 2005 sample.

In both surveys, women who are well-informed about HIV transmission or who believe in accidental spread are more likely to perceive HIV risk. Women with higher HIV prevention knowledge tend to have a lower perception of risk (32 percent) in 1999 than women with less prevention knowledge (38 percent). In 2005, with a substantial increase in prevention knowledge, the pattern reverses: Women with higher prevention knowledge have a higher prevalence of risk perception (44 percent) than women with lower prevention knowledge (41 percent). Women who obtain HIV information mainly from family and peers show a higher perception of HIV risk (45 percent in 1999 versus 50 percent in 2005) than women receiving information mainly from TV (35 percent in

1999 versus 45 percent in 2005) or medical professionals (31 percent in 1999 versus 40 percent in 2005).

Table 5-4: Descriptive Statistics of Key Variables Used in All Analyses Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 2005)

Variables	HIV risk perception	Total sample	
	%	%	N
TOTAL:	43.5	100.0	4,053
HIV transmission knowledge***			
Well informed	66.1	15.6	634
Fairly informed	48.6	58.4	2,365
Poorly informed	18.5	26.0	1,054
HIV prevention knowledge**			
Mentioned 3 methods	44.4	82.0	3,324
Mentioned 2 methods	37.8	11.0	443
Mentioned 0-1 method	41.2	7.0	285
Channel of information on HIV***			
TV	44.8	54.8	2,221
Family/peers	50.0	13.8	560
Other media	37.5	20.5	829
Medical	39.8	10.9	442
Belief in accidental transmission***			
Belief	52.5	75.4	3,056
Do not believe/Don't know	16.0	24.6	997
HIV test***			
Ever tested	60.5	20.6	836
Never tested	39.1	79.4	3,217
Routine gynecology exam***			
Had 1 year ago	49.8	20.9	846
Had 2+ years ago	46.2	42.3	1,717
Never had	36.7	36.8	1,490
Ever used condom***			
Birth control only	52.5	18.4	746
Disease prevention only or both	70.3	3.3	133
Never used	40.2	78.3	3,174
STI symptoms*			
Have	40.0	19.4	785
Do not have	44.3	80.6	3,268
Number of sexual partners (in past 3 month)**			
One partner	43.1	97.0	3,932
Two or more partners	55.9	3.0	121

* $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed χ^2 -test).

Note: Analysis uses weighted data.

Table 5-4 (Continued): Descriptive Statistics of Key Variables Used in All Analyses
Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS
2005)

Variables	HIV risk perception	Total sample	
	%	%	N
Age***			
15-24	34.2	15.7	637
25-34	48.1	37.7	1,527
35-44	42.8	46.6	1,889
Education***			
<University	35.0	64.7	2,622
≥University	59.1	35.3	1,431
Residence***			
Other regions	36.6	72.9	2,953
Tbilisi region	62.1	27.1	1,100
SES (mean)***	5.3	4.7	
Perception on sexual control***			
Disagree on sexual communication	25.2	10.4	422
Agree on sexual communication	45.6	89.6	3,631
Reactions to PWAs***			
Reject of PWAs' rights	36.7	65.0	2,637
Accept of PWAs' rights	56.1	35.0	1,416
Migration experience***			
Urban migration	54.5	45.0	1,824
Rural migration	33.2	36.7	1,486
Nonmigrant	37.4	18.3	743
Partner labor migrant			
Yes	43.0	4.1	165
No	43.5	95.9	3,888

* $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed χ^2 -test).

Note: Analysis uses weighted data.

Women who had an HIV test or a gynecology exam (during the year before the survey) have significantly greater HIV risk perception. In both samples, respondents with recent STI symptoms (38 percent in 1999, 40 percent in 2005), those who ever used condoms for disease prevention (54 percent in 1999, 70 percent in 2005), and those having more than one sexual partner (48 percent in 1999, 56 percent in 2005) have significantly higher HIV risk perception than women who have no STI symptoms, or only used condoms for birth control or had one lifetime partner, respectively.

Socioeconomic and demographic characteristics have a strong relation with perceived risk. In both the 1999 and 2005 samples, younger women ever sexually active perceive less HIV risk than older ever sexually active women. Respondents with some university education and residents of the Tbilisi region perceive higher HIV risk than women with lower educational background or from other regions of Georgia. SES, measured by the number of goods in the household, has a positive relationship with perception of HIV risk.

As indicated in chapter 4, the 2005 survey includes a series of questions to assess women's perceptions and attitudes toward sexual communication, reactions and attitudes to PWAs, and the migration experience of the respondent and her partner. The bottom panel of table 5-4 describes the distribution of these context-specific characteristics and their associations with perceived HIV risk. About 10 percent of women will not communicate with a husband about abstinence and condom use if he is infected with an STI. Among them, about a quarter perceive themselves to be at risk of HIV. Those women who would discuss sexual topics with their partners have significantly higher ($p < .001$) perceptions of HIV risk (46 percent). More than half (65 percent) of women hold stigmatizing attitudes toward infected people. Those women are also more likely to perceive themselves at lower risk of HIV (37 percent) than women who accept the rights of PWAs (56 percent). Whether the husband is currently in labor migration or stays in Georgia does not show a significant relationship with perceived risk. Less than half the sample has experienced urban migration, but those women report significantly greater perceptions of HIV risk (55 percent) than do the women who have experienced rural migration (33 percent) or never moved (37 percent).

The bivariate relationships between HIV knowledge, preventive behaviors, and HIV perceived risk are all broadly consistent with the predictions. HIV transmission

knowledge, HIV testing experience, and access to a gynecologist all demonstrate strong and significant relationships with perceived HIV risk. Among the characteristics of context, the strongest links appear to be with perceptions of sexual control, reactions to PWAs, and women's migration. These relationships may, in part, reflect differences in background characteristics and other HIV-related characteristics also related to HIV knowledge. I will next employ multivariate logistic regression models to test the effect of HIV transmission knowledge and health behaviors on perceived risk, with control variables included.

MULTIVARIATE ANALYSIS

Knowledge and Behavioral Determinants of HIV Risk Perception

Multivariate logistic regression models can estimate the impact of HIV knowledge and behavioral variables on HIV perceived risk, controlling for sociodemographic characteristics. The analytical strategy is to estimate three models. The first is a restricted model that includes knowledge effects to determine the strength of the relationship between HIV transmission knowledge and HIV perceived risk, controlling for sociodemographic variables. The second model adds two preventive behavioral variables to determine the effect of HIV testing and access to gynecology services on perceived HIV risk and their effects on the knowledge-risk connection. The third and final model adds sexual behavioral variables to determine the effects of HIV transmission knowledge, HIV testing, and access to gynecology services on perceived risk while controlling for various HIV knowledge and sociodemographic variables. All models are weighted and adjusted for clustering on primary sampling units.

If the effect of HIV transmission knowledge on perceived risk is primarily through the sociodemographic and behavioral variables, I would expect the coefficient

for HIV transmission knowledge to lose significance when those variables are included in the regression. On the other hand, if knowledge remains significant after controlling for sociodemographic and behavioral variables, then the effect of HIV knowledge on perceived risk is probably due to more than an assessment of personal risk. That is, individuals well informed in HIV transmission knowledge may also be diffusing norms, attitudes, skills, and behaviors that tend to alter HIV perceived risk and lead to avoidance of risky behaviors.

Table 5-5 presents the estimated odds ratios from logistic regression models predicting HIV perceived risk among ever sexually active women in the 1999 sample. In model 1, the effect of HIV transmission knowledge on HIV perceived risk is significant for both categories of HIV transmission knowledge ($p < .001$), indicating that both fairly and poorly informed women have lower odds of perceiving HIV risk (OR=.56 and OR=.27, respectively) than do well-informed women, while controlling for the effects of HIV prevention knowledge, channels of information, beliefs in accidental transmission, and sociodemographic variables. Another cognitive determinant significantly associated with perceived HIV risk is belief in accidental transmission, exhibited by 66 percent of the women. They are less likely to perceive HIV risk than are women who believe in accidental transmission. The effects of the sociodemographic background characteristics are consistent with findings from the bivariate analysis. Women from the Tbilisi region with university education and higher SES scores are significantly more likely to perceive HIV risk.

In model 2, two behavioral variables are added: HIV testing and gynecology exam experience. The level and magnitude of association between HIV transmission knowledge and HIV perceived risk do not change significantly. As expected, both of these preventive health behaviors have significant positive associations with perceived

HIV risk, even after controlling variables in the model. Specifically, women who were ever tested for HIV have 58 percent greater odds of perceiving HIV risk than women who never experienced HIV testing. Having had a routine gynecology exam also increases the chances of perceiving HIV risk. The odds are 39 percent ($p<.01$) greater for women who had an exam one year ago and 27 percent ($p<.05$) greater for women who had an exam more than two years ago, relative to women who never had a routine gynecology exam.

Table 5-5: Logistic Regression Analyses Predicting HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 1999)

Variables	1999 (N=5,260)					
	Model 1		Model 2		Model 3	
<u>HIV transmission knowledge</u>						
Well informed (ref)						
Fairly informed	.560	***	.580	***	.586	***
Poorly informed	.267	***	.279	***	.278	***
<u>HIV prevention knowledge</u>						
Mentioned 3 methods (ref)						
Mentioned 2 methods	1.01		1.01		1.00	
Mentioned 0-1 method	1.22	*	1.24	*	1.22	
<u>Channel of information on HIV</u>						
TV (ref)						
Family/peers	1.13		1.09		1.10	
Other media	.546	***	.532	***	.542	***
Medical	.704	*	.663	*	.659	*
<u>Belief in accidental transmission (salons)</u>						
Belief (ref)						
Do not believe/ Don't know	.343	***	.347	***	.343	***
<u>Age</u>						
15-24 (ref)						
25-34	1.22		1.18		1.17	
35-44	1.16		1.17		1.17	
<u>Education</u>						
<University (ref)						
≥ University	1.42	***	1.39	**	1.38	**
<u>Residence</u>						
Other regions (ref)						
Tbilisi region	1.42	***	1.38	***	1.30	**
<u>Log SES</u>						
	1.58	***	1.49	**	1.45	**

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

Notes: Models are weighted and adjusted for clustering of primary sampling units; (ref) excluded as reference category.

Table 5-5 (Continued): Logistic Regression Analyses Predicting HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 1999)

Variables	1999 (N=5,260)		
	Model 1	Model 2	Model 1
<u>HIV test</u>			
Ever tested		1.58 **	1.52 **
Never tested (ref)			
<u>Routine gynecology exam</u>			
Had 1 year ago		1.39 **	1.32 *
Had 2+ years ago		1.27 *	1.23 *
Never had (ref)			
<u>Ever used condom</u>			
Birth control only			1.24 *
Disease prevention only or both			1.72
Never used (ref)			
<u>STD symptoms</u>			
Have			1.21 *
Do not have (ref)			
<u>Lifetime sexual partners</u>			
Two or more partners			1.33
One partner (ref)			
R ²	.104	.109	.112

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

Notes: Models are weighted and adjusted for clustering of primary sampling units; (ref) excluded as reference category.

Finally, model 3 adds three sexual behavior variables. The relationship between HIV transmission knowledge and HIV perceived risk remains significant, as in previous models ($p < .001$), with both fairly and poorly informed women showing lower odds of HIV risk perception (OR=.59 and OR=.28, respectively) than well-informed respondents. Surprisingly, sexual behavior variables have weak or no effects on HIV perceived risk. In particular, at a lower level of significance ($p < .05$), women who report ever having used condoms for birth control (OR=1.24) or who had experienced STI symptoms (OR=1.21) have increased odds of perceiving themselves to have a risk of infection, compared to women who never used condoms or never experienced STI symptoms in the past year. Women who ever used condoms for disease prevention or who report two or more sexual partners do not have a significant difference in their HIV perceived risk. Preventive

behaviors such as HIV testing (OR=1.52, $p<.01$) and a recent gynecology exam (OR=1.32, $p<.05$) are significant predictors of perceived risk in the full model. As a reported channel of HIV information, family or peers is not significantly related to perceived HIV risk, but other media (OR=.54, $p<.001$) and medical (OR=.66, $p<.05$) channels have significantly lower odds of perceived HIV risk, compared to a TV channel.

The next stage of analysis examines HIV perceived risk among women of reproductive age in 2005 by presenting the estimated odds ratios from logistic regression models (table 5-6). In model 1, the effect of HIV transmission knowledge on HIV perceived risk is significant: Poorly informed women have the lowest odds of perceiving HIV risk (OR=.25, $p<.001$), followed by fairly informed women (OR=.62, $p<.001$), when both groups are compared with well-informed women. Belief in accidental transmission is still a very strong predictor of HIV perceived risk. Women who do not believe in accidental transmission have 69 percent lower odds of perceived HIV risk, compared to women who do believe in accidental transmission. The effects of sociodemographic characteristics are similar to the 1999 sample, except that the middle and older age groups become significantly more likely to perceive HIV risk. The magnitude of the effects of sociodemographic characteristics on perceived risk is slightly more than in the 1999 sample.

When the two preventive behavior variables are added in model 2, the association between HIV transmission knowledge and HIV perceived risk does not change significantly. Controlling for sociodemographic and HIV knowledge variables, women who had an HIV test (OR=1.76, $p<.001$) and women who had a recent gynecology exam (OR=1.31, $p<.05$) have significantly higher odds of perceiving a risk of HIV.

The full model, with sexual behavior variables included, indicates that low HIV transmission knowledge (fairly and poorly informed) continues to be associated with

lower odds of perceived HIV risk. Net of other factors in the model, poorly informed women have 74 percent lower odds of perceived HIV risk, and fairly informed women have 37 percent lower odds, when compared with well-informed women. The sexual behavioral variables have an even weaker effect on perceived HIV risk than in the 1999 sample. Having ever used condoms for disease prevention is a positive determinant (OR=1.68), although at a lower level of significance ($p<.05$). Other STI symptoms and number of sexual partners have no effect on perceived HIV risk.

Table 5-6: Logistic Regression Analyses Predicting Any HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 2005)

Variables	2005 (N=4,053)					
	Model 1		Model 2		Model 3	
<u>HIV transmission knowledge</u>						
Well informed (ref)						
Fairly informed	.616	***	.628	***	.625	***
Poorly informed	.254	***	.255	***	.260	***
<u>HIV prevention knowledge</u>						
Mentioned 3 methods (ref)						
Mentioned 2 methods	1.16		1.20		1.23	
Mentioned 0-1 method	1.69	*	1.69	*	1.71	*
<u>Channel of information on HIV</u>						
TV (ref)						
Family/peers	.854		.847		.845	
Other media	.777		.790		.793	
Medical	.775		.689	**	.694	**
<u>Belief in accidental transmission (salons)</u>						
Belief (ref)						
Do not believe/ Don't know	.305	***	.317	***	.314	***
<u>Age</u>						
15-24 (ref)						
25-34	1.69	***	1.65	***	1.66	***
35-44	1.39	**	1.40	*	1.40	*
<u>Education</u>						
<University (ref)						
≥ University	1.58	***	1.53	***	1.53	***
<u>Residence</u>						
Other regions (ref)						
Tbilisi region	1.45	**	1.37	*	1.35	*
<u>Log SES</u>						
	1.76	***	1.65	***	1.67	***

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

Notes: Models are weighted and adjusted for clustering of primary sampling units; (ref) excluded as reference category.

Table 5-6 (Continued): Logistic Regression Analyses Predicting Any HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 2005)

Variables	2005 (N=4,053)		
	Model 1	Model 2	Model 1
<u>HIV test</u>			
Ever tested	1.76	***	1.76 ***
Never tested (ref)			
<u>Routine gynecology exam</u>			
Had 1 year ago	1.31	*	1.37 **
Had 2+ years ago	1.31	**	1.32 **
Never had (ref)			
<u>Ever used condom</u>			
Birth control only			.908
Disease prevention only or both			1.68 *
Never used (ref)			
<u>STI symptoms</u>			
Have			.833
Do not have (ref)			
<u>Number of sexual partners (in past 3 month)</u>			
Two or more partners			1.21
One partner (ref)			
R ²	.154	.163	.166

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

Notes: Models are weighted and adjusted for clustering of primary sampling units; (ref) excluded as reference category.

The two preventive behavioral variables, HIV testing and routine gynecology exam, are stronger and more significant determinants of HIV perceived risk in 2005 than in 1999. Women who ever had an HIV test (OR=1.76, $p < .001$) or who had a recent gynecology exam (OR=1.37, $p < .01$) have higher odds of perceiving a risk of HIV than women who never had a test or exam. By 2005, knowledge of HIV prevention methods had become significant: Women who mention at least one prevention method have higher odds (OR=1.71, $p < .05$) of perceiving HIV risk. Among channels of HIV information, women who list the medical channel as important have lower odds of perceiving HIV risk (OR=.69, $p < .01$) than women who mention television as the main mode.

These results show that the effect of HIV transmission knowledge and HIV testing experience on HIV risk perception is positive and significant at the .001 level. In

both samples, HIV transmission knowledge and testing experience are strong predictors even when sexual behaviors, HIV prevention knowledge, belief in accidental transmission, channels of information, and sociodemographic variables are included in the model. It remains to be seen, however, whether the effect of HIV transmission knowledge on HIV perceived risk could be due to other factors. The following section will turn to testing some contextual factors discussed in the sociopsychological model.

Contextual Determinants of HIV Risk Perception

The second set of logit regressions will examine the effects on perceived HIV risk of context-specific factors, particularly the woman's perception of sexual control in a relationship, her attitudes toward PWAs, and her and her partner's migration experience. The analytical strategy begins with model 3 in table 5-6, which estimates the effect of HIV transmission knowledge on HIV perceived risk. I will add the three context-specific predictor variables, one at a time, in three models (models 1–3). Model 1 includes perception of sexual control, in addition to all the previous variables. Model 2 adds stigmatizing attitudes and the reactions of respondents to the rights of PWAs to Model 1. Model 3 adds, to the second model, two migration variables related to the woman's personal migration experience and her husband's current labor-migration experience. These variables were included only in the 2005 survey.

Table 5-7: Logistic Regression Analyses Predicting the Effect of Contextual Determinants on HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 2005)

Variables	2005 (N=4,053)					
	Model 1		Model 2		Model 3	
<u>HIV transmission knowledge</u>						
Well informed (ref)						
Fairly informed	.628	***	.663	***	.658	***
Poorly informed	.267	***	.285	***	.286	***
<u>HIV prevention knowledge</u>						
Mentioned 3 methods (ref)						
Mentioned 2 methods	1.29		1.32		1.30	
Mentioned 0-1 method	1.75	*	1.77	**	1.79	**
<u>Channel of information on HIV</u>						
TV (ref)						
Family/peers	.848		.805		.805	
Other media	.803		.771		.765	*
Medical	.702	*	.705	*	.703	*
<u>Belief in accidental transmission</u>						
Belief (ref)						
Do not believe/Don't know	.316	***	.314	***	.308	***
<u>HIV test</u>						
Ever tested	1.74	***	1.73	***	1.70	***
Never tested (ref)						
<u>Routine gynecology exam</u>						
Had 1 year ago	1.35	*	1.34	*	1.34	*
Had 2+ years ago	1.32	**	1.31	**	1.30	*
Never had (ref)						
<u>Ever used condom</u>						
Birth control only	.885		.858		.867	
Disease prevention only or both	1.72	*	1.70	*	1.70	*
Never used (ref)						
<u>STD symptoms</u>						
Have	.847		.872		.887	
Do not have (ref)						
<u>Number of sexual partners (in past 3 moth)</u>						
One partner (ref)						
Two or more partners	1.22		1.16		1.18	

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

Notes: Models are weighted and adjusted for age, education, residence, SES, and clustering of primary sampling units; (ref) excluded as reference category.

Table 5-7 (Continued): Logistic Regression Analyses Predicting the Effect of Contextual Determinants on HIV Risk Perception Among Women Ever Sexually Active, Aged 15-44 in Georgia (GRHS 2005)

Variables	2005 (N=4,053)		
	Model 1	Model 2	Model 3
<u>Perception of sexual control</u>			
Disagree on sexual communication	.628 **	.625 **	.648 **
Agree on sexual communication (ref)			
<u>HIV Stigma</u>			
Reject PWA rights		.679 ***	.669 ***
Accept PWA rights (ref)			
<u>Migration experience</u>			
Urban migration			1.62 ***
Rural migration			1.38 *
Nonmigrant (ref)			
<u>Partner labor migrant</u>			
Yes			1.02
No (ref)			
R ²	.168	.172	.176

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

Notes: Models are weighted and adjusted for age, education, residence, SES, and clustering of primary sampling units; (ref) excluded as reference category.

Odds ratios from the logistic regressions are presented in table 5-7. As expected, all three context-specific variables are associated significantly with perceived risk, and in the expected direction, except for the husband's labor-migration experience, which is not significant. First, women who disagree with the question on sexual communication with a partner have lower odds (OR=.63, $p < .01$) of HIV risk perception than women who agree. This association continues to be significant across models, at the same level. Second, women with stigmatizing attitudes toward infected people have 32 percent lower odds of perceiving a risk of HIV infection than women who are tolerant and accept the rights of PWAs. The negative effect of stigmata on perceived HIV risk is significant at the $p < .001$ level. Third, women who experience urban migration have 38 percent greater odds of perceiving a risk of HIV, compared to nonmigrant women. The positive effect of women's domestic or international migration experience is significant at the $p < .001$ level,

suggesting that migration is an avenue through which women become exposed to some information, norms, and behaviors about how HIV risk can be altered. Women who experience urban migration have 62 percent greater odds of perceived infection risk, which is significant at the $p < .05$ level.

The full model, adjusting for all three contextual variables, shows that the effect of HIV transmission knowledge on HIV perceived risk remains significant at the $p < .001$ level. Women with fair and poor knowledge of HIV transmission have lower odds of perceiving HIV risk. Knowledge of HIV prevention is not as strong a predictor, but women who mention no or one HIV prevention method have greater perception of risk (OR=1.79, $p < .01$) than women who mention all three methods of prevention. Women who report medical and informal channels of information have lower odds of perceived HIV risk than women for whom television is the main source of information.

CONCLUDING REMARKS

In this chapter, the quantitative research is divided into descriptive and multivariate analyses. First, a profile of HIV risk perception was developed from the univariate trends, patterns, and levels of HIV/AIDS knowledge, perception, and beliefs among reproductive-age women ever sexually experienced in 1999 and 2005. Awareness of HIV/AIDS is high, but specific and in-depth knowledge of transmission routes, prevention, care, and treatment are deficient. More than half the women hold common misconceptions about casual transmission, and more than three-fourths believe in a high likelihood of accidental transmission through medical treatments and procedures in beauty salons. Some positive steps toward prevention strategies occur between 1999 and 2005 but the improvements are not very substantial. The knowledge level is still low in

2005, taking into account the increasing incidence of sexual transmission, low occurrence of testing, women's increased risk of exposure, and care needs.

Second, grouping of respondents on the basis of their knowledge of HIV transmission routes provides a different but perhaps more valid scheme for addressing the relationships between HIV transmission knowledge and perceived risk, as compared to traditional measures using single items or summation scores. Even with similar total scores for HIV knowledge, for example, both poorly and fairly informed groups could have different self-assessments of their HIV risk. With a categorical measure of HIV transmission knowledge, I find that respondents' risk assessment varies not only by their total scores for HIV transmission knowledge, but also by the extent to which women believe in casual transmission. The women also differ based on their answers to transmission-route versus casual-contact items.

Third, a bivariate analysis examines whether perceived HIV risk is related to HIV knowledge, behavior, and context-specific variables that were expected to be relevant for theoretical or practical reasons. Specifically, corresponding to the first hypothesis, HIV transmission knowledge is found to be significantly and positively correlated with perceived HIV risk. Consistent with the second hypothesis, the bivariate analysis shows that behaviors related to HIV testing and gynecology exams are also significantly and positively associated with HIV perceived risk. For the third hypothesis, about context specific variables, women who perceive low sexual control or who reject PWA rights are less likely to perceive HIV risk; women with migration experience are more likely to perceive HIV risk.

The results from the multivariate logistic regression analysis show that the association between HIV transmission knowledge and perceived HIV risk is significant and persistent in both 1999 and 2005, even after controlling for knowledge, behavioral,

contextual, and sociodemographic variables, suggesting that HIV transmission knowledge has a real effect on the personal assessment of HIV risk. The effect of HIV preventive knowledge is very weak, however, and may operate through one or more risky-behavior factors or sociodemographic characteristics. Further qualitative research will be used to explore these associations in depth.

The context-specific variables – sexual empowerment, stigmata toward infected people, and migration – are utilized in the models as additional predictors. Women who disagree with the question on sexual communication or who hold negative attitudes toward PWAs are less likely to perceive HIV risk, as predicted, but women who have experienced urban and rural migration are more likely to perceive themselves at risk. These effects persist even when controlling for HIV knowledge, preventive and sexual behaviors, and sociodemographic characteristics, suggesting that aspects of women’s empowerment, stigmata, and discrimination and migration experiences should be included in the design of effective preventive activities.

Building on these findings to help interpret and explore women’s cognitive and behavioral strategies toward HIV risk and prevention, we now turn to the qualitative research component. In-depth interviews with women can provide a better understanding of the linkages with perceived HIV risk in Georgian society.

Chapter 6: Women's Views on HIV Perceived Risk and Preventive Behaviors

To better understand the cognitive processes underlying women's perceptions of HIV risk, in this chapter I examine findings from a series of semistructured interviews with women in the Georgian capital of Tbilisi. My analyses focus on their reported perceptions of HIV risk, along with their risk-related activities and those of their partners. Quantitative investigation in the previous chapter reveals reported high rates of perceived HIV risk among respondents with high knowledge levels, compared to those poorly informed. It also highlights the importance of patterns of individual and contextual characteristics, all of which have some connection with perceived risk. The analysis leaves unanswered, however, the question of how women discuss HIV/AIDS and which cognitive strategies they employ in explaining their risk perceptions and linkage with HIV knowledge, health behaviors, stigmatizing attitudes, sexuality norms, and migration.

For interpretation and clarification of the quantitative findings, I explore accounts of personalized understandings of HIV concepts, prevention strategies, and risk by conducting in-depth interviews with twenty-six adult women in Tbilisi. I describe the specifics and techniques of these interviews in the first section of this chapter. The following sections on qualitative insights summarize the coding from the interview analysis used to gain information about the cognitive linkages discussed by women in relation to HIV perceived risk. The findings and interpretation of those results illustrate the specific views expressed by purposively selected women. Therefore, these findings cannot be considered representative of the entire population of Tbilisi. Instead, this small sample should provide insights from women who discussed HIV/AIDS that could contribute greater understanding of the female perspective on perceived risk of infection and its prevention in a low-prevalence country.

IN-DEPTH INTERVIEWS

I conduct in-depth interviews in the capital city of Tbilisi among sexually experienced women between October and December 2006. I select individuals using snowball sampling, where I ask each woman whether she knows of anyone else who might be willing to participate in the project. I make preinterview contact by telephone to give a brief project description, arrange a meeting time and place most convenient for the respondent, and obtain permission for audio recording of the interview. Initially, thirty sexually experienced reproductive-age residents are invited to participate in the study. When a few women refuse due to busy household responsibilities, and I reach the point referred to as data saturation (information redundancy with no new interesting concepts or variables emerging from the conducted interviews), I end the data collection with twenty-six completed interviews.

Participants selected by reproductive age, sexual experience, and residence status range between the ages of 24 and 45, with a mean age of 34 (see appendix A). Of those, 73 percent are currently married, and the mean number of children is 1.7 per woman, with a range from 0 to 4. Among seven divorced women, two report having no sexual partner since divorce. Of all the women, 81 percent have a university education and 58 percent are currently employed. To protect participant confidentiality, pseudonyms are used throughout this dissertation.

Interviews of 45 to 60 minutes are conducted in the respondents' workplaces or private homes. Each participant is assigned an identification number to ensure anonymity and confidentiality. Reassurance is given by explaining to the respondents that no names would be disclosed and that, after transcribing and reviewing the interviews, the recordings would be erased. Participants are told that their involvement would assist researchers to learn about what they feel and experience is important, and that it might

lead to better ways of helping societies and communities to combat HIV/AIDS. They are informed that their involvement is voluntary, they may refuse to answer any question, and they can cease participation at any time. After receiving information about the nature of the study, all women sign an informed-consent sheet before the interview and I fill in the background form (see appendix D).

All interviews are conducted in Georgian, audio recorded, and immediately transcribed first in Georgian and then translated and transcribed in English. The standardized protocol I use in each interview allows me to compare content on key issues across the interviews (see appendix B and C). The same main themes are covered in each interview. I ask the same open-ended key questions in order, but I do not place restrictions on how long we would focus on each issue. During interviews, I probe on issues that emerge as important factors in relation to the main themes and perceived risk. I ask particularly about attitudes, beliefs, actions, and practice as they relate specifically to the social, gender, and sexuality norms for choices regarding HIV risk. Despite the sensitivity of the topic, I encounter no refusals to respond to personalized experience. All interviewees appear very enthusiastic and flexible in discussing their perspectives and experiences. I ask questions at the end of the interviews, which I collect in my field notes and follow up in later interviews. At the end of each meeting, I clarify uncertainties, suggest local resources for further information, and thank all respondents for their time and cooperation.

After translating and transcribing interviews into English, I enter all data into the Atlas.ti qualitative data analysis software package. I start by reviewing the data from each interview line by line as a basis for analysis. Then, using original themes from the sociopsychological model, I compare and contrast the data across interviews on cognitive components of the coding system already defined in the quantitative analysis, emerging

during interview data analysis. Finally, I develop initial codes for the main themes and to explain connections between major determinants and HIV risk perception by incorporating and linking emerged initial codes into the observed pathways. The coding scheme for each topic coalesces around three major categories described in the conceptual model: knowledge about HIV/AIDS, health behaviors, and contextual factors of stigma, sexual norms, and migration. From the survey analysis, factors associated with HIV knowledge, behaviors, and collective context emerge as consistent predictors of perceived risk for HIV infection. Qualitative data gathered during this study also support these findings, and provide further cognitive explanation for knowledge, attitudes, beliefs, choice, practice, and perceptions. The following section of results is structured around the three key themes and specific initial codes related to self-perceived HIV risk.

INSIGHTS ON HIV/AIDS KNOWLEDGE

For the first main theme on HIV/AIDS knowledge in open-ended general questions, I explore and probe on issues that emerge as important in relation to perceived risk. As such, some aspects of HIV transmission and prevention knowledge, beliefs about transmission, and attitudes toward information channels I find to be important when women discuss HIV risk.

Knowledge About Transmission and Prevention

As the quantitative analysis in chapter 5 shows, there are strong positive influences of HIV-transmission knowledge on self-perceived risk, but weaker relationships with preventive knowledge. I thought it important to explore the depth and variations of transmission and prevention knowledge along with the cognitive influences informing women's decisions about perceived risk.

Most of the interviewees have some basic understanding of the modes of transmission and how to protect themselves. When I ask them to tell what they knew about HIV/AIDS transmission modes, most women mention sexual intercourse and blood transfusion. Some also add injection drug sharing with infected people. Homosexual transmission is rarely stated as the principal means of spread between men. Respondents list heterosexual “contact with prostitutes” as the main form of distribution between men and women. Without probing, only two women bring up the fact that a mother could impart the infection to her unborn child during pregnancy. Another mentioned lactation as a potential way to convey the infection to a baby during breastfeeding. But when probed on mother-to-child transmission, some women show an incorrect understanding of even this method, implying that women agree with the main documented modes of transmission but are less likely to be informed about the specifics of transmission. Some also demonstrate misconceptions about transmission.

A baby can be infected but I think it depends on when it was conceived. If the mother was healthy during conception and only later became infected then the baby might be healthy, but if the mother was infected before getting pregnant then the baby also might be infected. (Anna, 40 years old, married)

A baby can be infected from the mother if they sleep in the same bed...or from saliva of the mother when she kisses her baby. (Natia, 34 years old, married)

Compared to transmission knowledge, study participants display a substantial deficit in prevention knowledge. Without probing, few women report global prevention approaches using condoms, abstinence, or being faithful to their partners. The methods cited most are employing disposable and sterilized instruments for personal use or in the health care system, which is a more contextual approach and related to widespread beliefs about medical transmission.

When I ask a question about treatment and prevention of mother-to-child transmission, women demonstrate very limited knowledge about available treatment and care options. While the majority of the women are aware that there is no cure for AIDS, few know that there are drugs to prevent opportunistic infections and to prolong the lives of PWAs. These conversations imply that despite improvements and new treatments in HIV prevention, only a few women in Georgia are informed about them. Such knowledge deficit suggests that women are not receiving sufficient information from available resources. Due to perception of HIV/AIDS as a lethal and life-threatening disease, compared with plague and leprosy, stigma about AIDS might actually be stronger in Georgia.

Belief in Misconceptions About Transmission

Furthermore, respondents' understanding of HIV/AIDS is also often clouded by misinformation about transmission. For instance, respondents with basic transmission knowledge also hold some common misunderstandings concerning mosquito bites and casual contacts. Interestingly, respondents discuss behaviors that pose no genuine risk for HIV contagion but that tend to be widespread myths, such as the use of common dishes and glasses, kissing, and sharing bedroom, bathroom, and towels with an infected person.

A belief that the infection is possible in doctors' offices or beauty salons that use inadequately sterilized equipment is also very strong. Transmission from unsterilized medical instruments is possible, but the chances are minimal compared to the risk of infection through unprotected sexual contact and sharing drugs with PWAs. This idea was confirmed by a few respondents, who mentioned that it is not a common accidental infection due to a low incidence among the most at-risk population. Eka, a mother of two, reports low transmission and prevention knowledge but a very high level of misconceptions about casual contact, and she believes in medical transmission. She

makes an interesting link, however, between the probability of infection in medical establishments and the prevalence of infection in Georgia, and then comes to the conclusion that the risk of infection is very low.

I know only about sexual transmission [of HIV]...Infection from mosquito bites is also possible if mosquito transmits blood [infected] from infected to uninfected person....I'm not sure about kissing. You have to stop sexual contact and not use dishes used by an infected person....There is some risk of being infected in a dentist's office using dirty instruments, but this little risk depends on how widely the disease is spread. I think it's not so dangerous. (Eka, 35 years old, divorced)

The idea of accidental medical transmission is grounded on a few cases of infections through blood transfusion or unknown transmission, which many associate with iatrogenic infection from using improperly cleaned instruments and unsafe injections for medical procedures. All respondents believe that infection may occur during dental or surgical treatment. One respondent blamed this possibility on a failure to use sterilized equipment because of electricity shortages, lack of medical training or resources, and inadequate preparedness of health care personnel to address HIV/AIDS. Such strong distrust of the medical community is further attributed to various anecdotal evidences discussed by respondents. Liana, a fitness instructor with very basic knowledge and several misconceptions about HIV, mentions a story about the purposeful action of an HIV-positive woman to infect others in a beauty salon by hiding her HIV-positive status:

I heard that somebody who was infected used to go to the beauty salon very often without disclosing her infection status, hoping to infect other people—those who might be served with unsterilized manicure and pedicure instruments. (Liana, 35 years old, divorced)

A majority of the educated participants, even with in-depth knowledge about modes and prevention, also report a strong belief that infected syringes, needles, and

other dental or gynecological instruments used for medical purposes are possible ways to acquire HIV infection in Georgia. Certain low-educated women with such beliefs also tend to display a sense of helplessness and a belief that there is no way to avoid the infection or control it. These emotional feelings are also closely linked with self-perceived risk of infection, negative reactions to AIDS disease, and avoidance of PWAs:

You never have to go to a doctor and never have to engage in sexual contact. When you have a toothache, you need to go to a dentist. When you need surgery, also you have to go to a hospital. Even you go for a blood test in a laboratory. I think first doctors have to think about [HIV] prevention. We cannot avoid it [AIDS] if doctors cannot guarantee that their equipment is clean and safe. (Keti, 40 years old, divorced)

Attitudes Toward Informational Channels

Knowledge also includes the sources from which women learn about HIV/AIDS and contents of information that they receive from these sources. While none of the twenty-six respondents had any educational course or lecture at schools or universities, a majority are aware of the disease from television, newspapers, and public health journals such as *Aversi* and *Mkurnali*. Only one medical doctor respondent mentions the Internet for learning more about HIV as a professional interest. Discussion of HIV among family members or in doctor-patient conversations is rarely mentioned. Gynecology services and particularly antenatal visits expose women to HIV information through testing, posters, and booklets available at women's consultation centers. A few women, however, report a brief discussion with a gynecologist, who usually offers an HIV test during prenatal care. Other respondents also obtain knowledge from daily life experiences, mainly from TV, peers, and acquaintances:

Thank God that we do not need to talk about it [AIDS] between our family and relatives. Only some information comes from TV sometimes. I graduated from nursing college in 1998 and even there we never had any special course. (Tamari, 26 years old, married)

I knew first about AIDS from TV....When I got the AIDS test during pregnancy, even the gynecologist did not explain very much about the test and infection. She mentioned only that it is prevention to be sure that me and the fetus are both healthy.... (Tsira, 30 years old, married)

When I ask women about general ideas that come to their minds when they hear about HIV/AIDS from television, most mention negative feelings, fear, uncertainty, anxiety, and attention mostly associated with news about HIV infection cases and stories about PWAs associated with already stereotyped groups of IDUs, FSWs, and MSMs. The information obtained from a majority of the participants reflects a lack of reliable HIV knowledge. Women note that they gained more in-depth information just on their own and agree that sexuality and HIV-related behaviors are not openly discussed in the media, thereby leading to uncertainty, complexity, and many rumors and anecdotal evidence. Because of such positions, women express dissatisfaction with the messages available for the general public, and voice the idea that televised communication is prone to dramatization, distortion, and misrepresentation—and consequently works to magnify existing anxiety about HIV/AIDS.

Today there is a vacuum of information [about AIDS and sexuality]. It is not very clear. There is no educational information. If there is infection, it is a scandal in [the] media. [The] news reports only that somebody was infected through blood donation, or a person was sued in court because of infection. (Nino, 41 years old, divorced)

Among the interviewed women, I find that only those with a personal interest in the disease (such as two respondents with medical education backgrounds), those familiar with the health care system, or wives with husbands diagnosed with hepatitis C are more knowledgeable about HIV. When I ask questions about chances of personal risk and its causes, these women agree that they personally face some minimal risk of infection

because they know how the disease is transmitted. They link this knowledge with a minimal probability for lack of prevention, and therefore with risk of personal infection. The asymptomatic nature of the infection, low condom use, and potential future blood transfusion account for possibilities of personal risk. Although women mention injection sharing as a transmission route, no one reports that she might face risk because of personal behaviors using infected syringes or needles in her household.

[I] think it [infection] spreads very widely and perhaps normal people can get it. My husband got hepatitis, and it is also possible for him to get AIDS and infect me, so I agree that I can have some minimal risk personally. (Mzia, 30 years old, married)

Assessment of personal risk among women with low HIV knowledge and misconceptions is more complex, however, because of uncertainty and negative feelings that most of them hold about the AIDS disease. When I probe in different ways, women mostly mention that they never thought about personal risk of infection and they would like to look for more information so they could think about risk more precisely in the future. Yet, some women with low HIV knowledge also accept that in a society, risk of infection exists as they hear different stories about the infection of “innocent” people.

INSIGHTS ON HEALTH BEHAVIORS

The next topic explored with the respondents concerns the specific health and sexual behaviors that exert significant influence on their perceived HIV risk. This main theme elicits facts about the respondents’ choices in health care utilization, HIV testing, and sexual behaviors regarding condom use and STI diagnosis.

Choice for Health Care Utilization

Regular health care and gynecologist visits for routine exams are not reported to be priorities by the sample in this study. Visits to a gynecologist are related mainly to urgent health problems, such as complicated STIs, PID, fistulas, ovarian surgery, endometriosis, and ectopic pregnancies. Few of the women regularly see a doctor. Only one educated and employed respondent mentions having health insurance and visiting “professional” doctors for prevention or treatment in a prestigious private clinic. Other respondents mention the poor quality of services at polyclinics (primary health care services) that can cause additional health problems, including risk of not only HIV infection but also other bacterial or viral infections. Advice from social networks and competent persons, the experience of specialized doctors, and the affordability of services are important factors for women in choosing clinics and doctors’ offices where they can count on being fairly treated without any complications:

When I go to a doctor I have to know that doctor is a good practitioner [experienced], specialist [known in a field], and trustable [in diagnosis]. If...[the doctor is] good, I don’t care about money, but sometimes if a doctor is recommended from a very close person then we receive some discount or just don’t pay. First, my mother is a very respectable medical doctor and she has colleagues in every medical field and consequently we have some good connections and price, too. (Medea, 30 years old, married)

I try to take care as possible; sometimes I treat by myself, asking friends and neighbors for advice in medication. (Mzia, 30 years old, married)

Discussion and analysis of these data indicate that women have more decision choices when they have a job for financial support, as in the case of Medea. Social network often plays a strong role in the utilization of gynecology care, but women are also constrained in their choices of health access and treatment if they are limited in

financial resources, unemployed, and therefore relying on network advice to use alternative medicine or self-treatment.

In terms of frequency of utilization of routine exam, most respondents link it with the kind of health problems they are experiencing. A majority of the respondents report some kind of gynecological problems, but only a few have had access to treatment in a recent year. Most respondents argue that the type of problems generally impact their utilization of gynecology care, and say that they delay visits if they are not urgent or pregnancy checkups. The reasons for such practices are different and inconsistent across respondents. For some women, it is a financial burden because priority must be given to food, education, and bill payments. For others, it is a lack of concentration on their own health and the availability of alternative options for self-treatment. In general, though, educated and employed women are more likely to utilize gynecology services regularly if they need treatment advice:

Currently, I don't have money to go [to a gynecologist] but I have to....It seems that I have some [gynecological] problems. I need to find some way, or...borrow the money,...to pay for service and treatment. (Natia, 34 years old, married)

I sometimes prefer traditional methods [herbal medicine]....I also have insurance and the date expires soon so I need to go because I never used it during one year. It means that money does not play a role in my case, because sometimes I think that I am not going to doctors due to financial problems. (Marina, 45 years old, married)

Practice of HIV Test

Less than half ($n=9$) of the respondents had an HIV test as part of a program for pregnant women, and two respondents had the test as a requirement for international travel and for blood donation. None of the respondents had the voluntary test on a regular basis or when exposed to risk. Most women who had already taken an HIV test wished to

repeat it regularly, but women who had never had one did not see the test as necessary, mentioning mostly “health lifestyle” behaviors in terms of trusting their sexual partners:

Yes, I was tested 19 years ago when I was pregnant. It was free and I wish to have it again if it is free. (Natia, 34 years old, married)

I had a test for AIDS when I went to Germany. It was required for a visa and it wasn't free. I paid....If it is necessary, I would wish to have [it] at least once a year. (Medea, 30 years old, married)

I never had an HIV test. I have no wish to have [one] because I trust my partner and believe that 99 percent we will be together up to the end of life and so I do not think that test is necessary. (Sopho, 39 years old, divorced)

Of two respondents whose husbands had been exposed to the risk of HIV (with hepatitis C status, associated with drug-use behavior), neither report having an HIV test. None of the other respondents mention that their husband or partner ever had an HIV test. The small culture of regular health checkups, economic burden, little awareness of the HIV-testing practice, and low HIV prevalence in a country are also mentioned as testing barriers. The opportunity for a free test and public education as a prevention measure emerge as factors to increase testing, not only among pregnant women but also among men and women exposed to risky sexual or drug behaviors.

Practice of Condom Use

Many respondents report discussions with their partners about condom use. Only four women are using condoms regularly, and only one for disease prevention. Although condoms are available from clinics and pharmacies, women do not see the need to use them in committed partnerships. Some women mention curiosity about condoms but no need for regular use because they trust their partners. For pregnancy prevention, the preferred method is the IUD. Reluctance and refusal of partners to use condoms are also reported by respondents:

I have a big problem from my partner and we never used it [a condom]....I have an IUD inserted and I feel safe. (Sopho, 39 years old, divorced)

I think men do not like to use condom. It causes discomfort or it might be more individual: it “feels like to wear coat” [she laughs]. We never discussed [using a condom] because I also don’t like it. We tried just once an exotic condom for interest. (Lali, 41 years old, divorced)

For STI and HIV prevention, women stress that condoms must be a priority for young or married men if they are in sexual contact with other women, if they do not know the infection status of their partners before their relationship has stabilized as monogamous. Respondents mention that using condoms for dual protection can be done effectively if one partner is infected with STI, but due to feelings of discomfort women are not pressing their partners to use this method regularly. One woman provides anecdotal evidence with a joke about pushing her husband to use a condom with other women:

Yes, we discussed [using a condom] and we used it to prevent pregnancy and hepatitis C that he was diagnosed with in 2001. But we are not using [one] regularly and because of this I am reminding my husband all the time to have a condom if he ever wants to cheat on me and have sex with other women [she laughs]. (Mzia, 30 years old, married)

Yes, we discussed [using condoms] and we used...[that method] to prevent pregnancy and diseases before we knew each other well. I am not using it [a condom] currently. (Liana, 35 years old, divorced)

These quotes reflect the fact that condoms, which have been traditionally associated with “illicit” or casual relationships, are more acceptable in nonmarital relationships. Married couples are reluctant to use condoms regularly, therefore placing themselves at risk if a partner becomes infected. In addition, married women are not insisting on condom use because it may be seen as inappropriate, disrespectful, and evidence of lack of trust.

As a result, in the assessment of personal risk, little more than half of the respondents ($n=14$) agree that anyone could be infected with HIV/AIDS, including themselves and women in monogamous relationships facing risk because of reluctance to use condoms:

I thought about risk and it depends on my husband...how many prostitutes he will have contact with. I can be infected very easily if he catches HIV from them.
(Maka, 30 years old, married)

I might have about 50 percent risk of infection because I love to go to beauty salons once a month and if I will need to go to the dentist then there is a big chance to catch some infection from there... You can be infected with hepatitis, too, if not HIV [from a dentist office]. (Mary, 31 years old, married)

The assessment of risk based on individual activities suggests that few women link risk with personal sexual behaviors ($n=2$) or perceive personal risk in casual contact with those infected ($n=1$), but that the majority link it with personal choice and the practice of health care utilization ($n=11$), which can expose a woman to HIV infection through unsafe treatment.

A smaller proportion of respondents ($n=5$) assert they are positive that personal risk does not exist. Three divorced respondents (of five who are in nonmarital relationships) believe they are not at risk, justifying their perceptions by saying they follow “healthy lifestyles” while engaging in nonmarital monogamous sexual contact. Therefore, they trust both their partners and their health professionals in quality of service. These women are not using condoms regularly and do not know the past behavior or infection status of their partners. All respondents who deny personal risk are employed and have university educations—including one medical doctor.

These interviews about the linkage of personal behaviors and risk assessment are consistent with the quantitative analysis. Such a constant indicates that women in this sample do not recognize their risk based on their own sexual behaviors (unprotected sex

or history of STI diagnosis), thereby expressing lack of information from gynecologists about specific connections between other STIs, viral STDs, and HIV. Instead, these women perceive personal risk from the utilization of health care services, including any contact with health establishments for preventive or treatment services.

INSIGHTS ON CONTEXTUAL FACTORS

The last topic explored with the respondents covers specifics about contextual factors that demonstrate some significant influence on their HIV perceived risk. This main theme elicits facts about respondents' perceptions of sexuality norms and migrant vulnerability, as well as attitudes toward PWAs.

Perceptions of Sexuality Norms

In a discussion about male and female extramarital sexual behaviors, respondents mention several factors, such as economic problems, traditions, generations, religion, social norms, and family. Many women in the sample seem to be against infidelities by their partners, but they do not feel capable of challenging them because of possible consequences due to women's subordinated positions within sexual relationships. Ten participants (38 percent) agree that married men might have extramarital relations that could increase their risk of acquiring STIs:

I am categorically not accepting [infidelity], despite that I believe my husband likes to have sex sometimes with other women. I think first husband and wife must be faithful to each other, and second there is a big risk of infection with STIs. (Maka, 30 years old, married)

I don't know how acceptable it [infidelity] is, but I cannot catch my husband. In general, it is acceptable but the wish is to be faithful to each other. In Georgia, every second man [every other man] experiences sexual contacts outside marriage. (Anna, 40 years old, married)

These quotes demonstrate that while some women are constrained in sexual behaviors, it is recognized that men traditionally are free and that such gender imbalance and sexual freedom can expose men to risky behaviors and to infection. Women point out that it is very painful, bad, treasonable, promiscuous, and unfair when men have extramarital relations. One woman asserts that while women in Georgia have been traditionally constrained in practicing their sexuality, men used to travel to neighboring countries or visit tourist places to have sexual contacts. Today they do not need to travel, however, because prostitution services have become more open and available in Tbilisi.

According to participants, women's sexual freedom in nonmonogamous relationships occurs, but to a smaller degree than men's. For women, it is associated mostly with economic needs, while for men it is connected to manhood and greater experience. Thus, most of the respondents agree that due to family traditions, maintaining dignity, economic dependency, respect, and other more significant problems, women mostly accept unfaithful relationships. Although some respondents mention that the older generation accepts such behavior more readily, variations among age, employment, and education in accepting infidelity are not substantial in this selected sample of women. It is hard to say that unfaithfulness is the norm for some and that women tolerate the lack of faithfulness of their male partners in Georgia. Cognitively and emotionally, though, most women consider cheating to be undesirable behavior that weakens family strength and ties.

The role of women in Georgian society, within both the household responsibilities and the family structure, is changing slowly. New economic constraints affect sexual practices and gender relations, as well as raise women's critical consciousness regarding their lives and the initiation of safe sex. Most of the respondents state that it is acceptable for an unmarried woman to negotiate protection with her partner and to buy a condom,

but only two educated divorced women actually mention that they had purchased a prophylactic and initiated its use with their partners.

It is very good if a woman protects herself. For example, I am single, I don't have a husband, and I have no luck to have a family. I think that if I would have a boyfriend I would accept having condoms with me, because family is one thing—and sex, pleasure, and prevention is another. (Liana, 35 years old, divorced)

Most women note that they discuss birth control and condom use with their partners but do not mention HIV or STIs. Such a picture therefore suggests that social and cultural norms constrain women from initiating conversation about sexual infections and their associated behaviors, a tendency that would make females less aware of specific STIs and links with HIV.

Attitudes Toward PWAs

This section of the interview findings explains the attitudes and reactions of women to PWAs. The quantitative results show that more than half the female sample rejects the rights of PWAs, thereby stigmatizing and ignoring individual personal risk of HIV infection. Respondents cite various aspects of stigma, in terms of stigmatizing attitudes toward PWAs. In this sample, only one interviewee had personal contact with an HIV-positive neighbor, while another respondent just visually knew someone infected. I explore general and personalized stigmatizing attitudes that women might express in a real situation with PWAs by discussing the reactions of these women to the problems of infected people, viewpoints within the family and workplace, and reasons for discrimination.

One interviewed women mentioned experience with an injection drug-user neighbor who died of AIDS. She described her feelings of pity and the unreasonable fear of others when they heard about the death of their HIV-positive neighbor. Another

respondent referred also to a neighbor, whom she never would have guessed was infected, suggesting that in-depth knowledge about the asymptomatic nature of the disease is limited. That factor is very important in public education and prevention:

When my neighbor died, all the [other] neighbors were in a panic. The boy was IDU and everybody was scared because they had [had] some contacts with him. He also came several times in[to] my home, so some neighbors went in the hospital for testing. But I myself, to tell the truth, never had the wish to go to a doctor and to test, because I didn't have a close relation with that boy and I knew that it [HIV] is not a contagious disease. (Tsira, 30 years old, married)

I heard about one man, my neighbor. He became sick suddenly and when they checked for everything, discovered the HIV virus. I would never have guessed. He seemed very normal, without any misbehavior. (Lali, 41 years old, divorced)

Many women express anxiety in sharing a recently televised story about an innocent woman and her child who were infected in a maternity hospital from a blood transfusion and faced stigmatizing attitudes and discrimination from society and neighbors. Discriminatory attitudes are visible toward those who disclose their status publicly, expressed mainly through ignorance in avoidance of contact and even denial of work and education. Such stances are also expressed by some of the women when I ask questions about their willingness for personal contact with a possibly infected relative or friend, or allowing their own child or children to have contact with the family where the infected person lives. While many women deny that their attitudes are discriminatory and say they could continue contact with friends if they are diagnosed with HIV, at the same time these women do not wish their children to have contact with an infected family. They express emotional feelings of fear for themselves, caution for their children, and pity for people with AIDS. The reasons for continuing contact with PWAs are generally humanistic, including responsibility and caretaking duties mostly with close relatives:

I would not allow my son to visit a family with an infected person because I think there is a probability of infection. I would be very careful but I would continue contact if it's my close friend or relative. (Mary, 32 years old, married)

Women typically expressed fear of disease and risky behaviors that an infected person might practice with someone uninfected without disclosing infection status. Discussion about morality and women's attitudes about the possibility of infection further underscores the blaming of HIV-positive persons for their illness and for their stereotyped sexual and drug behaviors. One respondent with high education and employment status but less power in terms of challenging the risky sexual behaviors of her husband expressed moral judgment toward infected people:

I would be against [personal casual] contact [with PWAs] depending on the morality; it depends on what was the infection route. If it's accidental, for example from a blood [transfusion], I would allow contact, but if it's an infection from the husband [sexually] then it means the family is immoral and I would not wish to have contacts. (Maka, 30 years old, married)

Respondents' discriminatory attitudes are also reflected in their statements about whether an infected teacher should be allowed to continue to teach in school. Women used different arguments to justify their attitudes and reasons. A few respondents would allow such a situation, based on humanitarian reasons and the transmission mode:

When I watch some information about infected people I feel very sorry for innocent people who [were] infected from blood donation....[T]here are drug users who knowingly infect also. This doesn't mean that infected innocent people should stay at home....[There] must be some solution because they are able to teach and they are just victims unknowingly. I think they should teach if they infected...accidentally. (Nino, 41 years old, divorced)

Few women note that they are afraid to be in casual contact with those who are infected. Because of such attitudes, HIV-positive people prefer to maintain their status in

secret instead of disclosing it, as they fear discrimination and the possibility of losing their jobs and contacts. One woman pointed out in a discussion that she heard in a dentist office about discrimination from medical personnel dealing with HIV-positive patients:

I know one case when an infected boy went to a dentist and said that he was infected. The doctor refused to serve him and therefore after that incident this boy never would disclose that he is infected. This dentist did a terrible thing to refuse treatment to an AIDS-infected person. At least she could remove [dispose] all instruments after use. What is the fault of that boy? He is also human and needs treatment for his teeth. He didn't deserve such an attitude from medical professionals, who should educate others about diseases....This happened in Tbilisi, where dentists seem to be very educated on this topic. It seems that they are not prepared for such situations. (Lali, 41 years old, divorced)

Yet when I followed up this case in a social conversation with two other dentists in Tbilisi, they both mentioned that HIV-infected people never disclose their status with them. Because of attached stigmata, they never ask patients about their infection status from the point of ethical consideration. As a caution, however, they only practice additional infection control standards when they habitually consider a patient as a drug user. Both dentists noted that they have no right to refuse treatment to HIV-infected patients, but generally they are not willing to have such patients very often because they will lose noninfected patients if they treat HIV-positive ones. Unfortunately, the dentists agreed that poor infection-control strategies can cause blood-borne infections to other uninfected people.

Regarding such attitudes, I ask the sample of women to explain why HIV-positive people are treated so differently. A majority of the women mention lack of knowledge about HIV/AIDS and misconceptions about casual transmission through social contacts as the principal causes of discrimination. The discussion also reveals reactions of social inacceptance, including self-distancing from the stigmatized groups and stereotyped risk

behavior related to HIV infection. Such attitudes also were linked to high fear of disease, irritation, anger, and blaming of infected people for their behaviors:

I think that even intelligent people are not ready to accept these people as normal sick people. This is fact, because the level of information is very low and this increases the fear among the masses. (Nato, 29 years old, married)

Neighbors had no contact with the infected woman and she was ignored, but now when they [neighbors] know that the disease is not dangerous for them, they started to support her. When you do not have information, you feel fear. (Tea, 38 years old, married)

In addition, three respondents with university education and different health-knowledge levels (one hotel administrator and two medical doctors) reflect varying attitudes about the discrimination that infected people experience in Georgia:

There is no persecution of infected people, but every normal person will try to avoid them. I myself never would allow one to work in my company. I would rather give some other kind of help [financial] than...allowing them to be in contact with customers. (Maia, 34 years old, divorced)

If society would have as negative attitudes [toward PWAs] as I have, despite the fact that I am a medical doctor and I know about the disease, then it's better to keep [the diagnosis] in secret because it's a pity to receive such negative attitudes. (Nato, 29 years old, married)

Stigma comes from people who never think that they also...one day might face AIDS....They think that they are immune to such an infection. These people do not understand the situation and have no idea that everybody has some risk of infection, such as those innocent people and children accidentally infected recently [by blood transfusion]. (Tea, 38 years old, married)

These quotes imply that women vary in their stigmatizing attitudes toward PWAs. While the attitudes of two highly educated medical doctors are completely opposite to each other, one stigmatizing and the other nonstigmatizing, such discrepancy suggests and is consistent with the argument that stigma is an independent factor for HIV risk prediction. In addition, while both stigmatizing women acknowledge their negative

attitudes toward PWAs, they also express support and pity, thus suggesting that stigma is not very strong and can be prevented easily. Finally, the nonstigmatizing medical doctor notes that risk of infection exists for every person, despite the fact that someone might personally be exposed to HIV infection knowingly or unknowingly through iatrogenic infection in medical establishments.

Perceptions About Migrant Vulnerability

Another contextual factor discussed among women in relation to HIV risk infection is migrant families. Because no one in the sample had experienced migration or had a migrant husband, I decide to ask a question about their perception toward other migrants. Women note that behaviors of separated family members could place them at risk of HIV. A majority of the respondents agree that migrants are at increased risk due to separation, sexual desire, and a perilous environment with high infection potential. In addition, women assert that once migrant men engage in risky drug behaviors, they will need a lot of support and resources to be free from such activities, which their migration status cannot sustain:

[A] migrant family is more at risk not only for AIDS but also for other STIs, and young men always will look for fun to have sex, which can infect him and his family too....I will be always against letting my husband to go to Russia without me. (Tamari, 26 years old, married)

In Georgia, some returned labor migrants are also infected through drug-sharing behaviors in Russia. There are statistics among prostitutes who are infected in Russia, too. (Tea, 38 years old, married)

Other respondents disagreed, though, stressing the need to consider individual situations—especially in terms of personality, character, work conditions, health and economic resources, and past risky behaviors of migrant family members:

I do not think that people who are truly devoted and support their families might be engaged in some unfaithful risky behaviors. (Naili, 37 years old, married)

[Risk] depends on personality. People who follow unhealthy lifestyles can be infected everywhere. I would have my behaviors unchanged everywhere here in Georgia or in Russia, despite the risky environment around me. (Nino, 41 years old, divorced)

This discussion about migrant vulnerability to HIV infection implies that women in this study acknowledge that economic hardship makes people more prone to risky behaviors. Women agree that migrant workers can face HIV risk in Georgia or outside if the environment is risky and the status of migrants does not allow the practice of healthy behaviors. Also, most women make no differentiation between the behaviors of male and female migrants, but a few mention that women due to biological vulnerability and despite their migration status are always at higher risk of sexual transmission than men.

In light of these contextual factors, I proceed with the discussion of personal risk assessment and who can be at risk of getting HIV in Georgia. In terms of personal risk, women holding some degree of stigma are more likely to ignore risk or to be uncertain about their chances of infection, although a few women also agree that minimal risk always exists in a society in general. One low-educated and unemployed respondent notes the stigmatizing attitudes and lack of sexual communication of her husband in assessing her personal risk of infection, supporting the idea that a cultural perspective of sexuality and negotiation presents a substantial obstacle among married couples, especially when individuals have difficulties in assessing personal HIV risk:

In my case,...[contact with PWAs] depends on way of transmission. [I]f it's infected by chance accidentally, I would continue to keep contact only with infected close relative, but would avoid contacts if it's not my relative. This is for me additional trouble, in a sense of finances, and moral.... I never thought about my personal risk of infection. I don't know. I never discussed it with my husband or my doctor. (Naili, 37 years old, married)

In response to a question about who can come in contact with HIV risk in Georgia, women differentiated it according to minimal and high perceived-risk, where a majority of the women reported IDUs and FSWs and their partners to have great risk of acquiring HIV. Indeed, the issue of homosexuality was mentioned only once, but when probed most women agree that homosexual men have an enormous chance of HIV infection due to practicing risky behaviors. About half of the respondents also perceive women to have minimal risk due to a lesser chance of exposure to risky behaviors. Increased incidence of HIV among monogamous women suggests that some females are starting to believe that married women also have a possible risk of infection:

In Georgia, IDUs and prostitutes have high risk, but recently an infected woman was talking about her HIV-positive status on TV and she has not belonged to one or another of these risk categories....So, it seems that everyone can get it. (Mzia, 30 years old, married)

Finally, many respondents agree that a chance of great risk from medical transmission is also possible for every person who uses donor blood without safety controls or uses poor-quality services from health centers or beauty parlors. Such a viewpoint about a perceived at-risk population in Georgia suggests that these women may also make decisions and assess their risk more carefully in the future if they get clear messages and information about progress and development in HIV/AIDS prevention and treatment. At the end of the interviews, I ask the participants to describe what should be included in preventive actions. The most prevalent responses are to make educational programs accessible for all (which can allow people to interpret their own chances of infection more precisely), to protect effectively, and to improve the quality of both the health care system and the practice of sterilization.

CONCLUDING REMARKS

This chapter describes the factors associated with HIV perceived risk among purposively selected and sexually experienced women in Tbilisi, Georgia. The questions I pose here are how women feel when discussing HIV/AIDS, perceived risk, and HIV-related behaviors, as well as what kind of cognitive strategies they use to evaluate risk perception and behavior choices. To answer these questions, I interview respondents about their knowledge, attitudes, emotions, beliefs, actions, and perceptions regarding individual risk. Specifically, the analyses focus on cognitive components that developed from interview data and are grouped into initial codes for the three main themes of HIV/AIDS knowledge, health behaviors, and contextual factors. These codes are important for logical interpretation of the connections between different elements of knowledge, behaviors, context, and HIV perceived risk, and can have implications for future research and HIV prevention.

The underlying premise of the interviews is that knowledge alone is not always sufficient to develop protected behavior or eliminate stigmatizing attitudes, even in situations where people are aware of their infection risk. Therefore, sociocultural factors such as sexuality and gender norms, attitudes toward PWAs, and stereotyped behaviors often contribute more to the risk-assessment process than does knowledge. To understand the reasoning behind perceived-risk assessment and the particular behavioral practice, it is also necessary to know what people consider important to support their decisions. One argument for this way of thinking is that people behave according to the significance that issues have for them. From this point of view, I look at the specific cognitive factors that might be closely linked with the meaning and reasoning of individual perceived risk.

Results of interviews about HIV/AIDS information show that the level of comprehensive knowledge about prevention and transmission is not high, and is shaped

by misconceptions about casual transmission and by stigmatizing attitudes. Details about HIV/AIDS (defined as news reports, stories, facts, statistics, and rare discussions about behavioral prevention) are obtained mainly from television and print media. Such stories often are the subject of dramatization and emphasize the spectacular aspects of the disease rather than a rational discussion of HIV/AIDS prevention and treatment. Perceptions about the trustworthiness of these information sources render them unreliable for sufficient health training. Respondents point out a lack of professional advice and educational materials on HIV/AIDS, resulting in low knowledge about mother-to-child transmission, prevention, and treatment options available for infected people in Georgia. Such infrequent and scant self-education on HIV/AIDS, along with news media portrayals in stories of health risks, definitely work to create an illusion of control, beliefs, and perceptions about a risky environment—especially associated with medical exposure to risk and “other” groups exhibiting risk-enhancing behaviors.

Results on health and sexual-behavior practices indicate that women are experiencing different fitness problems related to their sexual wellbeing. In particular, respondents are comfortable discussing their experiences with diagnosis and treatment of STIs. Most women trust their doctors recommended from social networks. They assert that financial issues are important, but also stress that quality and professionalism are key factors in making effective choices of medical doctors as well. Even though an increasing number of women report discussions of condom use with their partners, only a few use this method regularly. A majority of the women assert that condoms are effective in preventing STIs/HIV, while also expressing the belief that men’s attitudes about condom use are not positive. Therefore, women are using other contraception methods, which do not protect from STIs and HIV. In a mother-to-child HIV-prevention program, a little less than half of the respondents experienced HIV testing during antenatal care, and only a

few tested during blood donation and international travel. Women's attitudes about extramarital sexual relations by men indicate that more than half the respondents do not accept such behavior and feel very strongly about their decisions. Some women, despite their socioeconomic status, express their powerlessness on the issue of marital infidelity, however, linking it with male control, traditions, and conservative social norms.

Discussion about stigma and discrimination reveals that these women do not feel comfortable with HIV-positive people. Specifically, their personal attitudes fall into two categories: (1) do not wish to have contact with an AIDS-infected family, or (2) accept contact with safety conditions, due to responsibilities and caretaking duties. These responses indicate that both attitudes are closely related to poor understanding of prevention strategies, with fear of the disease and the distancing of self from people who are "different" either in behavior or sexual orientation. Most women believe that society is not psychologically ready to feel secure when a seropositive person is allowed to work with children. Therefore, despite such attitudes and concern about HIV, most women accept an infected teacher under the conditions of humanity and transmission mode. They are also willing to care for a diagnosed family member in their households, and would continue friendships with acquaintances who have HIV. Such positive emotional reactions can decrease the power of stigma and discriminatory action, especially toward "innocent" people who contracted HIV through blood transmissions rather than unsafe sex or sharing injection drugs.

Interviews and comments about perceptions show that a majority of the women perceive an HIV risk, while the remainder never thought about risk but accept the idea that a chance of infection is slightly possible at health establishments. Few women state that they do not have any risk of infection. The reasons for perceiving themselves at risk vary and fall into three categories: (1) accidental transmission due to poor sterilization

practices, (2) sexual risk due to husbands' unhealthy behavior, and (3) misconceptions by a few about casual-contact transmission. Reasons given for viewing themselves at no risk of HIV infection are healthy lifestyles and reliable medical service. About half the women think that everyone (women and men) might have a little risk, despite their own behaviors. The other half of the respondents admit to a strong view that drug users and prostitutes, as well as their partners, are at higher risk due to their risky behaviors. In addition, some women believe that in certain circumstances migrant men might also face a risk of infection. Other respondents observe that women might be at higher risk of sexual transmission due to their biology when exposed to infection through an IDU partner or an unfaithful or MSM husband.

In terms of protection, only a few women point out that they never protected themselves, due to absence of information about prevention. While some women claim they know how to protect themselves, their actual experiences indicate that most had exposed themselves to the disease and been diagnosed with different STIs. Yet they rarely use a condom regularly, have never had a voluntary HIV test except for antenatal care, and trust their partners but do not know their past behaviors and HIV status. Some women who in theory do not accept infidelity by their husbands acknowledge that in reality they might put up with such a situation if faced with it. A majority of the women who trust their doctors see no need for prevention, while the remainder believe in the faithfulness of their partners and trust their doctors as prevention measures. In addition, women list the use of disposable syringes and needles, as well as the avoidance of unreliable places for any health or beauty manipulations, as ways to avoid possible risk of exposure to HIV.

The interview responses indicate that sexually experienced women show different cognitive and emotional patterns. HIV knowledge, beliefs about medical transmission,

and attitudes toward sexuality and PWAs are concepts actually embedded within society and its culture, which largely determine how individuals perceive jeopardy and the autonomy they may have to control the threat. From this qualitative research, one can conclude that some behaviors conflict with societal norms among women, who might underestimate personal HIV risk. This deduction can be made because some women construct such a possibility in ethical and moral terms by associating the disease with “other groups” instead of with personal behaviors. Yet risk perception, as well as HIV-transmission knowledge, is increasingly influenced by the spread of infection, media portrayals, and a rise in hazardous factors in a country.

Finally, the growing evidence of dangerous behaviors and the steady spread of HIV/AIDS in Georgia and neighboring countries cause all participants to suggest more holistic and integrated approaches of prevention, combining comprehensive health education programs, carefully designed prevention messages, antistigma interventions, and control of sterilization practices. These strategies offered by women in their comments are based on long-term and permanent actions to improve and prolong the lives of those already infected and to avoid transmission to future generations.

Chapter 7: Conclusion

The key purpose of this research is to explore the connection between health knowledge and perceived health risk. A wider-ranging goal is to link explicit cognitive aspects of HIV health knowledge and related behaviors to the process by which individuals assess their own levels of perceived risk. This study analyzes that relationship within the context-specific social and economic variables broadly shared within society. In particular, this investigation focuses on social norms and attitudes regarding perceived sexual control, reactions toward PWAs, and migration experience.

This final chapter attempts to tie together separate sections of this dissertation and summarize major findings of the mixed-methodology approach. The sections are structured according to the research questions and relevant hypotheses. Components of the applied conceptual model that shed light on both the individual and context mechanisms influencing women's approaches to assessment of individual HIV risk also appear here. Lastly, this chapter discusses theoretical and policy implications, as well as limitations, while providing suggestions for future research.

DISCUSSION OF MAJOR FINDINGS

This work centers on the assumption that a better understanding of variations in personal and contextual variables, which influence individual decisions about perceived HIV risk, can provide insight into research and interventions. Such actions are aimed at augmenting women's knowledge, improving attitudes, and increasing risk-minimizing

practices, all of which play a role in the prevention of HIV and AIDS (Okware et al. 2001). This study seeks to fill the research gap on women and HIV/AIDS, which typically focuses on knowledge, attitudes, and actions among risky-behavior groups. In particular, the epidemic's concentration among groups exhibiting risk-enhancing behaviors leaves monogamous women in low-prevalence countries underprotected and unprepared for the risk and consequences of HIV infection. As a result of risky-behavior practices, there is an ongoing examination of the increasing HIV prevalence in many developing countries and the enlarged relational risk of HIV transmission among monogamous women (Nguyen et al. 2008).

This research is guided by a combination of two theoretical approaches to behavioral change: individual and context specific. Utilizing a combined approach allows a critical assessment of the construction of individual HIV risk perception. As the basis of the inquiry, HIV knowledge, as well as reported behavioral and context variables, are used as predictors in an HIV risk assessment. In particular, HIV knowledge, common beliefs, source of information, condom use, STI symptoms, lifetime partners, routine health examinations, and HIV testing practices are utilized and tested further in a multivariate analysis. Other important sociodemographic and economic variables (such as age, education, residence, and socioeconomic status) that could influence the individual decision-making process concerning HIV risk perception among women are also identified and used as study controls, based on a review of the available literature. In this manner, context variables associated with the widely shared social, cultural, and economic norms are also identified (in the 2005 sample) as possible predictors for assessment of HIV risk: women's perception of sexual control, reactions to PWAs, and migration experience.

In this section of the conclusion, I will address the findings most relevant to the research questions and hypothesis, employing the results presented in chapters 5 and 6 from secondary survey and interview data. Drawing on mixed methodology, this project adds support to a growing body of research documenting the importance of HIV risk assessment in behavior change research. Specifically, this project contributes to the field of HIV/AIDS social and behavioral research by focusing on a largely low-prevalence Georgian context that has received little treatment in previous HIV research.

Levels and Patterns of HIV Knowledge and Perceived Risk

The first central question of this study explores the variations in responses on key HIV knowledge characteristics during the posttransition period in Georgia (between 1999 and 2005) to identify patterns. Theoretical approaches in the existing literature contend that women use a variety of cognitive coping strategies related to their own knowledge levels to evaluate their HIV risk perception (Brown et al. 2000). In addition, new and more effective HIV treatment may have changed people's knowledge, attitudes, and the representation of HIV/AIDS as a potentially manageable disease. Accordingly, such transformation in knowledge and attitudes may also influence personal risk assessment and reactions to PWAs.

Results in chapter 5 demonstrate high overall awareness of HIV/AIDS among Georgian women. Substantial and worrisome knowledge gaps (misconceptions) exist, however, concerning possible transmission modes in both the 1999 and 2005 surveys. In comparison to the transmission methods (unprotected sex and injection-drug sharing with infected persons, and contaminated blood transfusion) where women have good knowledge, some gaps still remain in mother-to-child transmission, misconceptions about casual-contact spread, and knowledge of prevention strategies (ABC). The results from simple univariate analyses in 1999 indicate that about a quarter of sexually experienced,

reproductive-age women lack the knowledge that breastfeeding HIV-positive mothers can transmit the virus to their children. This indicator worsens in 2005, when less than half the respondents lack the knowledge about mother-to-child transmission.

Regarding knowledge assessment on global prevention methods (abstinence, faithfulness, and condom use), a majority of sexually experienced women of reproductive age report all three methods of prevention correctly in 2005, while only one-third do so in 1999. Therefore, knowledge of prevention strategies associated with the practice of injection drug sharing (avoiding injections, needle sharing, and sex with an IDU) is low, despite the fact that sharing injection drugs appears to be the main route of HIV transmission in Georgia.

Misconceptions regarding HIV transmission are also widely reported by sexually experienced women in both surveys. There was only minor improvement in rejecting two common myths (mosquito bites and the sharing of food, utensils, or objects with infected persons) in 2005, whereas in 1999 more than half the women failed to reject myths about casual transmission. The corresponding figures decreased in 2005, when less than half the women failed to reject the same two casual-contact transmission myths. Furthermore, perceptions that healthy-looking people cannot be carriers of HIV/AIDS are also common among surveyed respondents, with a little less than half of women disbelieving the asymptomatic nature of HIV infection in both surveys.

One of the factors of HIV awareness widespread among female respondents concerns the belief that individuals face a risk of HIV infection during dental work, surgical procedures, or beauty services. These beliefs are more stable, being reported by more than three-quarters of the women in both the 1999 and 2005 samples, which suggests strong distrust of the medical community in HIV transmission.

The effectiveness and accessibility of HIV knowledge are largely influenced by the information channels available to disseminate knowledge and create social attitudes, perceptions, and beliefs about HIV/AIDS. Television remains the predominant source for facts concerning HIV/AIDS among Georgian women, with more than half reporting that they usually obtain information about the disease through this medium. Among other reported sources of information, health educators (doctors, nurses, and teachers) are least mentioned by respondents but the proportion increases in 2005, suggesting that women are obtaining HIV information from more reliable and accurate sources.

The survey results on the assessment of self-perceived risk show that a majority of women rate their personal risk of getting HIV as little (29 percent in 1999 and 38 percent in 2005). More than half of the respondents, however, believe that they are at no risk of infection. In comparison, the percentage of women stating that they are at no risk of an HIV infection decreased by 10 percent, while the percentage of women stating that they were at little risk of infection increased by 9 percent in 2005. These findings suggest that women are better able to assess their risk of getting HIV in 2005 than they are in 1999, based on ever-growing HIV information, experience, practice, and known stories and facts.

Qualitative findings support the substantial knowledge gap in mother-to-child transmission and in some prevention options. In semistructured discussions attempting to uncover the cognitive processes relating to HIV risk perceptions, many respondents report misconceptions and stigmatizing attitudes toward those infected with HIV or suffering from AIDS. Some respondents acknowledge that their familiarity with HIV is very basic, due to the absence or lack of reliable information sources. Most women mention that they heard about HIV/AIDS from TV news programs but had no pamphlets, courses, or lectures from educational institutions or health professionals. Women

mentioned antenatal care services and gynecologists as information sources only for pregnant and sexually experienced women, but the quality and absorption of such information seems very trivial and sketchy, with no follow-up on recent developments in treatment or available prevention programs. This finding points to the importance of investigating opportunities for accessing HIV information and messages through multiple sources, in addition to evaluating the content of these messages.

In sum, the major findings of the first central question indicate that there are some variations in the prevalence, patterns, and trends of HIV knowledge during the posttransition period in 1999 and 2005. Improvements are visible in some HIV knowledge and prevention indicators, and in perceptions assessing some level of HIV risk. Yet there are still areas where HIV misconceptions exist, and thus need to be studied and addressed. The empirical-data shift toward an increase in HIV knowledge is an important component that assists the prediction of a connection between HIV transmission knowledge and perceived risk in a conceptual model. The link between knowledge factors in spurring the slight rise in perceptions of HIV risk between 1999 and 2005 among sexually experienced women in Georgia suggests more examination.

Determinants of HIV Perceived Risk

The second central question of this dissertation explores further the HIV risk perception in relation to key individual and context-specific determinants expected to contribute to the HIV risk-assessment process. Stemming from the first central question, women in Georgia sense some risk of infection, but risk denial is more common than some level of risk perception. This finding implies that we need to be aware of the risk-assessment factors that operate to assist or distort our understanding of perceived HIV risk. As mentioned in chapter 2, optimistic bias and heuristics play a role in underestimating HIV perceived risk, but other determinants such as HIV knowledge,

behavioral preference, and contextual factors may assist women in perceiving some HIV risk. The process of risk construction is difficult, but when developing a perspective, that very complexity may help discover factors influencing a decision on risk assessment and behavior change.

HIV Transmission Knowledge

In response to the main determinants of HIV perceived risk, HIV transmission knowledge is most frequently utilized by social and behavioral scientists in health prevention models. Little attention is paid to the comprehensive dimensions of HIV knowledge structures, however, where transmission myths and misconceptions might also be considered. Because knowledge measurement may operate beyond mere cognitive comprehension, I thoroughly categorize HIV transmission knowledge by patterning responses on transmission modes and misconceptions. The HIV transmission knowledge constructed by differentiating patterns on well informed, fairly informed, and poorly informed does result in various degrees of perceived risk assessment.

Specifically, bivariate and multivariate analyses analyze the hypothesized (positive) link between HIV transmission knowledge and individual perceived HIV risk. Multivariate findings suggest that HIV transmission knowledge is significantly and positively associated with HIV risk perception, controlling for behavioral, sociodemographic, and contextual variables. This discovery implies that both fairly and poorly informed women tend to see themselves at lower odds of perceived risk, compared to well-informed women with relatively higher HIV knowledge, and most likely to reject common misconceptions concerning HIV. The reduced odds of HIV risk assessment among less informed individuals suggest that while transmission knowledge is a strong determinant of HIV perceived risk, it still may operate beyond one or more cognitive or emotional factors. Additionally, a belief variable involving the subjective assessment of

HIV risk from accidental medical transmission also indicates a strong positive association with perceived HIV risk.

In terms of change over time, there is a slight increase in assessment of perceived HIV risk among fairly informed respondents in 2005. Therefore, reduced odds of HIV risk perception among the poorly informed are largely consistent over time. In both 1999 and 2005—even after controlling for behavioral, sociodemographic, and context specific variables—the positive relationship between HIV transmission knowledge and perceived risk remains strongly significant. This recognition may suggest that the process of constructing risk is multidimensional and influenced by many factors where transmission knowledge among women ever sexually experienced is one of the strongest determinants of perceiving oneself at some risk of HIV in Georgia.

In the qualitative interviews, I do find some support for the link between transmission knowledge and perceived risk. Respondents often explain that they think about some individual risk when they hear news about HIV/AIDS from television, print media, prenatal care, or advertisements at health centers. Many stories discussed by women in connection with HIV and perceived risk include anecdotal evidence, rumors, and some television stories, but few have heard about recent developments in treatment options. Such unawareness suggests that clear health education about transmission modes, prevention, and disease management is acquired only if respondents have medical education or interest in a particular field. In addition, knowledge about other blood-borne diseases also increases women's perceptions about risk of infection, especially if their partners have ever been infected with hepatitis B or C, illnesses widely diagnosed among IDUs in Georgia.

In contrast with documented transmission knowledge, women also demonstrate some misconceptions about casual transmission of HIV from infected persons. Women

with mistaken beliefs express an inability to assess personal risk due to lack of knowledge and evidence about infection, but only one woman perceived herself at risk because of misunderstandings about casual transmission. Some of these women also express the idea that there is a low prevalence of HIV in Georgia and thus no need for every woman to feel at risk. Therefore, a majority of women also perceive an HIV risk due to the widespread belief that a person can be infected during dental, surgical, or gynecological treatment, or in beauty salons, from unsterilized instruments. It is likely that women with such beliefs tend to overestimate the risk of infection, which is a relatively important factor to consider when formulating future educational and information programs.

Preventive and Sexual Behaviors

Regarding behavioral measures, both the 1999 and 2005 surveys provide items on HIV testing, gynecology visits, and sexual behaviors that I expect to be linked with HIV perceived risk, according to the integrated conceptual model. Among sexual behaviors, I use variables related to a recent history of STI symptoms, reasons for condom use ever, and number of sexual partners.

Overall, most behavioral measures are positively correlated with perceived risk in bivariate analyses, whereas the significant p -values are generally lower for women reporting STI symptoms and more than two sexual partners. In the multivariate analyses, strength and magnitude of the association between sexual behavioral variables and perceived risk indicate weaker links than variables related to prevention behaviors of testing and service access. Consistent with the second hypothesis, women who list an HIV test or visiting a gynecologist regularly were more likely to report some degree of perceived HIV risk, compared to women who do not mention being tested and never visit a gynecologist.

Comparing the 1999 and 2005 surveys, I find a significant and persistent link between preventive behaviors and perceived risk. The strength and magnitude of association becomes stronger in 2005, suggesting that behaviors related to gynecology visits, and particularly free HIV-testing practices, as a component of antenatal care make women familiar with HIV and therefore increase the chances of perceiving some risk of infection. On the other hand, women who report ever using a condom for disease prevention indicate a weak but significant positive association ($p < .05$) with perceived risk of HIV in 2005, demonstrating that women who have ever used a condom for disease prevention are more likely to perceive themselves at risk than women who have never used a condom. This relationship suggests that, compared to 1999, increased condom use for disease prevention in 2005 appears to assist women in becoming more aware of their possible risk of infection. The finding is especially true in terms of causal order because, due to low prevention knowledge, women become aware about risk only when they start to use condoms or experience an HIV test, which give them a chance to know about HIV infection.

I explore the link between health behaviors and perceived risk further through qualitative research in which women recognize and report that sexual and drug use behaviors are risk factors for HIV infection. Therefore, poor and unsanitary public health services and unsterilized instruments used in health and beauty treatments are most often mentioned as structural behavioral risk factors for infection. Among women perceiving themselves at some risk for HIV, several were motivated by the common occurrence of accidental infection (primarily from unsafe blood donations). Only a few respondents report some perceived HIV risk because of their own or their husband's sexual infidelity or drug behaviors. Even women with multiple lifetime sexual partners, unknown HIV status of their partners, diagnosed STI histories, and reluctance to use condoms for

disease prevention do not perceive themselves at low risk of HIV. Instead, they often consider themselves as followers of a “healthy lifestyle,” perceiving themselves at risk because of an unsafe health community. Such a tendency among the women interviewed indicates that diagnosed STIs and condom utilization for disease prevention without supportive HIV prevention education do not assist women in perceiving HIV risk. Women who report ever having sought an HIV test tend to maintain that it was not their risky behaviors that prompted them to seek testing, but rather the fact that “innocent” people (mostly children and women) could be also accidentally infected. This viewpoint suggests that effective counseling for women during antenatal care might help them assess their risk based on their own behaviors, to recommend an HIV test to their partners, and to consider other contextual barrier factors related to culture and sexuality.

Perception of Sexual Control

As an important component of HIV/AIDS research, commonly shared cultural norms regarding sexuality and gender are incorporated into the conceptual model of this project. Thus, the third hypothesis tests the relationship between women’s perceptions of sexual control and HIV risk perception. Women’s decision-making ability to negotiate the conditions of safe sex with their partners is central for sexual behavior control in HIV prevention, as well as for other reproductive health outcomes. Therefore, a cultural perception limiting women from sexual communication about safe sex or abstinence should discourage women to negotiate HIV/AIDS and related issues, which itself might prevent women to perceive some HIV risk.

The findings on association between perceived sexual communication and some level of self-perceived HIV risk demonstrate significant association. Specifically, these data imply that women with rigid cultural perceptions about sexual communication are less likely to perceive HIV risk than women with modern or flexible ones. This discovery

is consistent even when HIV knowledge, behaviors, and sociodemographic and socioeconomic variables are controlled in a multivariate analysis. Given these findings, it is logical to assume that some of the social and cultural constraints in Georgia—including conservative norms, traditional sexual double standards, and limited gender norms—prevent women from perceiving the negotiation of safe sex as appropriate for them, and therefore to assess personal HIV risk. Alternative explanations could be a lack of perceived seriousness or communication skills, or the fact that a woman might trust her partner and thus not feel it necessary to negotiate safe sex.

In general, the women interviewed say they perceive little risk and communicate safe sex options for birth control and STI prevention. Specifically, most of the respondents reveal that they agree with the decisions of their husbands not to use condoms. Furthermore, when asked directly, only two divorced women state they had actually bought condoms themselves—and only one woman reported a lack of pleasure or discomfort in using a condom. The rest of the women agree with their partners not to use condoms, despite the fact that they feel comfortable using condoms regularly. Some women even accept marital infidelity, which indicates that they are lacking power in sexual relations as well as being financially dependent on their partners. In addition, they expect to be passive and less aware even if their partners expose them to HIV infection and risky behaviors. Therefore, women are less likely to initiate communication about HIV prevention, or to know about risk of exposure that they might face from their partners. Those women are more likely to deny the risk of infection from their own behaviors, and be more likely to perceive risk as a result of accidental transmission from medical manipulations. A majority of respondents considered their partners to be faithful, and therefore more likely to underestimate their HIV perceived risk. Despite such attitudes, some women recognize the link between acceptances of male premarital sexual

relations, the culture of drug sharing, and the increasing risk of STI/HIV and hepatitis C infection.

Reactions Toward PWAs

Recognition of the negative consequences of AIDS stigma on individuals and public policy leads to further study of women's stigmatizing attitudes in relation to self-perceived HIV risk assessment. From this point of view, I hypothesize that women with negative reactions toward PWAs tend to perceive themselves at lower risk of HIV infection than do women with positive reactions toward PWAs. This prediction is motivated by the fear of AIDS among some women, lack of prevention practice, and certain perceptions associating infection with stigmatized groups (IDUs, FSWs, and MSM) affected by the local HIV epidemic. In this manner, I focus on the reactions of the uninfected to express stigmatizing attitudes as discomfort and negative feelings toward the rights of PWAs. The results demonstrate a significant association between women's attitudes about the rights of PWAs and HIV risk perception in both the bivariate and multivariate analyses. The relationship is consistent and significant at a higher level of significance ($p < .001$), even when controlled for HIV knowledge, behaviors, and sociodemographic and socioeconomic variables. In particular, the relationship indicates that women rejecting the rights of PWAs are less likely to perceive some risk of HIV infection, compared to those women accepting the rights of PWAs. The finding implies that stigmata manifested in women's discriminating attitudes prevent women from perceiving individual HIV risk, but that supportive attitudes alert them to the risk of infection.

To explain the association between stigma and perceived risk, questions about perceived at-risk groups and cognitive attitudes toward disease and infected people are studied through qualitative research. Given the low HIV knowledge background, it is not

surprising that many women show personal stigmatizing attitudes toward PWAs. Even women with more HIV knowledge and educational backgrounds expressed concern about security and precaution measures. Ignorance and the inability to assess personal HIV risk among those women are mostly associated with stereotyped behaviors in connection with high-risk groups. Few respondents mention moral and ethical concerns to distance themselves and their family members from PWAs. On the other hand, a positive association between stigma and personal risk is also found among a few stigmatized respondents—those who show some emotional concerns regarding fear of disease and pity in supporting their infected family members. Such women perceive at risk not only risky-behavior groups, but also everyone including themselves in different degrees. Such emotional concerns help women to think more progressively about infection. They can acknowledge that infected people should be accepted by society and that infection can be managed through treatment, care, and support. Many of them recognize, however, that due to low understanding society is not ready to accept PWAs. They see that the fragile socioeconomic situation makes them more vulnerable to HIV infection.

Migration Experience

Lastly, among economic context-specific factors, migration experience is also tested in relation to HIV risk perception. Substantial numbers of registered HIV/AIDS cases in Georgia were among individuals infected after they were abroad in Russia or Ukraine. To test this relationship between migration and HIV risk perception, I conceptualize the concept of migration in two separate variables: the first if a woman experienced internal or international migration, and the second if a husband is currently in labor migration outside of Georgia.

Thus, I hypothesize that migration experience might increase women's perceptions regarding their HIV risk, due to the fact that migration disrupts familial and

stable sexual relationships and exposes both women and men to high-risk behaviors. The results indicate that migrant women experience a significantly higher likelihood of perceiving themselves at risk of HIV in both bivariate and multivariate analyses than do nonmigrant women. Specifically, compared to a stable population, migration increases women's perceptions regarding their HIV risk even when controlled for HIV education, behaviors, and socioeconomic and sociodemographic variables. This discovery implies that mobile women in Georgian cities are exposing themselves to some risky environments, where social and sexual networks provoke females to perceive themselves at greater HIV risk than if they had been in stable living conditions.

In the qualitative research, I further explore the importance of migration in the assessment of personal HIV risk. Motivated by the higher prevalence of HIV in the neighboring countries of Russia and Ukraine, some women agree that Georgian migrant men in those countries might be at risk of infection, and therefore Georgian migrant women might also face a risk of acquisition if they expose themselves to risky behaviors while they are separated from their families. Further, respondents stress the importance of several factors such as legal migrant status, surrounding working environment, social network characteristics, and individual-level characteristics of migrant people. In general, women mention that poverty and poor socioeconomic situations make women mobile and vulnerable to HIV in Georgia, suggesting that growing incidences of trafficking and news about some returned migrants being infected are becoming more common. As such, mobile women get more experience through their social and sexual networks, and are thus more likely to perceive some level of HIV risk.

CONTRIBUTIONS TO THEORY

The results of this dissertation benefit theoretically and methodologically from the integration of individual and sociopsychological theories of health prevention on one hand, and from the mixed-methodology approach on the other hand. These two strategies linking HIV knowledge, health behaviors, perceptions about sexual communication, reaction to PWAs, migration experience, and HIV perceived risk all incorporate limited but also relevant insights from theoretical, methodological, and regional literature.

Consistent with most studies in low-prevalence and developed countries, I find support for the idea that HIV knowledge is a sufficient and necessary condition for assessing individual HIV perceived risk in Georgia. In both samples (1999 and 2005), I found a strong positive association between HIV transmission knowledge and perceived risk that persisted even after including controls. While some study findings imply that HIV knowledge is not a sufficient precondition for assessing personal HIV risk due to simultaneous endorsement of transmission modes and misconceptions (Bernardi and Mencarini 2004; London and Robles 2000), I incorporate two measures of common misconceptions in a multiple-item HIV transmission-knowledge variable. Even including prevention knowledge, popular beliefs about medical transmission, and informational channels as controlled variables in the models, the effect and strength of relationship between HIV transmission knowledge and perceived risk persists. Despite the widespread perception that HIV knowledge alone is not effective for prevention of HIV, this study finds support for the importance of health education and specifically HIV transmission knowledge in assessing and constructing individual HIV risk among low-risk women in Georgia.

As expected, I find that perceived HIV risk also associates positively with preventive behaviors, while the Health Belief Model and other HIV/AIDS studies predict

a negative association between preventive behaviors and perceived risk (Becker 1974; Catania et al. 1990). Apparently those who have ever been tested for HIV and visit gynecologists regularly perceive themselves to be at some risk of HIV. This finding is consistent with studies suggesting that posttest counseling may increase perception of women about personal HIV risk (Kalichman 2003; Lapidus 2006). This association between HIV test and perceived risk is also possible due to selection bias (people who perceive risk are likely to get tested) or to the fact that relationships can be spurious because of links between other sociodemographic characteristics common to women seeking HIV tests or perceiving themselves at risk. That is not the case in this study, however, because once controls for the sociodemographic, socioeconomic, knowledge, and other sexual behaviors are introduced, the relationship between HIV-testing and perceived risk persists through all models in both samples. Additionally, the possibility of selection bias receives little support, because people are not familiar with HIV/AIDS. It is a stigmatized disease, not discussed among social networks prior to a decision to have a test. In such low-prevalence settings, women are being offered free HIV tests during prenatal care and becoming more likely to know about HIV when they first get an opportunity for testing and discussion with gynecologists about mother-to-child prevention. Some women in interviews even report that they thought about HIV risk when they first got tested during antenatal care, but some women also report that even after having been tested for HIV they do not feel at risk of infection. These results imply that the process of testing for HIV solidifies women's awareness about their risk of infection.

This dissertation also expands research on contextual factors by incorporating largely shared norms and factors into the sociopsychological model. These factors in a collective society pose obstacles in the assessment of HIV risk but also play a key role in

effective responses. As such, this dissertation finds significant support for the hypothesis that woman's perception about sexual control come to affect HIV perceived risk partly through the prevailing sexuality norms of women's tendencies to be passive and less aware of HIV sexual-risk behaviors. Results from this association are also supported by a study in which Chinese women with conservative gender norms worry less about their HIV vulnerability (Tang 2008). They are also in line with the interpretation that economic, social, and emotional dependencies and constraining influences on women's agency may prevent women from safe sex negotiation, decisions, and choices related to HIV prevention. The role of cultural norms in sexual communication also emerges during interviews when women discuss condom use. Most women agree that they trust their partners and negotiate condoms and birth control, but as a result they always accept the decisions of the men, suggesting that women are constrained in sexual decisions and negotiations regarding HIV prevention. This finding also implies that collectivist characteristics (such as maintaining dignity, respect for norms, values, and status in the family and social structure) are of the utmost importance for Georgian women, despite their education and economic independence.

A further contribution of this study is that it tests the relationship between HIV stigmata and perceived risk in a highly stigmatized context. Evidence from the research suggests that sociocultural and structural barriers that engender stigmata and discrimination may also contribute to a decision about HIV risk perception. With this perspective, I find a significant association between women's reaction to PWAs and perceived risk, net of other factors in the model. Specifically, women holding stigmatizing attitudes toward the rights of PWAs report lower odds of perceiving some risk of HIV than do women without stigmatizing attitudes. This finding supports the theory that negative reactions to PWAs can be linked to poor HIV knowledge, as well as

distancing from stereotyped behaviors and groups, which can also lead to ignorance and denial of personal vulnerability to HIV (Herek et al. 2002). Poor HIV knowledge and misconceptions regarding transmission are definitely important factors for stigma and risk assessment, but the relationship between stigmatizing attitudes and individual risk perception may also operate through other cognitive and emotional constructs or moral and ethical attitudes observed among interviewed women. The finding that the effect of the stigma may operate in part through various emotional (pity, anger, irritation, fear, and blaming) and cognitive constructs (perceived prevalence, seriousness, disease nature, and treatment development) relating to disease and stereotyped groups leaves the precise nature of the mechanism unclear and needing additional research.

In terms of the effect of migration on HIV risk perception, I find that women who experience migration are significantly more likely to perceive some risk of infection than are nonmigrant women. This result connects with the theory that migrants are more likely to be in close contact with other members of social networks composed of those exposed to risky behaviors and separated from the close-knit nature of communities in their home countries (Shedlin et al. 2006; Buckley 2005b). Such circumstances and environments increase their vulnerability and therefore activate individual HIV risk perception among women. This interpretation is also supported by interview respondents accepting the risky environment of many migrants in neighboring countries and also in Georgia due to increasing instability and poverty. In addition, while survey data indicate no significant relationship between the labor migration of husbands and perceived risk, women stress in interviews the importance of individual and community characteristics of male migrants that may cause women in Georgia to think about HIV risk when they have unprotected sexual contact with their migrant husbands.

Overall, going back to the central question, selected theoretical and practical determinants of perceived risk demonstrate significant effects that can be effectively elaborated in a theory and prevention practice. Although this dissertation draws implications for a broader understanding of the theoretical link between HIV knowledge, health behaviors, context-specific factors, and perceived risk, the results are most useful for low-prevalence settings (and to some extent other countries in a Eurasian region) possessing similar epidemiological and contextual factors to HIV/AIDS. It is my hope that this dissertation will inspire future research utilizing the sociopsychological model and mixed-method approach presented here to study variations in risk perceptions.

POLICY IMPLICATIONS

The results of this dissertation have important implications for the design and targeting of future HIV prevention efforts in Georgia. Specifically, the study indicates that women are in need of clear information about the HIV/AIDS infection. Their knowledge is basic, and most interviewed women agree that their current awareness and knowledge levels are not strong enough to prevent them from getting the infection. Therefore, educational efforts emphasizing transmission knowledge from mother to child or from an IDU partner—along with recent developments in the treatment, care, and support of PWAs—is crucial. Participants suggest that they would like to have this information available from educational programs on TV, through health practitioners, and in public schools. Design and implementation of a curriculum for long-term HIV prevention could have a significant effect not only among students but also by encouraging communication between parents and children. In addition, this program may promote talk about sexual matters between men and women that can alter gender roles by

increasing self-esteem, self-confidence, and self-efficacy, and will teach both women and men to negotiate prevention.

As shown in the results, a significant portion of the respondents is misinformed about casual transmission and therefore stigmatized, expressing negative attitudes toward PWAs. Such respondents usually tend to overestimate the risk of casual contacts and underestimate the risk of HIV transmission. For targeting misinformed and stigmatized women, greater emphasis needs to be placed on communicating the harmlessness of casual contacts by designing clear prevention messages. Given the synergy between stigmata and perceived risk, education campaigns should be modified to reduce stigmata in conjunction with providing knowledge about disease.

Policy focusing on the health-care system should consider the high proportion of women's beliefs about accidental HIV transmission and improve the control standards in sterilization practices, thereby convincing the public of secure and effective services. In addition, doctors serving HIV patients should be trained in HIV issues and in offering high-quality consultations and treatment without discrimination and prejudicial attitudes. In terms of HIV testing, policy must offer women the possibility of free tests along with effective HIV pretest and posttest counseling. Educational prevention efforts should address the importance of voluntary, confidential, and anonymous testing that couples could obtain from specialized laboratories.

In helping reproductive-age women to assess their HIV risk, psychologists and other health professionals from women's centers should be trained to assess patient HIV risk routinely. They need to help their patients appraise their HIV risk based on their own behavior, which might place them at risk of acquiring HIV, rather than based on the notion that HIV infection is confined to marginalized groups. In such communication strategies, messages designed for increasing the risk perception of correct HIV

transmission routes should differ from those for reducing the risk perception of casual-contact routes. In dealing with different STIs at women's centers or other clinics, women should be educated about the link between STIs and HIV, and to recognize their own risky behaviors.

The service and HIV education should also target women from different socio-demographic and economic groups. As this study indicates, younger women and those less educated, residing somewhere other than the Tbilisi region, and with lower scores on SES have poor knowledge about HIV and are therefore much more likely to ignore the risk of infection. Broader mass-media programs and health service staff can be sources of HIV information for women staying at home and not attending educational institutions.

LIMITATIONS

Although this dissertation makes important contributions, it is important to note several limitations. This study relied entirely on self-reports by women, so it was not possible to check the veracity of their declarations against measures of their perceived risk and sexual behaviors. Because sexual risk behaviors are not socially accepted for women in Georgia, it is possible that participants may have provided socially desirable responses and underreported sexual behavioral variables. Thus, the results may be conservative.

Due to the study's cross-sectional nature, the statistical models used in the quantitative chapter should be interpreted as associations and do not imply causality among HIV knowledge, behaviors, context factors, and perceived HIV risk. Although even my motivation was guided by the integrated conceptual model, interpretation of the quantitative results requires a good amount of speculation. Another limitation of the cross-sectional survey is that I can look at only a snapshot of the association between

context-specific factors and perceived risk in a 2005 sample, which makes it difficult to understand changes in the association since 1999. This limitation is particularly problematic because Georgia has gone through tremendous social and economic changes in the past several years and the analysis using data from at least two years should give more explanations on predictions. In addition, survey data could not provide some measures on prevalence and emotional factors that women addressed in the qualitative study. It is thus possible that differences in some additional cognitive, emotional, or attitudinal measures might be a function of individual difference variables. In this study, frequencies for behavioral measures are presented as desirable outcomes, but the more specific questions might have better explanatory power for the outcome measure.

It is also important to mention that responses of women from qualitative interviews may not reflect the views of most of the audience due to the purposive nature of selection. The findings cannot be generalized to the entire population and have to be interpreted with caution when applied to a larger context. Additionally, some issues of sexual behavior and marital fidelity were somewhat difficult to address in the interviews. Women would sometimes make contradictory statements, such as claiming that couples are faithful and communicate intimate family matters but then later mentioning that they cannot control the sexual behavior of their husbands. Such actions indicate that some of the women care about ethical and moral issues, so frank discussion about HIV and sexuality seemed taboo. Assessing women's true feelings about subjects that are not freely discussed can be complicated.

RECOMMENDATIONS FOR FUTURE RESEARCH

In conclusion, this study provides analysis and background for HIV/AIDS social research and an important prevention strategy from the perspective of perceived risk

assessment. The results and limitations suggest some directions for future research in Georgia. As this research empirically explores more general determinants of HIV perceived risk, the next step should be to investigate specific mechanisms of their associations with perceived risk based on interpretations and factors that emerged in the qualitative research. With the new survey data and multiple measures on health knowledge, behaviors, and contextual factors, research can offer new explanations for successful and cost-effective HIV prevention in Georgia.

Specifically, more research can be conducted for better understanding of issues about new development, prevention measures, and treatment of HIV/AIDS, as well as determinants on the content of different health messages. These factors might also contribute to more specific risk assessment and reduction of negative attitudes toward PWAs. Research can benefit from exploring cognitive and emotional foundations of stigmata to determine the magnitude and characteristics of this phenomenon and understand the relationship with perceived risk, health knowledge, and social norms. Public reaction to PWAs as demonstrated from the qualitative findings may also be affected by perceptions of responsibility for onset of the disease and by the mode of contracting the virus. Blaming people for infection and attitudes toward stigmatized groups may also add some strength to explaining the relationship between stigmata and perceived risk.

This study has found the importance of testing practices relating to risk assessment. Future research might explore the strategies, adaptation, implementation, and negotiation of testing practices from the perspective of couples, health care providers, and policymakers, rooted in an understanding of how the structural factors of the health care system may influence perceived risk, surveillance practices, case recording, and overall prevalence. Of particular interest might be the study of HIV testing patterns and to

discover how women, men, and health care providers interpret testing behaviors, coverage, prevalence, and estimations.

Awareness and recognition of a partner's risky behavior emerged as an important factor for HIV risk assessment. Research must be conducted to explore this phenomenon in depth and its connection to drug sharing and hepatitis C infection, with testing practices and how they are related to risk assessment. The results of such research could be used as the foundation to develop a harm-reduction program that may help women to develop negotiation skills in order to recognize and prevent their partners from risky drug behaviors.

Migration experience and empowerment in relation to HIV are important issues for women in Georgia. Further, comparative research to explore these social issues within various women's groups and to examine the perspectives of men is needed. The findings indicate that sexual inequality and some conservative social norms are constraining women from using condoms, assessing perceived risk, initiating negotiation, and recognizing responsibility for exposure to HIV/AIDS. In addition, taking into consideration women's increased residential mobility, this phenomenon can be explored from the perspectives of work environment, migrant status, and family structure, all of which might affect HIV perceived risk.

Research will benefit from assessment of the accuracy of perceived risk. Risk perceivers often demonstrate that they neglect their own HIV risk behaviors and blame the behaviors of others, such as mostly medical personnel and to a lesser extent their sexual partners. These perceptions might also constrain women from preventing HIV. Therefore, research must focus on determining the meaning and patterns of HIV perceived risk that might alter future prevention behaviors.

Comparing individuals in terms of regional differences would offer the additional benefit of explaining existing differentials and improving health outcomes. It is likely that many of these findings would differ substantially in various regions of Georgia, due to social, economic, cultural, and epidemiological variation. This disparity may justify a larger-scale qualitative project with the aim of reviewing regional differences in HIV perceived-risk assessment.

In all, although numbers of international organizations are involved in conducting small-scale projects, broad-based empirical research on HIV/AIDS is still lacking in Georgia. In both Georgian and English languages, there is almost no empirical research about knowledge, attitudes, perceptions, and behavior issues on any health behaviors. I hope this study will encourage more scholars from social science and public health fields to research health behaviors and HIV/AIDS risk specifically.

Appendix A: Participant Characteristics

Table A: Sample Characteristics of Women Ever Sexually Experienced, Interviewed in Tbilisi, Georgia										
#	Pseudo nym	Age	Marital status	Education	Occupation	Children	STI test and diagnosis	HIV test	Condom use	Perceived risk meaning
1	Keti	40	Divorced	College	Shop owner	1	Tested	No	Not regularly	Yes, accidental
2	Nino	41	Divorced	University	Babysitter	1	Ectopic pregnancy	No	Not regularly	No, healthy life
3	Mary	32	Married	University	Unemployed	1	Ovarian cyst	No	No	Yes, accidental
4	Maka	30	Married	University	Art lecturer	2	Erosion, teratoma	No	Regularly	Yes, sexual contact
5	Elene	24	Married	Secondary	Unemployed	2	PID	No	Not regularly	Never thought
6	Tsiuri	29	Married	University	Unemployed	2	STIs	Tested	Regularly	Never thought
7	Tamari	26	Married	College	Unemployed	1	Tested	No	Not regularly	Never thought
8	Eka	35	Divorced	University	Unemployed	2	PID, STIs	No	No	Never thought
9	Marina	45	Married	University	Librarian	4	Tested	Tested	No	Yes, accidental
10	Salome	34	Married	University	Shop assistant	2	Polyps, warts	No	Not regularly	Yes, accidental
11	Irina	41	Married	University	Unemployed	1	Never tested	No	Regularly	Yes, accidental
12	Maia	34	Divorced	University	Hotel administrator	2	Tested	No	No	No, trust doctors
13	Natia	34	Married	Secondary	Hotel housekeeper	2	PID, STIs	Tested	No	Yes, casual contact
14	Sopho	39	Divorced	University	Hotel administrator	2	Tested	No	No	Yes, accidental
15	Nato	29	Married	MD	Pediatrician	1	Pregnant currently	Tested	No	No, trust doctors
16	Medea	30	Married	University	Book shop manager	0	Infertility problem	Tested	No	Yes, accidental
17	Liana	35	Divorced	University	Fitness instructor	0	Tested	No	No	No, healthy life
18	Tsira	30	Married	University	Hotel administrator	2	PID, fistula	Tested	No	No, trust doctors
19	Tatia	31	Married	University	Economist	2	Cervical erosion	Tested	No	Yes, accidental
20	Lali	41	Divorced	University	Unemployed	2	Endometriosis	Tested	No	Yes, accidental
21	Naili	37	Married	Secondary	Unemployed	3	STIs	Tested	No	Never thought
22	Anna	40	Married	University	Shop owner	2	Cyst	Tested	No	Yes, accidental
23	Tea	38	Married	MD	Unemployed	2	STIs	Tested	Not regularly	Yes, accidental
24	Inga	41	Married	University	Unemployed	2	Tested	No	Not regularly	Never thought
25	Nana	27	Married	University	Babysitter	1	STIs	No	Regularly	Never thought
26	Mzia	30	Married	University	Unemployed	2	STIs	No	Not regularly	Yes, sexual contact

Appendix B: Interview Protocol

AIMS: To gather preliminary perspectives concerning the effects of individual behavioral, health care, and stigmatizing attitudes about self-perceived risk of HIV and further protective behaviors in sexually active Georgian women.

- Gain insight into the individual-cognitive processes (health knowledge, behaviors, misconceptions, perceived risk)
- Gain insights into contextual processes (gender, migration, health care, stigma)
- Test reactions to initial hypotheses and explanations for the tested relationships
- Explore proper phrasing, sensitive questions, and terminology
- Uncover new issues relating to factors that influence perceived risk and preventive behaviors
- Gather qualitative evidence to supplement an analytical article on health knowledge, stigma process, and HIV perceived risk

SAMPLE: A snowball sample of women ages 18-49 residing in the capital city of Tbilisi. Approximately thirty interviews will be conducted.

PROCEDURE: The interviews will generally be face-to-face and informal. With the respondent's permission, they will be taped, and transcribed into English. Prior to the meeting, a basic fact sheet will be filled out by the interviewer on each of the women, with the number on the fact sheet corresponding to the number used to identify the interview transcript in order to maintain anonymity. The interviews will be semi-

structured, with the list of questions in the protocol providing the basis for the interview, and relevant probes added by the interviewer as deemed appropriate. Respondents will be free to end the interview at any time, or decline to answer any question. The interviews will be conducted by me, as I am a native speaker of the Georgian language.

CONTENT: The interviews will consist of eighteen main questions divided into four blocks. The first set of questions focuses on the awareness and knowledge of HIV transmission and prevention. The second section concentrates on health and sexual behaviors. The third part centers on stigma and attitudes toward people living with AIDS, while the fourth asks about HIV risk perception and prevention strategies. The interview ends with questions concerning vulnerable risk groups, testing experience, and attitudes toward health education.

OUTPUT: In time, the interviews will be translated and transcribed into English. A full set of documents for each interview will be archived, including the following:

- Information Sheet
- Consent Form
- Interview Transcript
- Interview Comments (interviewer insights into the clarity of the interview, any insights into the responses, and main thoughts on key issues in the interview)

Appendix C: Interview Questionnaire

Section One: Knowledge about HIV/AIDS

1. Please tell me your awareness about HIV/AIDS:
 - Have you ever heard about HIV or AIDS?
 - How and when did you first hear about HIV/AIDS?
 - What was your source of information then and now?
 - Tell me if you ever had any professional advice or consultation about HIV/AIDS.
 - Tell me if you ever had any HIV/AIDS course from an educational institution such as a school or university.
 - Do you think that a healthy-looking person can be infected with HIV?
2. Please tell me your knowledge about HIV transmission:
 - Specifically tell me about modes of HIV transmission (blood, homo/heterosexual contacts, mother-to-child).
 - Can the virus that causes AIDS be transmitted from a mother to a child? How?
 - Can a person get the HIV virus from the bite of a mosquito that has previously bitten someone with AIDS?
 - Can people protect themselves from getting the AIDS virus by avoiding kissing or not sharing food or a bathroom with a person who has AIDS?
3. Please tell me if there is anything a person can do to avoid getting AIDS.
 - Specifically, what can a person do to avoid getting AIDS (such as use a condom, abstain, have one partner, or avoid needle sharing)?
4. Please tell me if there is a cure for AIDS.
5. If a mother is infected with the AIDS virus, are there any ways to avoid transmission to the baby? What ways?

Section Two: Health and Sexual Behaviors

6. Have you ever had any general health or specific gynecological problems?
 - If yes, what was the diagnosis?
 - Have you had a treatment? If not, could you tell me more about why not?
 - When was your last visit to a gynecologist?
 - Have you had any STD test?

- Can you tell me more about your health-service utilization experience, payment, and preference?
7. Is it acceptable for a married man to have sexual relations outside marriage? Why or why not?
8. Is it acceptable for an **unmarried** woman to buy condoms? Why or why not?
9. Have you and your partners ever discussed the use of condoms?
- If yes, what was the reason for use?
 - Are you currently using condoms?
10. Have you ever had an HIV test?
- When? Did you pay?
 - Would you ever want to be tested again for HIV? If not, why not?

Section Three: Stigma

As I read each of the following questions, please tell me how you personally think about people living with HIV.

11. Do you have any relative/friend/neighbor who is at risk of infection? Have you heard about someone in Georgia who was infected or died with HIV/AIDS?
12. Please tell me your attitude when you think about people who have AIDS.
- If a teacher has HIV but is not sick, should he or she be allowed to continue teaching in school? If not, why not?
 - If a relative of yours became sick with the virus that causes AIDS, would you be willing to care for her or him in your own household? If no, why not?
 - Would you want your relative's HIV status to remain secret? If not, why not?
 - Do you mind if your son/daughter becomes a friend of someone with AIDS disease? If not, why not?
 - Would you mind becoming a friend of someone with AIDS? If not, why not?
 - Would you be willing to share a meal with a person you knew had HIV? If not, why not?
13. Do you think that it is advisable for people to tell others their HIV/AIDS status? If not, why not?
14. Do you think HIV infected people should get the same, more, or less health care than someone with another chronic disease/illness? Why do you think so?

15. In your opinion, are people who are affected by HIV/AIDS treated badly or differently? Why do you think so?
- Who treats these people differently or badly?
 - Can you give some examples about the kinds of discrimination and how these people are treated differently?

Section Four: HIV Risk Perception

Now I would like to ask some questions about HIV risk perceptions and attitudes about HIV health education.

16. What does HIV risk mean for you? Have you ever thought about personal HIV risk? If yes, what are the chances and why have you thought about it? If not, why not?
- Do you believe that dental or surgical procedures can infect you with HIV? Why do you believe so?
 - Have you ever thought that migrant families could have a risk of HIV? Why did you think so and what is the chance of risk for men and for women?
 - Have you ever thought that some category of women might be at risk for HIV? If yes, what category of women?
 - Who are most at risk of getting HIV in Georgia? What is the reason for this risk category? Why do you think so?
17. Are you taking any action to prevent getting HIV? If yes, what action and since what time? If not, why not?
18. What can be done to stop and avoid the HIV epidemic in Georgia?
- Do you know any HIV prevention programs? If so, what programs?
 - What kind of program would you accept in the future (testing, education, treatment, support, control)?
 - Do you wish that your children received information about AIDS from school, and do you believe that school should educate adolescents about HIV transmission and prevention? Please tell me more about the format and age limit you would like to see for educational programs.

Appendix D: Consent Form and Background Sheet

Consent Form

I, _____, agree to participate in a study interview concerning the effects of HIV knowledge, behaviors, and contextual factors on HIV risk perception in the Republic of Georgia. The interview will consist of questions regarding the ways that help women to understand and construct their risk of HIV/AIDS. I understand that I may decline to answer any question and I am free to end the interview at any time. My responses will be kept completely anonymous. Interviews with approximately thirty women will be conducted in fall 2006 in order to gain insight into how women discuss their risk of HIV in Georgia and will be used for a PhD dissertation and scientific publications by Khatuna Doliashvili (PhD candidate) and Professor Cynthia Buckley (PhD) of the University of Texas at Austin (USA). My participation in this study is voluntary.

The interview will last approximately one to one-and-one-half hours.

Name _____

Date _____

Interviewer _____

Notes:

Personal Information Sheet

Respondent number-----(from 01 to 30)

Time of interview-----

Place of interview-----

Age of respondent----- Education-----

Employment area in last 12 months and salary-----

Monthly family budget-----

Years lived in Tbilisi-----

Years in marriage (legal or illegal)-----

How many children does respondent have (age, sex):

#	Age	Sex	Live with parents	Education
1				
2				
3				
4				
5				
6				
7				

Have you or your husband ever been in labor migration?

No-----Together-----Separately-----

Wife-----Country-----Period-----

Husband-----Country-----Period-----

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