How Much Knowledge Can They Gain? Women's Information Behavior on Government Health Websites in the Context of HIV/AIDS Prevention

A Dissertation in
Information Sciences and Technology
by
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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

August 2010
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ABSTRACT

Women in the U.S. and all over the world are more vulnerable to HIV/AIDS because of both behavioral and contextual factors. HIV/AIDS prevention education on government health websites plays an important role in reducing this health inequality for women. However, contrary to the assumption of Rimal and Real’s (2003) Risk Perception Attitude framework, women may not necessarily gain knowledge from the HIV/AIDS prevention information available to them on government health websites if they cannot find the information or do not like what they find. Using a theoretical framework extended from Rimal and Real’s (2003) Risk Perception Attitude framework, this research examines women’s information behavior, specifically information finding and reaction to information, on government health websites in the context of HIV/AIDS prevention.

In the empirical study, think aloud and structured individual interview were used to collect data from 40 female university students in the U.S. in their completion of an information seeking task and an interview. Factors that influence women’s information finding are concerned with information accessibility, including visibility, duplication, depth, retrievability and name of links. Factors that influence women’s reaction to information are concerned with information format and information content. The influencing factors concerning information format include language, interactivity, media use, and aesthetics. The influencing factors concerning information content include information quality, social construction, and perceived relevance. These influencing factors of information finding and reaction to information are potential barriers that could limit the knowledge women could gain from the HIV/AIDS prevention information on government health websites.

This research is among the few studies that specifically examines women’s information behavior on government health websites in the context of HIV/AIDS prevention. It has both
theoretical and practical contributions. Theoretically, it challenges and extends Rimal and Real’s (2003) Risk Perception Attitude framework by proposing an Extended Risk Perception Attitude framework. This research also exemplifies Gupta’s (2000) categories of social construction of gender and sexuality in the HIV/AIDS discourse, and adds new evidence that proves their validity. In addition, this research enriches the literature in health-related information behavior by switching the research focus to other information behaviors than information seeking. Practically, this research provides recommendations to website designers on how to design HIV/AIDS prevention information for women that is more accessible, user-friendly, reliable, empowering and relevant.
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Dear baby:

Although you are far from perfect, you are my flesh and blood. You have no idea how thrilled I was when I saw you born after an extended pregnancy that was much longer than I had expected. You also have no idea how grateful I am to those people who helped me pull through this toughest period of time I had ever had in my life.

First and foremost, I am grateful to Dr Kvasny. I would not have survived the pain and agony without her unconditioned support and encouragement. She never lost faith in me even when I almost wanted to give up myself. If it had not been for her, I would not have held you, my most precious treasure, in my arms right now. I am also grateful to Dr Trauth, Dr Reddy and Dr Parrott. They always directed me back to the right track when I was wandering randomly.

I am grateful to my families, too. Your dad comforted me whenever I broke into tears out of despair and frustration. He also tolerated my horrible temper during my frequent mood swings. Your uncle and aunt used their superb eloquence and rich life experience to help solve my psychological problems accompanied with the huge pressure. Your grandparents were always fantastic health advisors and helped me survive in a whole piece.

Remember, bringing you into this world was not an easy thing. This process would have been even tougher if I had not been lucky enough to have so many angels around me.

Love you,

Mom
Chapter 1

Introduction

HIV/AIDS epidemic among women

HIV (Human Immunodeficiency Virus) is a retrovirus that does damage to the human immune system. Failure of the human immune systems gives rise to a collection of symptoms and infections called AIDS (Acquired Immune Deficiency Syndrome) (Coffin et al., 1986; Marx, 1982).

Globally, according to the UNAIDS (2008) report, the number of people who die from AIDS each year has decreased over the last ten years because of increased access to treatment. The percentage of adults who live with HIV/AIDS has also leveled off since 2000. However, these promising statistics mask the fact that, in 2007, as many as 2.7 million people were infected with this disease and 2 million died from it. The UNAIDS (2008) report also reveals that HIV/AIDS represents a growing and significant health threat to women. Women now account for half of all people living with HIV/AIDS worldwide. Although this proportion has remained stable over the last ten years, HIV infection rates among women are greater than 50% in certain regions such as sub-Saharan Africa.

In the U.S., HIV/AIDS has been around for almost 30 years since the first reported cases of AIDS in 1981 (CDC, 2009). An estimated 1.7 million people have been infected with more than 580,000 deaths and 1.1 million living with HIV/AIDS (The Henry J. Kaiser Family Foundation, 2009). HIV/AIDS does not equally affect different populations. Although men still accounted for 73% of all HIV/AIDS cases diagnosed in 2003, there was a more marked increase
from 1999 to 2003 in HIV/AIDS diagnoses among women (15%) than among men (1%) (CDC, 2004a). Among all adults and adolescents living with HIV/AIDS, the proportion of women grew from 14% in 1992 to 23% by the end of 2005 (CDC, 2007a, 1998). In 2004, HIV/AIDS was the 5th and 6th leading cause of death among all women aged 35-44 and 25-34 years of age respectively. Cancer and heart disease were the only diseases that caused more deaths among women (National Center for Injury Prevention and Control, 2004). Minority women, especially African American and Hispanic/Latina women are most disproportionately affected. Although African American and Hispanic/Latina women together represented only about 24% of all women in the U.S. (National Center for Health Statistics, 2005), they accounted for about 82% of all the new HIV/AIDS cases among women in 2005 (CDC, 2007a).

This research focuses on women. Researchers note that women are more vulnerable to HIV/AIDS because of biological differences between males and females during vaginal intercourse (Padian, Shiboski, & Jewell, 1991). The membrane of the vagina is more permeable (Padian, Shiboski, S. Glass, & Vittinghoff, 1997) and HIV is more concentrated in semen (Segal, 1993). Researchers also note that behavioral and contextual factors contribute to women’s vulnerability to HIV infections as well. The behavioral factors include women’s limited awareness of the risks involved in their behaviors; their limited knowledge about HIV/AIDS transmission and prevention; the emotional, psychological, and communicational barriers to their practice of prevention behaviors; and their limited awareness of the benefits of prevention behaviors. The contextual factors include gender inequalities, biased health policies, low socio-economic status, and minority culture (details can be found in Chapter 2 “Background: Women and HIV/AIDS”). These behavioral and contextual factors often entangle with the stigmatized nature of HIV/AIDS, demonstrating the difficulties inherent in the efforts to alleviate the negative impact of HIV/AIDS on women. However, although biological factors are largely fixed, we can
reduce women’s vulnerability through HIV/AIDS prevention and mass health education that address these behavioral and contextual factors.

**HIV/AIDS prevention and public health education**

Health inequality refers to the different distribution of risk factors and the resulting variations in health status and health expectancy between social groups or subgroups in the general population (Lahelma, 2006; Murray, Gakidou, & Frenk, 1999). Although there are always a certain degree of health inequalities in every society (Oliver, 2003), it is not justifiable that the health inequality in HIV/AIDS for women should be ignored. Health inequalities do not just affect those who are disadvantaged, but everybody in the society. For example, when HIV/AIDS was first detected in the U.S., it was only affecting a limited number of populations, mainly White gay men. However, the infections soon spread to other populations that originally were not considered vulnerable. It was highly possible that HIV/AIDS could have spread even further and wider if no actions had been taken (R. Wallace & D. Wallace, 1997). Therefore, according to Lahelma (2006), reducing the health inequality in HIV/AIDS for women by improving their health status and outcome could prevent the “spill over” effect and bring benefits to the public. Eventually, there would be an overall improvement in slowing the spread of HIV/AIDS in the whole society. Addressing the health inequality in HIV/AIDS for women is necessary also because women, who are already disadvantaged in this epidemic, could be put at an even more disadvantaged status. Health determines a person’s overall wellbeing, particularly his or her capability to overcome the negative consequences of being disadvantaged (Braveman & Gruskin, 2003a, 2003b).

In this research, HIV/AIDS prevention addresses women who are, or who believe they are HIV negative. This research does not address women who are already infected with
HIV/AIDS and trying not to contract opportunistic diseases (Kasl & Cobb, 1966) or transmit the virus to others. “In the absence of a preventive vaccine or cure” (Kalichman & Belcher, 1997, p. 279), HIV/AIDS prevention is the most promising means to curb the spread of this disease and reduce health inequalities. According to Centers for Disease Control and Prevention (CDC) (2007c), HIV/AIDS prevention is important also because treatments currently available are relatively effective in enabling HIV/AIDS patients to live a longer life. Consequently, there are going to be more people who are living with HIV/AIDS and thus have the potential to transmit it to others.

Information plays an important role in HIV/AIDS prevention. At the individual level, HIV/AIDS prevention information could help people become aware of their risks for this disease and transition from risk perceptions to actions that lead to desired behavioral change (J. D. Johnson, 1997; J. D. Johnson, Andrews, & Allard, 2001). At the societal level, HIV/AIDS prevention information could help eliminate the public’s anxieties and stigmatizations that result from ignorance or misinformation about HIV/AIDS, and help transform public biases against this disease (Kalichman & Belcher, 1997).

Public health education as a tool for conveying useful health information plays a key role in HIV/AIDS prevention and alleviation of health inequalities. In a narrow sense, health education refers to activities that provide individuals with health information, knowledge, and skills to help increase their awareness, enable change in their health behaviors and lifestyles, and thus improve or maintain their health (Mackintosh, 1996; Raikes, 1976; Somers, 1976; A. Watts & Breindel, 1981). In a broad sense, health education refers to “a comprehensive systematic program of instruction” aiming at helping people make sound decisions and take effective actions related to their health (Raikes, 1976, p. 79). Public health education is a form of health education that is practiced via public health communication in the mass media. Public health education is carried out by health educators and communicators who use existing channels and
communication systems for information delivery and diffusion (McBride & Rimer, 1999; P. D. Mullen et al., 1994; Science Panel on Interactive Communication and Health, 1999). These channels include television, magazines, radio, billboards, etc.

Public health education is empowering (Laverack, 2004). It aims at “creating opportunities and inspiration to enable those without power and/or influence to gain skills, knowledge and confidence to direct their own lives” (Rifkin & Pridmore, 2001, p. 519). Peter Piot (executive director of UNAIDS) once suggested that social vaccines such as “promoting continuation of mass education” were needed to alleviate the negative impacts of health inequalities (Airihenbuwa, Makinwa, & Obregon, 2000, p. 109). In fact, public health education on HIV/AIDS prevention has already become a priority given that that HIV/AIDS prevention information has still not reached every person, especially those disadvantaged in the society (Aruffo, Coverdale, & Vallbona, 1991; Kalichman & Belcher, 1997; Sweat & Levin, 1995; S. Thomas, Gilliam, & Iwrey, 1989).

Although public health education is necessary, this venue alone is not enough to effectively motivate desired behavioral change in people who are at risk for HIV/AIDS. Public health education should be integrated with other more intensive and focused forms of health education, such as school- and community- based programs, clinic-based counseling services, and outreach programs for people who are hard to be reached (Backer, E. Rogers, & Sopory, 1992; Kalichman & Belcher, 1997; Simons-Morton, Donohew, & Crump, 1997). Only multidimensional health education targeting the vulnerable populations could lead to the most optimum intervention results (Maibach & Parrott, 1995).
HIV/AIDS prevention education on the Web

As one of the most important components of the Internet, the Web (or WWW, World Wide Web) is a promising and important communication medium for public health education on HIV/AIDS prevention. The Web is composed of hypertext documents that are linked to each other and distributed over the Internet (Kari, 2004). The core element of the Web is the website, a site or a location that is consisted of a homepage and links leading to other pages (Salinas, 2006).

In the U.S., because of its popularity with the public as a source of health information, the Web is increasingly adopted by healthcare providers and public health agencies and services for public health education (M. Berger, Wagner, & L. Baker, 2005; DeGuzman & Ross, 1999). The number of health websites increased from 15,000 to 100,000 from 1999 to 2003 (Cates, 2003; Rice, 2001). They were among the fastest growing categories of websites (Davis, 2002). The number of people online in general and the number of those interested in health information rise rapidly. These numbers are expected to continue to grow (Cotten, 2001). In 2009, 74.1% of the U.S. population, i.e. more than 227 million individuals, had access to the Web, a 138.8% increase since 2000 (Miniwatts Marketing Group, 2009). The total number of people online looking for health information was estimated to have increased from 7.5 million in 1996 to 41 million in 2000 (Cleary, 2000; T.E. Miller & Reents, 1998). By September 2006, eight in ten people online in the U.S., i.e. about 113 million individuals, had searched for health information (Fox, 2006). On a typical day, about 6 million Americans go online for medical advice. This number exceeds the number of Americans who physically visit health professionals (Fox & Rainie, 2002). In a national survey conducted by the Kaiser Family Foundation, it was found that 75% of young people searched for health information online, more than those who played games, downloaded music, or shopped online (ClickZ Stats staff, 2001).
The Web is particularly popular with the U.S. women as a source of information, especially health information. According to a series of reports from Pew Internet and American Life (http://www.pewinternet.org/reports.asp), women account for 52% of the online population and 54% of the health seekers online. Eighty-two percent of the women online, compared with 77% of the men online, have looked for health information (Fox, 2006). African American women are even more likely than men to go online --- 60% of African American women are online, whereas 50% of African American men are online (Fallows, 2005a). Women account for 57% of the African American population online (Spooner, 2001). In addition, 59% of African American women online have looked for health information, whereas 45% of African American men have done so (Spooner & Rainie, 2000). Among the Asian Americans, about 60% of women go online --- a higher percentage than that of women online in any other racial/ethnic group (Spooner, 2001).

The attraction of the Web lies in its incomparable capacity and potential in information conveyance and presentation (Cassell, C. Jackson, & Cheuvront, 1998; U.S. Department of Health and Human Services, 2000). The Web provides 365/24/7 immediate access to a large amount of information in various formats (Bernhardt, Lariscy, Parrott, Silk, & Felter, 2002; A.E. Evans, Edmundson-Drane, & Harris, 2000). The Web is cost-effective and pervasive, reaching a large population in nearly every place in the world at a relatively low cost (Cassell et al., 1998). It provides a relatively high level of anonymity as well (Mohammed & Thombre, 2005; Skinner, Biscope, & Poland, 2003). Therefore, it is not surprising that online health information is especially appealing to those who are interested in information about sensitive health topics (Fox & Rainie, 2002). A national survey showed a more rapid increase in Web use among people with stigmatized diseases than that among those with non-stigmatized diseases (M. Berger et al., 2005). HIV/AIDS is such a stigmatized disease. The Web could protect those who need HIV/AIDS information but do not want to be judged and scrutinized from being exposed to
uncomfortable and awkward feelings that usually occur in face-to-face interactions (Mohammed & Thombre, 2005). In fact, HIV/AIDS patients are among the people with chronic medical conditions who increasingly take the Web as a major source of health information (Kalichman, Weinhardt, Benotsch, & Cherry, 2002).

**HIV/AIDS prevention education on government health websites**

This research focuses on women’s use of government websites to obtain HIV/AIDS prevention information. Government websites are those websites with .gov as the URL (Uniform Resource Locators) domain name suffix (Mohammed & Thombre, 2005). Government health websites are especially important for HIV/AIDS prevention education on the Web for two reasons.

First, according to Renwick (2002), HIV/AIDS is one of the diseases that most deprive vulnerable populations such as women, and is fundamentally an issue of human rights. More important than the right to be provided with medical service is the right to be treated with social justice. In the U.S., eliminating health inequalities has been identified as one of the top priorities. The government has expressed its determination to control HIV/AIDS epidemic in *Healthy People 2010* (U.S. Department of Health and Human Services, 2000, chap. 13). Such a mission, therefore, should be more reflected in government health websites than those owned by other entities.

Second, government health websites are regarded as one of the most trusted sources of health information online (Dutta-Bergman, 2003b), thus are more frequently visited. Besides, according to Lupton (1994), mass health education is a top-down political process characterized by power relations. In this process, health information is transmitted from the authoritative centers to peripheral areas. Since government health websites are perceived to be more
authoritative, credible and reliable, non-governmental health websites tend to “borrow” information content from them either directly by posting the information or indirectly by creating links leading to them. Accompanied with such copying activities is the reproduction of approaches and ideas implied in such information content. As a result, government health websites largely determine what health information is available on the Web and how the messages are conveyed.

Research gaps, goals and questions

According to Rimal and Real’s (2003) Risk Perception Attitude framework, individuals’ preventive health behaviors are guided not only by their perceived risk or vulnerability to a disease, but also by their beliefs in their ability to overcome the challenge. Information seeking, which is often ignored in the theories and models in health education with the behavioral approach, is an important form of preventive health behaviors. Individuals with perceived risk and efficacy beliefs would not only take measures to lower their risk, but also look for information that could help them become more knowledgeable about the disease.

However, although government health websites are ideal venues for women to look for HIV/AIDS prevention information, two problems may still exist judging from the literature in website evaluation, cognitive dissonance and selective exposure, social construction of gender and sexuality in the HIV/AIDS discourse, and public health communication strategies (details can be found in Chapter 3 “Literature Review”). First, women may be unable to or feel it hard to find HIV/AIDS prevention information on government health websites because of the poor design in information accessibility. As a result, they may give up searching. Second, even if they succeed in finding the information, they may not like it because of (1) the poor information format or quality; (2) the dissonance between their existing cognitions and the patriarchal
ideologies on gender and sexuality that are socially constructed in the information they find; (3) their perceived irrelevance of the information they find to women’s general situations or to their specific individual situations. As a result, they may choose not to accept or absorb the information they find into their knowledge base.

According to Case (2002), Sears and Freedman (1967), and Thayer (1987), these two problems may result in the same consequence: HIV/AIDS prevention information on government health websites --- no matter how theoretically sound and potentially beneficial it is --- may fail to reach out to women and have substantial educational effects on them. In other words, such information may be futile in modifying women’s existing state of knowledge about HIV/AIDS prevention. Such information may thus fail to lead women to think and make informed and desired changes to the behaviors that put them at risk for this life-threatening disease (Case, 2002; Sears & Freedman, 1967; Thayer, 1987).

In the research on health-related information behavior, even research on women’s HIV/AIDS-related information behavior (Bar-Ilan, Shalom, Shoham, Baruchson-Aribb, & Getz, 2006; P. Crawford & Hudson, 2003; Feick, Herrmann, & Warland, 1986; J. D. Johnson & Meischke, 1991; Krauss, Wolitski, Tross, Corby, & Fishbein, 1999; Nicholson, Grason, & Powe, 2003), the focus has been primarily on information seeking alone. There have rarely been studies that specifically explore women’s finding of the HIV/AIDS prevention information and their reactions to the information they find.

Therefore, this research examines women’s information behavior on government health websites in the context of HIV/AIDS prevention. It has both theoretical and practical goals. Theoretically, through unpacking women’s feelings and experience in finding and reacting to the HIV/AIDS prevention information on government health websites, this research aims at uncovering the intervening factors between information seeking and knowledge gain so as to fill the gap of Rimal and Real’s (2003) Risk Perception Attitude framework. Practically, this research
aims at providing recommendations to website designers on how to improve their design of HIV/AIDS prevention information so as to help women find it more easily and let them like it better as well. As a result of this effort, women could gain more knowledge from the available HIV/AIDS prevention information on government health websites. Their disadvantageous status in the HIV/AIDS epidemic could eventually be alleviated.

The overarching research question that informs this research is:

What are the intervening factors between information seeking and knowledge gain when women look for HIV/AIDS prevention information on government health websites?

In order to answer this overarching research question, the following two lower-level research questions need to be addressed:

RQ1: What factors influence women’s finding of HIV/AIDS prevention information on government health websites?

RQ2: What factors influence women’s reactions to the HIV/AIDS prevention information they find on government health websites?

Chapter outline

In Chapter 2 “Background: Women and HIV/AIDS”, I explain in more details the background of this research, i.e. HIV/AIDS epidemic among women. I discuss the stigmatized nature of HIV/AIDS and the behavioral and contextual factors contributing to women’s vulnerability to HIV/AIDS.

In Chapter 3 “Literature Review”, I review the literature in public health education, website evaluation, cognitive dissonance and selective exposure, social construction of gender and sexuality in the HIV/AIDS discourse, public health communication strategies, and health-
related information behavior. Discussion of the literature then informs the development of the theoretical framework and the research questions.

In Chapter 4 “Research Methodology”, I discuss (1) the user orientation that guides my approaches to data collection and analysis; (2) data collection, including methods, participants, procedures and activities; (3) data analysis that involves transcribing and coding; (4) measures I have taken to increase the research trustworthiness.

In Chapter 5 “Research Findings”, I present the research findings and answer the research questions.

In Chapter 6 “Discussion”, I discuss the theoretical and practical implications of the research findings.

In Chapter 7 “Conclusions”, I summarize the contributions of this research, and discuss its limitations as well as implications for future studies.
Chapter 2
Background: Women and HIV/AIDS

Health conditions vary both at the individual level and the group level, resulting in health inequalities (Gakidou, Murray, & Frenk, 2000; Lahelma, 2006; Murray et al., 1999). In the HIV/AIDS epidemic, one of the salient health inequalities nowadays is the more rapid rates of infections among women.

In this chapter, I discuss the stigmatized nature of HIV/AIDS, and explain in detail the behavioral and contextual factors contributing to women’s vulnerability to HIV/AIDS.

HIV/AIDS: A stigmatized disease

HIV/AIDS as a “disease of society” (Gatter, 1995, p. 1523) is characterized by stigma. Stigma is a “discrediting and tainting social label” (Alonzo & Reynolds, 1995, p. 304) attached to “people who are regarded negatively, some for having violated…rules, others just for being the sort of people they are or having traits that are not highly valued” (Birenbaum & Sagarin, 1976, p. 33). Thus, the concept of stigma rests on deviance from ideals or normative expectations, e.g. “‘correct’ sexual orientation or to be free of a disfiguring or fatal infectious disease” (Alonzo & Reynolds, 1995, p. 304). This discrepancy between what is desired and what is real could radically change the way people with stigma are viewed by themselves and others (Goffman, 1963). People with stigma tend to be “devalued, shunned or otherwise lessened in their life chances and in access to the humanizing benefit of free and unfettered social intercourse” (Alonzo & Reynolds, 1995, p. 304).
In the U.S., HIV/AIDS has long been dealt with in divisive terms, and there have always been stigmatizing labels attached to HIV/AIDS and the groups of people who are most disproportionately infected (Herek & Glunt, 1988; Watney, 1987). According to Watney (1987), these people have been blamed for being responsible for the disease and being a threat to the general population. For example, HIV/AIDS was once labeled as “a disease of the other”, who spread it to the public. HIV/AIDS was also labeled as a disease of the four “H” groups --- homosexuals, heroin users, Haitians, and hemophiliacs (Shapiro, 2002, p. 2189). As women became increasingly infected in recent years, HIV/AIDS was labeled as “the face of women” (UNAIDS/WHO, 2004).

A disease can be highly stigmatized for two reasons. First, it produces deviance (Conrad, 1986). HIV/AIDS is an infectious disease that poses a significant threat and danger to others (E. Jones et al., 1984; Sontag, 1990). People tend to overestimate this threat and exaggerate this danger because of the dramatic way HIV/AIDS entered into the public sphere in the first place (G. Green, 1995). In the early documentations of the HIV/AIDS epidemic, this infectious disease was associated with plague, death and evil because of its fatality and unaesthetic form of death (Alonzo & Reynolds, 1995; Cogan & Herek, 1998; De Bruyn, 1998; Lau, Feng, X. Lin, Q. Wang, & Tsui, 2005; Link & Phelan, 2001; Sontag, 1990).

Second, a disease can be highly stigmatized because it is produced by deviance (Conrad, 1986). According to Attribution Theory, people’s affective and behavioral responses towards the disease carriers are influenced by their beliefs about the causes of this disease (Weiner, 1993). In the case of HIV/AIDS, according to Corrigan (2000) and Weiner, Perry and Magnusson (1988), the widely accepted opinion is that the behaviors that contribute most to HIV infections, i.e. unsafe sexual intercourse and injection drug use, are self controllable. As a result, the public tends to hold those infected with HIV/AIDS as solely responsible for their misfortunes, and believes that they would not have been infected if they had chosen not to be involved in risk behaviors.
According to Herek and Capitanio (1999) and Herek and Glunt (1988), in the U.S., the belief that HIV/AIDS is produced by deviance is even strengthened by the fact that those infected first in the 1980s were mostly gay men and injection drug users. These groups were already prejudiced against long before the HIV/AIDS epidemic even began because of their perceived deviant behaviors.

Because of the stigma, people living with HIV/AIDS --- even those who are vulnerable to it --- suffer from not only devastating physical ordeals, but also mental tortures resulting from others’ negative attitudes (E. Jones et al., 1984; Reeves, 2000; Sontag, 1990). They could be dreaded and shunned by neighbors, co-workers, and even families and friends. They could be ostracized and denied employment and access to healthcare services (Crandall & Coleman, 1992; Herek, 1999). They may not even get sympathy from the authorities who are supposed to support disadvantaged citizens. For example, Link, Cullen, Mirotznik and Struening (1992) found that because the public health resources in Hong Kong were not prioritized to control the HIV/AIDS epidemic, people involved in risk behaviors hesitated to be tested. In addition, people living with HIV/AIDS concealed their health status, resulting in delays in treatment and care, and even transmission of the virus to their beloved ones.

**Women’s vulnerability to HIV/AIDS**

As mentioned earlier, HIV/AIDS has never been a mere medical or health issue. Compositional factors, i.e. people’s demographic and biological characteristics that have an impact on their health status and their ability to maintain health (Freund, M. McGuire, & Podhurst, 2003; Lahelma, 2006; M. Morgan, Calnan, & Manning, 1985; Whitehead, Townsend, Davidson, & Davidson, 1999), may account for part of the reasons for women’s vulnerability to HIV/AIDS (Padian et al., 1997; Segal, 1993). However, gender or race/ethnicity per se does not
determine the increasing prevalence of HIV/AIDS among women. Besides, since compositional factors are largely predestined and cannot be changed, I will only explain in detail in the following sub-sections the behavioral and contextual factors contributing to women’s vulnerability to HIV/AIDS.

Behavioral factors

Health behaviors are defined by Gochman (1982, 1997) as individual activities or characteristics that are related to health maintenance, improvement and restoration. Such health behaviors include (1) mental or cognitive activities, e.g. beliefs, expectations, motives, values and perceptions; (2) personality traits, e.g. affective and emotional characteristics; (3) observable activities, e.g. behavioral patterns, actions and habits.

According to UNAIDS (2006) report, the direct cause of women’s HIV infections is their engagement in risk behaviors, i.e. unsafe heterosexual behaviors and unsafe injection drug use. The behavioral factors for their engagement in such risk behaviors include limited awareness of the risks thus involved; limited knowledge about HIV/AIDS transmission and prevention; emotional, psychological and communicational barriers to the practice of prevention behaviors; and limited awareness of the benefits of prevention behaviors.

Unsafe heterosexual behaviors

Unsafe heterosexual behaviors constitute a major risk for women. According to CDC (2007b), most women in the U.S. are infected with HIV/AIDS through unsafe heterosexual behaviors or having sex without wearing condoms. Women may engage in risky sexual behaviors for many reasons. For instance, women may not know what safe sex means (Espinoza et al.,
2007). They may firmly believe that they are not at risk of HIV/AIDS despite all the data showing otherwise (Wyatt et al., 2000). They may not regard protection from HIV/AIDS as their “primary concern”, especially when they are overwhelmed by “day-to-day ‘getting by’ and preservation of self-esteem” (Barker, Battle, Cummings, & Bancroft, 1998, p. 281). They may have little recognition of the risk their male partner could bring to them, even when their male partner is at a high risk for infection through having unprotected sex with multiple female partners, using injection drugs, and having unknown HIV status or keeping their HIV status a secret on purpose (CDC, 2005a; Hader, D.K. Smith, J. S. Moore, & Holmberg, 2001; Millett, Malebranche, Mason, & Spikes, 2005; Montgomery, Mokotoff, Gentry, & Blair, 2003). It is particularly dangerous for women if they are not aware that their male partner is one of Men Who Have Sex with Men (MSM) --- gay, bisexual, or transgendered men who engage in male-male sex (UNAIDS, 2006). It is prevalent for MSM to use injection drugs, have sex with multiple partners, have unprotected anal sex, and have unknown HIV status (Glynn & P. Rhodes, 2005; Mansergh et al., 2002).

Even if heterosexual women are fully aware of their HIV/AIDS risks and are highly knowledgeable about HIV/AIDS, they may still be engaged in unsafe sex. Sometimes, their need for sexual gratification and feelings of love may overpower their well-informed intention to practice safe sex (Gardner & Herman, 1990; E. Weiss, Shelan, & Gupta, 1996). Sometimes, unsafe sex acts are performed “on the spur of the moment” without “deliberate cognitive evaluation” of costs against benefits (Dutta-Bergman, 2005, p. 112), “especially where alcohol, drugs, or fear of violence are also involved” (Bertrand, 2004, p. 119). In other cases, it is hard to bring up the topic of safe sex. One reason is that this could jeopardize “trust, honesty, and commitment” (Barker et al., 1998, p. 281) --- the core values of sexual relationships, and crash women’s self-perception as “being part of a trustworthy, monogamous relationship” (Sobo, 1993, pp. 468-469). Another reason is that women may prefer to deny their risks even if they know they are at risk (Hobfoll, A. Jackson, Lavin, Britton, & Shepherd, 1993; Mays & Cochran, 1988;
Worth, 1989) since acknowledgement of the risks could be overwhelming and break the “equilibrium in their lives and relationships” (J. Moore, J. Harrison, Kay, Deren, & Doll, 1995, p. 188). All of these factors relate to the fact that sex is “a complex combination of physical, biological, personal, emotional, psychological, affiliative, social, and economic needs and conditions”; it cannot be “calmly, rationally, and unemotionally discussed and planned…[as well as] performed” (Barker et al., 1998, p. 274).

Women’s perceptions about condoms could also be obstacles to their practice of safe sex. Although the effectiveness of condoms in reducing HIV risks has been widely acknowledged, the rate of condom use is still low among women (Browne & Minichiello, 1994; Gupta & E. Weiss, 1993; Pivnick, 1993). Low condom use is largely due to women’s perceptions that condoms will interrupt or reduce sexual pleasure, the embarrassment involved in purchasing and carrying condoms, the lack of securities in the proper use of condoms, and the fear of being regarded as promiscuous (Browne & Minichiello, 1994; Gupta & E. Weiss, 1993; Pivnick, 1993).

Unsafe injection drug use

Unsafe injection drug use is another risk for women. According to CDC (2007b), about 20% of new HIV diagnoses among U.S. women are associated with unsafe use of injection drugs, i.e. sharing of contaminated injection equipment, which results in blood transmission. In fact, AIDS cases associated with injection drug use or sex with injection drug users account for a larger part of cases among women (57%) than men (31%) in the U.S. (CDC, 2002). It is especially so for African American women, for whom injection drug use is the second leading cause of HIV infections (CDC, 2007b).

Casual or chronic use of injection drugs (or other non-injection drugs and substances such as crack cocaine and alcohol) could not only result in direct HIV transmission to women, but
also lead women to engage in high-risk sexual behaviors such as sex without condoms, sex with multiple male partners, sex work, physical abuse, and rape. Thus, women’s vulnerability to HIV/AIDS could be increased when they are under the influence because their inhibitions could be lowered and they may need money to support this habit (Edlin et al., 1994; Leigh & Stall, 1993; Quinn, 1993; UNAIDS, 2006).

**Contextual factors**

Individuals’ health behaviors could simply be the result of their free choices and characteristics, which manifest the freedom they are allowed to have in order to live the lives they want, even if they have full knowledge of the risks and consequences thus involved (Oliver, 2003; Woodward & Kawachi, 2000). However, individuals’ health behaviors could also be the result of influences on the groups of people that the individuals belong to or the contexts, i.e. structural and social environments that define the ways people are integrated into the society and grouped into social hierarchies, including socio-economic, material, cultural and political factors (Braveman & Gruskin, 2003a, 2003b; Shaw, Dorling, & Mitchell, 2002; Vallgarda, 2006; Woodward & Kawachi, 2000).

HIV/AIDS has never been an issue of purely personal responsibilities and lifestyles, but a complex and pressing socio-economic ensemble characterized by stigmatization and the resulting discrimination, segregation and marginalization (Pollak, Paicheler, & Pierret, 1992). Thus, HIV/AIDS is entangled with social fissures, poverty, gender inequalities, ethnic cultures, vested interests, and social norms (Melkote, Muppidi, & Goswami, 2000). Although behaviors of free choices could be blamed for HIV infections for some people, social and structural contexts may have contributed more to this epidemic. According to Ham (1992), people who are most vulnerable to HIV/AIDS in the U.S. are often those who are most socio-economically deprived
and socially marginalized, including gay men, minorities, injection drug users, sex workers, MSM, and, more recently, women.

Therefore, the behavioral factors contributing to women’s vulnerability to HIV/AIDS are not always completely behavioral in nature. For some women, their engagement in risk behaviors may only be a matter of voluntary personal choice. For other women, however, it could be the result of the contextual constraints over which they have no or little control. Such contextual factors include gender inequalities, biased health policies, low socio-economic status, and minority culture. These factors could weaken women’s awareness of HIV/AIDS risks, as well as their ability, willingness and determination to adopt prevention behaviors.

**Gender inequalities**

For Women Who Have Sex with Women (WSW), their HIV infections are mostly due to unsafe drug use and heterosexual behaviors with men (Einhorn & Polgar, 1994; Lemp et al., 1995; Stevens, 1994; Stevens & J. Hall, 1997). They are generally at low risk of HIV infections through unsafe sex with women (CDC, 2007c). Thus, gender inequalities are reflected in the imbalanced power relationships in heterosexual behaviors between women and men based on traditional gender roles, as well as in the stereotypes of women (Auerbach, Wypijewska, & K. Brodie, 1994; Melkote et al., 2000).

**Imbalanced power relationships**

Women and men are not equal in their heterosexual relationships (Auerbach et al., 1994; Melkote et al., 2000). Because of the social nature of sexual behaviors (Catania, Kegeles, & Coates, 1990) and the fact that women have to obtain their male partner’s cooperation in order to use condoms, women may be hesitant to initiate communication about safe sex in order to avoid negative reactions from their male partner (Lear, 1995; Mays & Cochran, 1988; Stein, 1995;
Wingood & R. DiClemente, 1992). It remains true even if women are fully aware of their risks for HIV/AIDS and the necessities to practice safe sex (Peterson & Martin, 1988; Quinn, 1993). If their male partner refuses to use condoms, he may have negative reactions and even abuse them physically or emotionally (Amaro, 1995; Suarez-Al-Adam, Raffaelli, & O'Leary, 2000). It is because women are considered to have challenged the existing patriarchal value system and “the male’s position of dominance in sexual decision-making” (Bertrand, 2004, p. 118). Some heterosexual women are so physically or financially dependent on men that it is unbearable for them to be left alone or cut off financial support by their male partner. This could also paralyze women’s ability to negotiate safe sex (CDC, 2007a; Chong & Kvasny, 2007; Lear, 1995; Stein, 1995). This situation may remain unchanged even if women have suspected that their male partner is at a high risk for HIV/AIDS. Therefore, gender inequalities have, to a certain degree, weakened the extent to which women can assert control and power over behaviors and communications during sexual contacts (Chong & Kvasny, 2007; Lear, 1995; Stein, 1995).

Besides the disadvantageous status for women in heterosexual relationships, violence against women, such as physical abuse or rape, could also increase women’s vulnerability to HIV/AIDS. In violent sexual encounters, it is virtually impossible for them to have any control over or to request practice of safe sex (Gupta, 2000).

**Stereotypes**

The stereotypes of women represented in the media discourse place women in a vulnerable position in the HIV/AIDS epidemic (Airhihenbuwa et al., 2000). Because of the cultural standard concerning “true womanhood” — women are expected to be pure, pious, domestic and submissive; women are believed to be the only logical choice to fulfill the role of caregivers (Charlesworth, 2003). Because of the longstanding belief in life creation — men provide the essential seed (sperm) to create a life, while women merely supply the flower pot (womb) where a new life grows (Rothman, 1989), women are reduced to their wombs or their
function of reproduction (Hassin, 1994). Such gender socialization seeks to mold women into these traditional female roles. Women are thus defined and valued primarily “in relation to others rather than in their own right” (Cline & N. McKenzie, 1996a, p. 370). Even when HIV/AIDS is labeled as an issue of women’s health and women are supposed to learn about HIV/AIDS, it is not for the sake of protecting women themselves, but those whom they care for and give birth to (Charlesworth, 2003). If their lives are subjects of concern, it is only because the lives of those whom they care for and give birth to are at risk (Chong & Kvasny, 2007). Over time, women are accustomed to subordinating their needs to those of others (Charlesworth, 2003). They may not even be inclined to perceive themselves at risk for HIV/AIDS (Cline & N. McKenzie, 1996a, 1996b). Consequently, their capabilities of self-protection are slowly decreased by their sense of altruism --- a stereotypical feminine trait (Chong & Kvasny, 2007).

Another consequence of stereotyping women is that women could be more hesitant than men to seek HIV/AIDS services, thus may not take prevention measures effectively. The society tends to criticize and stigmatize HIV positive women more harshly --- even when they have contracted the virus from their male partner (Dworkin & Pincu, 1993). Even when women happen to transmit the virus to their children unknowingly, they may still face social criticism and be labeled as irresponsible mothers (Hassin, 1994). In all, women infected with HIV/AIDS are deemed as “permissive and lacking in morals” (Mulenga & Conyers, 2003, p. 35) and as having denigrated their roles as caregivers and nurturers (Harley, 1997).

**Biased health policies**

Women deserve the dedication of more money, effort and attention to the design and conveyance of HIV/AIDS prevention messages that focus on them and address their specific situations and experiences (Parrott & Condit, 1996). According to Cline and McKenzie (1996b),
however, the authorities and researchers have not been committed enough to this endeavor because of the traditional construction of HIV/AIDS as “a disease that has both gender and sexual orientation” (p. 384). As a result, women tend to be either invisible or misrepresented in HIV/AIDS interventions. Women’s special needs are often ignored and the efficacy of HIV/AIDS messages and services are often limited for them.

In the U.S., such biased health policies particularly affect minority women. Minorities are much diversified in culture, including language, history and social norms. There are more than eight nationalities and more than 100 languages and dialects among Asians and Pacific Islanders. Many Asians and Pacific Islanders are foreign-born and not familiar with English or the American culture (CDC, 2008). Among American Indian and Alaska Natives, there are 562 federally recognized tribes and at least 50 state-recognized tribes with different languages (U.S. Department of the Interior, Bureau of Indian Affairs, 2003). For the Hispanics/Latinos, since they originally emigrated from various Latin countries, they do not have a uniform culture in the U.S. (CDC, 2007a). It is, therefore, often difficult for minorities, especially recent immigrants, to understand HIV/AIDS prevention messages that are often uniform and to take full advantage of HIV/AIDS services (Jemmott, Maula, & Bush, 1999; Pounds, Conviser, Ashman, & Bourassa, 2002).

**Low socio-economic status**

Lower socio-economic status means less control over critical resources of power and fewer shares of social goods (Giachello, 1995; Zanden, 1972). It is the root of HIV/AIDS infections for many women since studies have shown the relationships between higher HIV/AIDS rates and lower incomes (Diaz et al., 1994; Fullilove, 2006).
According to the literature (Airhihenbuwa et al., 2000; R. Campo, D. Alvarez, Santos, & Latorre, 2005; Nyamathi, Bennett, Leake, C. Lewis, & Flaskerud, 1993), low socio-economic status could lead to many poverty-associated social problems that could then result in women’s vulnerability to HIV/AIDS. Women at lower socio-economic status are more likely to have little knowledge about HIV/AIDS because of a lack of formal education and HIV/AIDS prevention education. They are more likely to be unemployed or have insufficient income. As a result, they tend to be financially dependent on men and thus be subordinate to them in sexual behaviors. They tend to engage in sex work to trade sex for drugs or money. They are more likely to engage in “survival sex” --- sex with an acquaintance or a friend to exchange for goods, shelter or payment of rent or bills. They are also more likely to use injection drugs or abuse other substances to relieve or escape from the mental pressures and stresses in their hard life. For a woman struggling to satisfy the most basic and immediate needs of her life or the life of her families, “risky transactional sex (not abstinence) offers the greater advantage, at least in the short term” (Amaro, 1995; Bertrand, 2004, p. 118).

Low socio-economic status affects the HIV/AIDS status of minority women in the U.S. even more. Nearly 25% African Americans and 20% Hispanics/Latinos live in poverty (Bishaw & Iceland, 2003). More than a million Asian Americans live at or below the federal poverty level (U.S. Department of Health and Human Services, 2007). Approximately 24.3% American Indians and Alaska Natives lived in poverty during the year 2002–2004, which was about twice the national average (12.4%) (DeNavas-Walt, Proctor, & C. Lee, 2005). About 66% American Indian and Alaska Natives had a high school diploma in 1990, which was less than the national average (75%) (Paisano, 2001). Therefore, race/ethnicity is more of a proxy for socio-economic status than an indicator of health status or exposure to health risks in its own right (McKeown, 1976).

A unique consequence of the low socio-economic status of African Americans in the U.S. also plays a role in the high infection rate among African American women. “Approximately
25% of African American men between the ages of 20-29 are under the supervision of the penal system” (Barker et al., 1998, p. 274; K. Russell, M. Wilson, & R. Hall, 1992). The high incarceration rate among African American men makes it more likely for African American women to be infected by their male partner (Barker et al., 1998; K. Russell et al., 1992) considering the high prevalence of HIV/AIDS in prisons (CDC, 1992). In addition, according to Sampson (1987), there is a high unemployment rate among African American men. African Americans are also the only racial/ethnic group in the U.S. where women outnumber men. All of these facts lead to fewer marriageable (not incarcerated, heterosexual and employed) men for African American women. As a result, African American women may especially desire for and value relationships, and thus are more likely to surrender to their male partner’s refusal to practice safe sex and to be vulnerable to his abuses. African American women may also tend to have multiple male partners to compensate for their lack of emotional, financial or relational stabilities in their primary relationship. Moreover, according to Gupta (2000) and Mulenga and Conyers (2003), African American men are more likely to exert dominance over their female partner, who are often African American women, during sexual contacts to compensate for their loss of power at work after unemployment. This could make it even harder for African American women to have a say regarding the practice of safe sex.

Therefore, gender, socio-economic status, and race/ethnicity are inseparable. They could largely determine a person’s health conditions “affect[ing] perception of health and illness, kinds and availability of care, [and] modes of delivery” (Melkote et al., 2000, p. 21).

*Minority culture*

In a broad sense, culture refers to “a collective consciousness of people often shaped by a shared history, language, and psychology” (Airhihenbuwa et al., 2000, p. 106). In a narrow sense,
culture is a collection of “ideas, beliefs, languages, institutions, and structures of power and as a range of cultural practices (Nelson, Treichler, & Grossberg, 1992, p. 5). In the U.S., cultural values of minorities and their acculturation are two important factors that could be obstacles to HIV/AIDS prevention for minority women.

**Cultural values**

Cultural values are collective beliefs that could mediate people’s habitual behaviors without their realization and confine their behaviors within the realm of social or group norms (Airhihenbuwa et al., 2000; Dutta-Bergman, 2005; Szasz, 2001). Some cultural values are not conducive to HIV/AIDS prevention for minority women. For instance, in some cultures of Asians and Pacific Islanders, there are taboos against talking about sex related topics (Jemmott et al., 1999). For African American women, since the sense of self-worth and the social value they can obtain from childbearing usually outweigh HIV/AIDS risks, they could be reluctant to use condoms (Weeks, Schensul, Williams, Singer, & Grier, 1995).

In the Hispanic/Latino culture, masculinity --- men’s power and dominance --- as one component of the beliefs of sexuality regarding male images is highly valued by Hispanic/Latino men. In order to prove their masculinity, they may engage in risky sexual behaviors such as sex with multiple partners (V. Levy et al., 2005), unprotected sex (Jarama, Kennamer, Poppen, Hendricks, & Bradford, 2005; Marin, 2003), and sexual coercion (Cáceres, Marín, & Hudes, 2000). An important direct result of masculinity is homophobia, i.e. the stigma attached to homosexuality (UNAIDS, 2006). Homophobia together with *familismo* --- a strong commitment to family --- could lead Hispanic/Latino MSM to identify themselves as heterosexual or to conceal their homosexual behaviors and remain in sexual relationships with their female partners (CDC, 2005b, 2004b, 2003, 2000; Diaz, 1998; Millett et al., 2005). In this way, they try to avoid being regarded as feminine and the possible conflicts between their sexual orientation and their families’ negative attitude toward homosexuality (Diaz, Ayala, & Bein, 2004). In addition,
Hispanic/Latino MSM are more likely than the White MSM to use condom inconsistently during anal sex with multiple partners and to have never taken HIV tests (S. Rhodes, Yee, & Hergenrather, 2006). Masculinity, homophobia and familismo together pose a serious threat to the female partners of Hispanic/Latino men.

Two other beliefs in the Hispanic/Latino culture, marianismo and simpatía, could also increase women’s risks for HIV/AIDS. Marianismo means women are expected to be pure and acquiescent to men’s desires (Peragallo, DeForge, Khoury, Rivero, & Talashek, 2002). Simpatía emphasizes non-confrontational relationships and sexual silence (Nyamathi et al., 1993). As components of the sexuality beliefs regarding female images, marianismo and simpatía serve to strengthen the traditional gender roles in sexual behaviors --- passive, subordinate and ignorant about sex for women, while active, dominant and knowledgeable about sex for men (Worth, 1990). Besides these cultural beliefs, birth control is not allowed in some Hispanic/Latino cultures, which could also put Hispanic/Latina women at risk (Gupta, 2000).

**Acculturation**

Acculturation refers to the process individuals of racial/ethnic minorities adapt to the culture of the majority people that they contact with, and the resulting changes in the beliefs, attitudes, values and behaviors of the minority individuals (Berry, 1993; Casas & Pytluk, 1995; Rivera, Chen, Flores, Blumberg, & Ponterotto, 2007). In some cases of acculturation, minority individuals may acquire the content of the majority culture while still holding on to part of their own culture (Berry, 2003).

Judging from the literature (Marin, 2003; Rojas-Guyler, Ellis, & Sanders, 2005), the impact of acculturation on HIV/AIDS prevention is unclear. On the one hand, acculturation may contribute to reducing cultural diversities among minorities and thus the ineffectiveness of public health education on HIV/AIDS. On the other hand, a high level of acculturation may increase the minorities’ risks for HIV/AIDS through enabling assimilation of not only elements in the
mainstream culture that are protective from HIV/AIDS infections, but also those that are otherwise. For example, the more highly acculturated Hispanic/Latina women are more likely to use injection drugs and have multiple male partners.

Table 2.1 summarizes the behavioral and contextual factors that could lead to HIV/AIDS infections among women.

Table 2.1: Behavioral and contextual factors leading to women’s vulnerability to HIV/AIDS

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<th>1. Behavioral Factors</th>
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<tr>
<td>1.1 Limited awareness of HIV/AIDS risks</td>
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<td>1.2 Limited knowledge of HIV/AIDS and its prevention</td>
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<td>1.3 Emotional barriers to safe sex, e.g.</td>
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<td>• Gratification of sexual pleasure and feeling of love</td>
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<td>1.4 Psychological barriers to safe sex, e.g.</td>
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<td>• Embarrassment involved in purchasing and carrying condoms</td>
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<td>• Lack of securities in the proper use of condoms</td>
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<td>• Fear of being regarded as promiscuous</td>
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<td>1.5 Communicational barriers to safe sex, e.g.</td>
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<td>• Little consciousness and limited inhibitions during sex</td>
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<td>• Difficulty in bringing up the topic due to possible destruction of trust and equilibrium</td>
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<td>1.6 Limited awareness of benefits of safe sex, e.g.</td>
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<td>• Interruption or reduction of sexual pleasure by condom use</td>
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<th>2. Contextual Factors</th>
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<td>2.1 Gender inequalities</td>
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<td>2.1.1 Imbalanced power relationships, e.g.</td>
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2.1.2 Stereotypes, e.g.
- Care about others’ health more than themselves’
- Hesitance to seek prevention services

2.2 Biased health policies, e.g.
- Negligence of women’s special needs, especially those of minority women

2.3 Low socio-economic status

2.3.1 Limited education

2.3.2 Unemployment and low incomes, e.g.
- Financial dependence on and subordination to men
- Sex work
- Survival sex
- Drug use due to mental pressures

2.3.3 (for African American women) Imbalanced gender ratio, e.g.
- Subordination to men
- Multiple male partners
- Men’s dominance

2.4 Minority culture

2.4.1 Cultural values, e.g.
- (for African American women) Self-worth and social value associated with childbearing
- (for Hispanic/Latina women) No birth control, masculinity, *familismo, marianismo, simpatía*
- (for Asians and Pacific Islander women) Taboos against talking about sex-related topics

2.4.2 Acculturation, e.g.
Summary

Health inequalities are salient in HIV/AIDS --- a “disease of society” characterized by stigmas attached to it as well as people living with it or vulnerable to it. Women are such a group with an increasing rate of HIV/AIDS infections because of both behavioral and contextual factors. Behavioral factor include limited awareness of HIV/AIDS risks; limited knowledge of HIV/AIDS and its prevention; limited awareness of the benefits of safe sex; and the emotional, psychological and communicational barriers to safe sex. Contextual factors include gender inequalities characterized by imbalanced power relationships and stereotypes; biased health policies; low socio-economic status; and the minority culture that includes cultural values and acculturation.
Chapter 3

Literature Review

In order for women to gain more knowledge from the HIV/AIDS prevention information on government health websites and keep from getting infected, they need to, first and foremost, be able to find the information. They also need to react positively to the information they find before they could accept it.

In this chapter, I review the literature in public health education, website evaluation, cognitive dissonance and selective exposure, social construction of gender and sexuality in the HIV/AIDS discourse, public health communication strategies, and health-related information behavior. I develop the theoretical framework and propose the research questions based on the literature reviewed.

Public health education

The behavioral approach

In developed countries, there is a transition in focus of healthcare from acute infections to chronic diseases (R. Thomas & Pol, 1993). This transition occurred as a result of the fact that all of the ten risk factors that lead to about half of the diseases were behavioral (Neuhauser & Kreps, 2003), and that about half of all deaths each year were caused by behaviors such as unhealthy eating, smoking, alcohol abuse, and physical inactivity (McGinnis & Foege, 1993). According to Baker et al (2003), unlike biological risk factors, health behaviors can be changed through health
education. In addition, unlike vaccines that are only specific to certain known diseases, health education aiming to promote desired behavioral change could protect people from not only those known, but also emerging diseases. Therefore, because of such an increasingly important role health behaviors play in health in recent years, the behavioral approach is believed to be the hallmark of health education (Cohen & Cphen, 1978).

In HIV/AIDS prevention, behaviors are believed to be the “major determinants of HIV transmission” (U.S. Department of Health and Human Services, 2000, chap. 13) because of a lack of immunological interventions, i.e. vaccines (Edgar, Fitzpatrick, & Freimuth, 1992; Freimuth, Hammond, Edgar, & Monahan, 1990; Maibach, Kreps, & Bonaguro, 1993). In fact, health education on HIV/AIDS prevention has been traditionally focused on promoting desired behavioral change (Hefferman, 2002). Its effectiveness has been proved by such prevention programs as the one that aimed at motivating desired behavioral change in women for the prevention of heterosexual transmission of STDs/HIV/AIDS (S. Baker et al., 2003).

Glantz, Lewis and Rimer (1997) identified the most popular theories and models in health education with the behavioral approach in their review of papers published in journals in health education, medicine, and behavioral science (Murray-Johnson et al., 2001). These theories and models are Health Belief Model (HBM), Extended Parallel Process Model (EPPM), Theory of Reasoned Action (TRA), Theory of Planned Behaviors (TPB), Social Cognitive Theory (SCT), and Stage of Change (SOC). They have identified critical constructs and relationships that could influence health behaviors and predict health outcomes (Airhihenbuwa & Obregon, 2000; Bandura, 1977a; Institute of Medicine, 2002; Maibach et al., 1993), thus have often been used in the construction of health education programs and campaigns (Murray-Johnson et al., 2001).

In the following sub-section, Rimal and Real’s (2003) Risk Perception Attitude framework will be introduced in detail. This framework builds upon and extends aspects of the theories and models mentioned earlier. What makes it different is that it not only deals with the
influencing factors of health behaviors, particularly risk perception and efficacy beliefs, but also focuses on one of the often neglected forms of preventive health behaviors --- information seeking.

**Risk Perception Attitude framework**

According to Rimal and Real (2003), the Risk Perception Attitude (RPA) framework derives from the extended EPPM and SCT. In the extended EPPM, efficacy beliefs are believed to play a moderating role between risk perception and health behaviors (Witte, 1992, 1994). Risk perception refers to awareness of one’s vulnerability to a disease (Rimal & Real, 2003), while self-efficacy refers to belief in one’s abilities to overcome barriers and adopt the recommended behavior (Airhihenbuwa & Obregon, 2000; Bandura, 1994). Thus, it is predicted that preventive health behaviors are the result of exposure to messages that arouse a higher level of both risk perception and efficacy beliefs (Witte, 1992, 1994). Similarly in SCT, it is predicted that individuals with a higher level of efficacy beliefs are more likely to perceive their health risks as manageable, and *vice versa* (Bandura, 1977b; Maibach & Murphy, 1995; Rimal, 2000).

In the RPA framework (Figure 3.1), Rimal and Real (2003) hypothesized that “the effect of perceived risk on people’s self-protective motivations and behaviors will be moderated by their efficacy beliefs” (p. 372). Based on the level of risk perception and efficacy beliefs, Rimal and Real (2003) categorized individuals into one of the four groups characterized by different attitudinal effect. First, those with a high level of both risk perception and efficacy beliefs belong to the group with *responsive* attitude. They are expected to be most motivated to adopt the preventive health behaviors. Second, those with a high level of both risk perception but a low level of efficacy beliefs belong to the group with the *avoidance* attitude. Since they tend to experience a conflict in motivation, they are expected to be less motivated than the group with
*responsive* attitude to adopt the preventive health behaviors. Third, those with a low level of risk perception but a high level of efficacy beliefs belong to the group with *proactive* attitude. They are expected to be motivated to adopt the preventive health behaviors --- not by their risk perception, but by their desire to stay healthy. Fourth, those with a low level of both risk perception and efficacy beliefs belong to the group with *indifference* attitude. They are expected to be least motivated to adopt the preventive health behaviors compared with individuals in the other three groups. In testing these predictions, Rimal and Real (2003) found in experiment results that preventive health behaviors were indeed guided by either risk perception alone or together with efficacy beliefs.
Figure 3.1: The Risk Perception Attitude (RPA) framework
(Rimal & Real, 2003)
Besides identifying the four groups and providing theoretical foundations for segmenting the audience, Rimal and Real (2003) emphasized in the RPA framework information seeking --- a form of preventive health behaviors that had been generally overlooked. Rimal and Real (2003) argued that individuals’ intentions or actual measures to seek information and have knowledge about a disease, especially about how to effectively prevent it, were as important as the specific preventive activities that they were engaged in.

However, in the context of HIV/AIDS prevention, although responsive and proactive women are more motivated to adopt preventive health behaviors and initiate information seeking on government health websites, information seeking may not necessarily lead to an increase in their knowledge about HIV/AIDS prevention because of the possible problems with information accessibility, format and quality as unpacked in the research on website evaluation. Website evaluation, therefore, becomes a critical component for understanding the educational effectiveness of the HIV/AIDS prevention information received by women.

**Website evaluation**

Evaluation was defined by Dragulanescu (2002) as the process of using criteria and standards to make judgments about “the value of ideas, works, solutions, methods, material, etc” and “the extent to which particulars are accurate, elective, economical or satisfying” (p. 248). Website evaluation has been most massively explored in the field of Human-Computer Interaction (HCI). Attributes that could determine the level of users’ satisfaction with or positive appraisals of a website have been identified through surveys, focus groups, or interviews with users or experts. These attributes, as shown in Table 3.1, are usually used as criteria for website evaluation to minimize users’ frustrations of and maximize their visits to a website (Hassan & Li, 2005; Rippen & Risk, 2000; P. Zhang & Dran, 2000).
Table 3.1: Website evaluation attributes

| Information Accessibility | • Functions of links  
|                          | • Navigation         |
| Information Format        | • Interactivity      
|                          | • Media use          
|                          | • Consistency        
|                          | • Aesthetics         |
| Information Quality       | • Sponsorship        
|                          | • Authorship         
|                          | • Authority          
|                          | • Attribution        
|                          | • Currency           
|                          | • Accuracy           
|                          | • Privacy/Confidentiality 
|                          | • Coverage           
|                          | • Objectivity        
|                          | • Writing            
|                          | • Arrangement/Organization |

Specifically, there are three categories of attributes for website evaluation: information accessibility, information format, and information quality. Information accessibility refers to “the type and amount of information organized in a way that is accessible to participants” (Teo, H. Chan, Wei, & Z. Zhang, 2003, p. 674), or the degree of ease that information can be obtained (Swanson, 1992). High information accessibility means “easy and structured access to greater
amount and variety of information”, and low information accessibility means “difficult and unstructured access to less amount and variety of information” (Teo et al., 2003, p. 681). Among the attributes used to evaluate information accessibility, functions of links include such features as update, shortcuts for frequent users, text indications of the nature of the target, and links to other websites. Navigation refers to structures and tools that act as roadmaps to help users know where they are and have been, as well as where they can go from their current locations (Ghoshal & Walji, 2006; Hassan & Li, 2005; Howitt et al., 2002; Pérez-López, 2004; A. Smith, Dunckley, French, Minocha, & Chang, 2004; A.G. Smith, 2001; Tractinsky, 1997).

Information format refers to the way information is presented. Among the attributes used to evaluate information format, interactivity refers to features that enable two-way communication, such as emails and forums. Media use refers to using such media as sound, graphics, images, audio and video. Consistency is considered in aspects such as webpage titles, background, navigation links, and icons in terms of the colors, fonts and sizes used. Aesthetics refers to screen appearance features such as space provision, color combination, readability, and scannability (Ghoshal & Walji, 2006; Hassan & Li, 2005; Howitt et al., 2002; Pérez-López, 2004; A. Smith et al., 2004; A.G. Smith, 2001; Tractinsky, 1997).

Information quality refers to characteristics that determine how good the information content is. Among the attributes used to evaluate information format, sponsorship refers to the sponsor of the information content. Authorship refers to the constructor of the information content. Authority is concerned with how authoritative the constructor of the information content is. Attribution refers to the source of the information content. Currency is concerned with how updated the information content is. Accuracy is concerned with how exact and correct the information content is. Privacy or confidentiality is concerned with whether users’ identities and other private information are disclosed in the information content. Coverage is concerned with how broad and deep the information content is. Objectivity is concerned with how objective the
information content is. Writing includes such features as language use, writing quality, literacy level, and understandability. Arrangement/Organization refers to how the information content is arranged or organized (Benotsch, Kalichman, & Weinhardt, 2004; Burneo, 2006; Hassan & Li, 2005; Howitt et al., 2002; Martin-Facklam, Kostrzewa, Schubert, Gasse, & Haefeli, 2002; Oermann, Gerich, Ostosh, & Zaleski, 2003; Pérez-López, 2004; A. Smith et al., 2004; A.G. Smith, 2001; P. Zhang & Dran, 2000).

These three categories of attributes for website evaluation constitute the potential barriers that women may encounter when trying to learn from the HIV/AIDS prevention information on government health websites. Besides these potential barriers, women’s desire to gain more knowledge about HIV/AIDS prevention from government health website could also be dampened by their realization that the ideologies underlying the HIV/AIDS prevention information they find are dissonant with their existing cognitions.

**Cognitive dissonance and selective exposure**

According to Festinger (1957), cognitive dissonance occurs when contradictory or conflicting cognitions are held simultaneously or new cognitions are introduced that are discrepant with the currently held cognitions. In order to reduce the psychological or mental discomfort caused by cognitive dissonance, people may modify or eliminate the dissonant elements in their existing cognitions. People may also modify or eliminate the dissonant elements in their environment. However, when they do not have enough control over the environment and thus cannot make changes towards consonance, they may choose not to allow the conflicting cognitions to enter their existing cognitive system. In other words, they only seek to add new cognitions that are consonant with their existing cognitions, and avoid those that could cause or increase dissonance.
Likewise, in the theory of selective exposure, people tend to expose themselves to information “that is congruent with their prior knowledge, beliefs, and opinions, and to avoid exposure to information that conflicts with those internal states” (Case, Andrews, J. D. Johnson, & Allard, 2005, p. 354; E. Rogers, 1983). People’s internal states act as filters of information coming from the outside world, and their original internal states are reinforced as a result. Selective exposure is “one of the most widely accepted principles in sociology and social psychology … about communication effects” (Sears & Freedman, 1967, p. 194).

Some researchers (Case, 2002; Case et al., 2005; Feather, 1962; Hyman & Sheatsley, 1947; Klapper, 1960; Lazarsfeld, Berelson, & Gaudet, 1948; W. McGuire, 1964; Sears & Freedman, 1967; Thayer, 1987) have used selective exposure as a way of resisting influence to explain, for instance, why persuasive information conveyed on the mass media in health promotion and education campaigns has seldom resulted in significant effects on people’s desired behavioral change, as well as why people could immunize themselves against and thus be very unfamiliar with the messages conveyed in counterpropaganda.

According to Wilson (1996), selective exposure is not only related to information seeking in terms of selecting information sources, but also related to information processing and use in terms of selecting information based on its value. Case (2002) argued that, for most of the time, it was not that people tended to avoid information, but that they simply tended not to accept it. Sears and Freedman (1967) also pointed out that “perhaps resistance to influence is accomplished most often and most successfully at the level of information evaluation, rather than at the level of selective seeking and avoiding information” (p. 213). For example, although smokers do not necessarily avoid exposure to scary information about the linkage between smoking and cancer, they often still continue to consume as much of cigarettes even after carefully scrutinizing such information (Case, 2002; Feather, 1962; Sears & Freedman, 1967; Thayer, 1987). Although it is made sure that a large amount of favorable information is provided on the mass media and
received by the audience, a political campaign may still fail since it may merely reinforce the established predispositions of the audience and the audience still sticks to their original attitudes and opinions (Hyman & Sheatsley, 1947; Sears & Freedman, 1967).

For women desiring to gain more knowledge about HIV/AIDS prevention on government health websites, one of the important factors that could cause them to feel cognitive dissonance is the social construction of gender and sexuality in the HIV/AIDS discourse.

**Social construction of gender and sexuality in the HIV/AIDS discourse**

**Social construction**

According to Berger and Luckmann’s (1966) theory of social construction, the reality experienced by humans as objective facts is actually subjectively constructed by humans themselves, thus is embedded with ideologies. Ideologies are socially constructed worldviews or social processes (Fairclough, 1995; J. Thompson, 1990). The most important social function of ideologies is to establish domination through building or transforming people’s attitudes and beliefs, and to sustain power inequalities through controlling people’s mindsets and repressing social changes (R. Alvarez, 2005; Bandura, 1986; Fairclough, 1995; Williams, 1986). The power of ideologies lies in naturalization, where the social phenomena are constructed semantically in a way that makes people accept them as commonsensical and “non-ideological” facts (Fairclough, 1995, p. 28). As a result, people unconsciously absorb the ideologies embedded in the social phenomena without questioning them, believing it is just the way it is. Even when sometimes people are aware of the contradictions between their own beliefs and the ideologies, they may still find it hard to resist the ideologies, which are widely shared among the public (Fairclough, 1995).
Ideologies are represented, constructed and conveyed in discourse, or symbolic forms such as images and words (J. Thompson, 1990). According to Fairclough (1995), discourse refers to “language use as social practice” (p.131). There is a dialectical relationship between discourse and the society. On the one hand, discourse is produced and shaped by social identities, social relations, and systems of knowledge within the social, political and historical contexts in which the social activities take place. Discourse is the outcome of unconscious or conscious generation and manipulation of text and talk in order to secure or maintain power and hegemony. On the other hand, discourse shapes the society and people’s mind in two ways. Discourse can be conventional and reproductive, accustoming people to the existing ideologies and social phenomena. Discourse can also be transformative, creating new ideologies and awakening people to realize the alternative truths and make corresponding responses, i.e. to initiate social change.

HIV/AIDS is typically constructed by a set of social, economic and political discourse as an issue of personal responsibility and gender equity (Chong & Kvasny, 2007; J. Cullen, 1998). Thus, as shown in Gupta’s framework in the following sub-section, the social ideologies surrounding gender and sexuality are inevitably reflected in the HIV/AIDS discourse (Cukier & Bauer, 2004).

Gupta’s framework

Gupta (2000) has extensively explored the determining role of power in gender and sexuality. According to Gupta (2000), gender as a social and cultural construct is concerned with expectations and norms of appropriate male and female behaviors, characteristics and roles that are shared within a society. Gender differentiates women from men, and defines the way they interact with each other. Sexuality is distinct from, yet intimately linked to gender. Sexuality is the social construction of a biological drive, including whom to have sex with, in what ways,
why, under what circumstances, and with what outcomes. Sexuality is influenced by both explicit and implicit rules that are imposed by the social definition of gender, age, economic status, ethnicity, etc (Dixon-Mueller, 1993; Zeidenstein & K. Moore, 1996).

According to Gupta (2000), power is fundamental to both gender and sexuality. The unequal power balance in gender relations that favors men translates into an unequal power balance in heterosexual interactions. Male pleasure supersedes female pleasure, and men have greater control than women over “when, how, and with whom sex takes place” (p.2). Therefore, gender and sexuality must be understood as constructed by a complex interplay of social, cultural and economic forces that determine the distribution of power. When it comes to HIV/AIDS, the imbalanced power between women and men in gender relations curtails women’s sexual autonomy and expands male sexual freedom, thereby increasing both genders’ risks and vulnerabilities to this disease (Heise & Elias, 1995; E. Weiss & Gupta, 1998).

Using a feminist approach to theorize gender and sexuality, Gupta (2000) categorized HIV/AIDS programs based on the degree to which the historical power dynamics in gender and sexuality was maintained. The five categories (Table 3.2) range from the most damaging (“stereotypical”) to the most beneficial (“empowering”) in a continuum (Figure 3.2).

Table 3.2: Categories of social construction of gender and sexuality in HIV/AIDS programs (Gupta, 2000)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereotypical</td>
<td>The damaging stereotypes of women and men are reinforced</td>
</tr>
<tr>
<td>Neutral</td>
<td>The target is the general population instead of either gender or sex.</td>
</tr>
<tr>
<td></td>
<td>Despite no harm done and “better than nothing” (p.5), the different</td>
</tr>
<tr>
<td></td>
<td>needs of women and men are ignored.</td>
</tr>
<tr>
<td>Sensitive</td>
<td>The different needs and constraints of individuals based on their gender</td>
</tr>
</tbody>
</table>
and sexuality are recognized and responded to, but little is provided on how to change the old paradigm of imbalanced gender power.

| Transformative | The aim is to transform the imbalanced gender relations within the current system and make them equitable. The major focus is on the redefinition of gender roles at the personal, relationship, community and societal level. |
| Empowering     | The central idea is to “seek to empower women or free women and men from the impact of destructive gender and sexual norms.” (p.6) |

Figure 3.2: Continuum of social construction of gender and sexuality in HIV/AIDS programs (Gupta, 2000)

According to Chong and Kvasny (2007), Gupta’s (2000) framework can be used as a lens to examine and unpack how gender and sexuality are socially constructed in the HIV/AIDS discourse, how HIV/AIDS gains its social meanings at the intersection of the discourse about gender and sexuality, as well as to what degree women are empowered.

For example, Myrick (1999) extensively analyzed 47 Public Service Announcements (PSAs) on HIV/AIDS that were produced for TV by CDC, the largest distributor of HIV/AIDS prevention information in the U.S. Charlesworth (2003) examined 45 HIV/AIDS public education brochures targeted to women that were produced by both public and private organizations. Both of these researchers found that women were frequently represented as transmitters of HIV/AIDS who passed the virus to their innocent and unsuspecting male partners, thus were held primarily responsible for their own victimization as well as HIV/AIDS prevention. However, the primary means by which women were infected in the first place were largely ignored, i.e. unprotected
sexual contact with men who were already infected with HIV/AIDS. Sometimes women were even claimed to be able to infect men just as easily as men could infect women. In fact, medical research has consistently demonstrated that women are 8-17 times more likely to be infected by men than the other way around in heterosexual contacts (Padian et al., 1997). In all, significantly less rhetoric was disseminated to address the sexual practices of the male partners. The role heterosexual men played in HIV/AIDS prevention was omitted or de-stressed (Charlesworth, 2003).

The construction of gender and sexuality in such HIV/AIDS discourse can be categorized as stereotypical according to Gupta’s (2000) framework. It can be seen that, by rendering absent the role of heterosexual men and ignoring their complicity in the HIV/AIDS epidemic, such discourse allows blames to be disproportionately attributed to women, and privileged positions to be unfairly designated to their male partners. Thus, such discourse identifies with and reinforces the ideology of patriarchy, and helps maintain gendered power relations that disadvantage women (Charlesworth, 2003; Chong & Kvasny, 2007).

The findings of Myrick (1999) and Charlesworth (2003)’s research also exemplify the transformational and empowering construction of gender and sexuality in the HIV/AIDS discourse. Myrick (1999) found that the PSAs on HIV/AIDS emphasized positive behavioral strategies and avoided mere appeals, and thus depicted a more progressive representation of women as having more power in HIV/AIDS prevention. Charlesworth (2003) found in one of the HIV/AIDS public education brochures targeted to women that women were encouraged to subvert the patriarchal ideology through taking control of their own lives and worrying about themselves instead of those they had to care for.

According to Chong and Kvasny (2007), using Gupta’s (2000) framework to examine the social construction of gender and sexuality in the HIV/AIDS discourse is important for three reasons. First, in health communication, representations of the target population could affect their
self-perceptions of their risks for HIV/AIDS and their ability to respond effectively to HIV/AIDS prevention (Cline & N. McKenzie, 1996a). Empowering and culturally relevant representations could provide them with a sense of control over HIV/AIDS prevention behaviors, while negative representations could decrease this sense of power (Cline & N. McKenzie, 1996a; C. Patton, 1993). Their sense of power, community, and self-worth, in turn, could greatly affect their ability to change the behaviors that put them at risk (E. Rogers et al., 1995), as well as the likelihood to achieve effectiveness in alleviating the HIV/AIDS crisis facing women.

Second, women may constantly compare with their own understandings of the values, beliefs and norms concerning gender and sexuality that the HIV/AIDS discourse transmits and exchanges (R. Jackson, Warren, Pitts, & K. Wilson, 2007). If the representations of gender and sexuality in the HIV/AIDS discourse are in conflict with how they perceive themselves, dissatisfaction and mistrust may arise (Kretchmer & Carveth, 2001; Lazarus & Mora, 2000). Eventually, they may resist the HIV/AIDS information available to them (S. Foster, 2000; Mitra & E. Watts, 2002). In other words, if the HIV/AIDS discourse fails to align with women’s social allegiances and their established attitudes and beliefs, they may not heed such information and thus continue to put themselves at risk for HIV/AIDS.

Third, the challenges women are faced with in the HIV/AIDS epidemic and how HIV/AIDS discourse could be potentially damaging to them need to be brought to the attention of the public. Efforts could then be made towards generating HIV/AIDS discourse that is more empowering to women. Such empowering HIV/AIDS discourse could play a vital role in combating the HIV/AIDS crisis among them.
Ideological reproduction on the Web

The socially constructed reality encompasses virtually everything surrounding us, both concrete and intangible. Technologies are no exception. Although technologies *per se* are innocent and neutral, once they are created and used in the modern capitalist society, they bear values and goals of their creators and serve as their means to control, dominate, enslave and suppress people (T. Harrison & Zappen, 2003; Marcuse, 1969). The result is totalitarianism or a “one-dimensional society”, where criticisms from the general public are largely absent (Marcuse, 1969, p. 56).

Social construction is salient with information technologies. They are embedded with ideologies of their designers, and used by those in power to convey meanings of power relations and help maintain their dominating status through privileging certain information (Gudykunst, 2005; Kolko, 2000; Salinas, 2006). For example, according to Gudykunst (2005) and Kolko (2000), when designing the interface of an information technology, designers usually have in mind beforehand identities of the potential users, who are often not diverse. Designers do not tend to acknowledge the perspectives that other users might bring to their interactions with the interface. As a result, the design of the interface is limited not only by the versions of race, gender and class that the designers are familiar with, but also by the designers’ imaginations or presumptions of what users might want to see and what kind of interactions they might want to have. In this way, the interface marginalizes other users by only reflecting certain ideologies.

The Web as one of the most popular information technologies is also socially constructed. Since the information that used to be for the exclusive use of the experts can now be accessed and used by ordinary people regardless of their demographic characteristics (Ferguson, 1996; Fox & Rainie, 2000; Parr, 2002), the Web is often believed to have fostered democracy and participation in the social progress, and have transformed the socio-economic landscape by
making it more socially inclusive, empowering, and emancipatory than any other mass medium could have (M. Brodie et al., 2000; Cheung, 2000; P. Evans & Wurster, 2000; Gibbons, 2005; Light, 2001; Zarcadoolas, Blanco, Boyer, & Pleasant, 2002). In healthcare, the Web is believed to have brought equality through disseminating health information among traditionally underrepresented consumers (M. Brodie et al., 2000; Zarcadoolas et al., 2002).

However, unlike what some people believe to be cyberutopia, inherently democratic, or color-blind, the Web has been around long enough for its design to become political (Nakamura, 2002). In other words, since the Web still exists in the political economy of the modern society, the dominant groups could easily extend their power to this new realm (S. Hall, 1982; S. Hall, Critcher, Jefferson, Clarke, & Roberts, 1978). As a result, the Web as characterized by social inequalities is still a product of social construction, reproducing and disseminating the existing ideologies that are found in the traditional media, such as norms, rules, attitudes and power relations (Brock, 2005; D. Miller & Slater, 2000). In other words, since the Web “happen(s) within mundane social structures and relations” and is “continuous with and embedded in other social spaces”, it “may transform but…cannot escape into a self-enclosed cyberian apartness” (D. Miller & Slater, 2000, para. 5). The cyberspace is still “enforced and informed by dominant ideologies”, thus is still as hegemonic as in the offline world (Nakamura, 2002, p. 135). Nakumara (2002) has used the term “architecture of belief” to signify how designers --- through their choice of keywords, images, language, etc --- create Web interfaces that represent the identities of idealized user populations. Such users are usually White males of upper-middle class (Kvasny, 2002; Salinas, 2006).

In recent years, Web 2.0 technologies that support user-created content such as blogging and social networking are gaining increasing popularity. Users are becoming co-authors of the Web content through providing feedbacks, adding links to new relevant resources, and even making changes to the existing content (Papson, Goldman, & Kersey, 2004). However, although
users now have more freedom to have their own identities and interpretations present online, it does not mean the role of designers as real authors has been blurred or destabilized (Lamb & Poster, 2003) or even has “gone away”, leaving the blog space “a vacuum to be filled by the audience” (Aarseth, 1997, p. 165). It is especially the case with health issues such as HIV/AIDS where credible information matters most and the Web is still an exclusive space for those who are regarded as authoritative experts to express their ideologies (Aarseth, 1997).

According to Rosser (2005), the utopian image of the Web is shared by cyberfeminism, one of the most recent feminist theories. Cyberfeminism examines how information technologies, particularly the Web, “provide avenues to liberate (or oppress) women” and “level the playing ground and open new avenues for job opportunities and creativity for women” (p.17). In cyberfeminism, the virtual world is believed to be completely different from the real world because of its “absence of sexism, racism, and other oppression”, which “will lead to an end to male superiority because women are uniquely suited to life in the digital age” (p.17). Thus, supporters of cyberfeminism have “advocated women’s use of new information and communication technologies of empowerment” (p.17). However, critics of cyberfeminism have pointed out that “the existing elites have struggled to seize control and stabilize the commercial potential of digital technologies, as well as their research and development” (p.18). Thus, these critics doubt that there would be possibilities for social changes in power relations to take place in the cyberspace, even if the constantly changing nature of information technologies has provided such opportunities. As a result, the ideologies surrounding gender and sexuality are still reproduced in the HIV/AIDS discourse on the Web.
Public health communication strategies

Another factor that could cause failure in women’s effort to increase their knowledge about HIV/AIDS prevention through information seeking on government health websites is the public health communication strategy adopted by the website and the resulting relevance women could perceive in the information they find, either to the general situations of women as a group or to the specific situations of women as individuals.

According to Kreuter et al (2000), there are mainly three public health communication strategies, i.e. generic, targeted and tailored public health communication. These three strategies are categorized based on the size of the intended audience and the degree to which audience assessment and messages are individualized (Figure 3.3). The more detailed the collected information about the intended audience is, the more individualized the constructed messages can be.
Figure 3.3: Public health communication strategies

(Kreuter et al., 2000)
Generic public health communication

According to Kreuter et al. (2000), generic public health communication as a traditional strategy targets the general population. Its goal is to provide as much information as possible with one single round of communication. Its assumption is not that people all have the same information needs, but that people can and will find what they need and ignore what they do not need among a large amount of information. This strategy is believed to be most effective since even small changes in people’s behaviors could possibly result in huge transformations in the overall health conditions of the general public (Dutta-Bergman, 2003a; Svenkerud & Singhal, 1998). This strategy is also believed to be cost-efficient since minimum investment of resources is needed to reach the maximum number of people (Guttman, 1997; Strecher, Rimer, & K. D. Monaco, 1989).

However, the different needs of different groups of people, e.g. women and men, are ignored in such a uniform and comprehensive communication strategy (Gupta, 2000; Guttman, 1997; Strecher et al., 1989). As a result, generic public health communication “leads to the Prevention Paradox: ‘A preventive measure which brings much benefit to the population offers little to each participating individual’” (Rose, 1985, p. 38). In addition, when the messages warn everybody of the risk for a disease, people may assume these messages are talking about others rather than themselves. According to singular-distribution theory, people tend to use double standards for themselves and for others when they assess their risks for a disease (Klar, Medding, & Sarel, 1996). They assess others’ risks by using the statistics of infection rates in the general population, while assessing their own risk based on self-perceptions (R.A. Smith & D. Morrison, 2006). In fact, people are often quite “capable of discounting risks and optimistically perceiving themselves as invulnerable to harm” (Freimuth, 1992, p. 101). Furthermore, according to Weinstein (1988), people tend to avoid acknowledging that they are vulnerable to a stigmatized
disease, such as HIV/AIDS, in order to maintain their self-esteem. The more serious the alleged health threat is, the lower they perceive their own risks to be. As a result, generic public health communication could result in people’s less awareness of the health threat and less motivations to take actions to change behaviors. This is especially detrimental to those who are statistically proven to be more vulnerable to this disease than others (DeJong, Wolf, & Austin, 2001).

**Targeted public health communication**

Targeted public health communication is recognized by CDC as the first and foremost national approach to HIV/AIDS prevention (Roper, 1993). It is currently the most common strategy applied in HIV/AIDS prevention education (Dutta-Bergman, 2005; Svenkerud & Singhal, 1998). In targeted public health communication, the aim is to reduce health inequalities among vulnerable populations at the group level through identifying determinants of their vulnerabilities and designing messages accordingly to address these determinants (Airhihenbuwa et al., 2000; Melkote & Muppidi, 1999; Price, 2001; Svenkerud & Singhal, 1998).

However, two shortcomings may weaken the potential efficacy of targeted public health communication in HIV/AIDS prevention. First, a stigmatizing framework for understanding and communicating about HIV/AIDS has already been deeply rooted and well established (Chong & Kvasny, 2007). Thus, people not targeted may feel “threatened not by their own risk behaviors but by the people in the ‘other’ category” (Croteau & S. Morgan, 1989, p. 87). As a result, according to Green (1995), people targeted may be attached with the stigmas associated with HIV/AIDS. They may mentally and emotionally experience such stigmas themselves, and thus regard themselves as responsible for the spread of HIV/AIDS. Their self-esteem and self-efficacy --- two important factors in initiating desired behavioral change --- could be damaged. They may feel offended and become resistant to such communication efforts as well. Such stigmas could
have more negative impacts on them if they happen to have multiple targeted identities, e.g. African American female injection drug users. In this case, they may also feel it hard to find HIV/AIDS prevention information most relevant to them (Taylor-Laybourn & Aggleton, 1992, p. 9) since they may not see themselves belong to any particular targeted group (Gatter, 1995).

Second, according to Croteau and Morgan (1989), targeted public health communication on HIV/AIDS prevention may send the wrong message to those not targeted that they are not at risk for HIV/AIDS. As a result of this false sense of security, they may not even bother to pay attention to the HIV/AIDS prevention information. During the early years of this epidemic, it was the focus on particular groups, instead of individual behavioral change, that contributed to the neglect of the other populations (C. Patton, 1993) and the growing number of HIV/AIDS cases among them (Croteau, Nero, & Prosser, 1993). The truth is that, despite the man-made lines drawn between different groups of people based on their HIV/AIDS risks (Shapiro, 2002), HIV virus does not discriminate; it only cares about what you do, not who you are (DeJong et al., 2001; Heffernan, 2002). It could spread to any population and put anybody at risk (Kinsella, 1989). Nobody could be exempt from contracting this disease (Charlesworth, 2003; P.E. Evans, 1988; Peterson & Martin, 1988). Thus, it should practically be the concern of everybody. In other words, HIV/AIDS “create[s] a unique (if unpleasant) genetic bond between us all, and our ability to pass viruses connects us across space and time, across race, religion, and social class… and yet…we continue to resist these implied connections at our peril” (Shapiro, 2002, p. 2189).

**Tailored public health communication**

In tailored public health communication, messages are customized to each individual’s unique needs and conditions based on the contextual and personal factors that could influence his or her attitude towards the messages, motivation to make behavioral changes as suggested in the
messages, and ability to process the messages (Kreuter et al., 2000; Kreuter, Lezin, & L. W. Green, 1998). Such contextual and personal factors include the individual’s gender, age, literacy level, learning style, preferred media, cultural values, stage of behavioral change, level of self-efficacy, and so on (Bandura, 1986; Prochaska & C. DiClemente, 1983).

Tailored public health communication can be highly effective in health education and promotion in influencing an individual’s “awareness, knowledge, attitude, beliefs or behaviors” (Case, 2002; Kreuter et al., 2000, p. 28; Strecher & Kreuter, 1999). Since individuals could perceive more relevance in the messages especially tailored to them, they would pay more attention to them, and thus be more likely to be persuaded and achieve the desired health outcomes (Kotler & Roberto, 1989; Maibach et al., 1993). This has been proved in empirical studies that compare the effects of tailored public health communication with those of non-tailored or “canned” public health communication on such health topics as smoking cessation (Brennan, Kreuter, Caburnay, & Wilshire, 1998), physical activity (Bull, Kreuter, & Scharff, 1999), mammography (Meldrum et al., 1994), weight control (Kreuter, Bull, Clark, & Oswald, 1999), cholesterol screening (Kreuter & Strecher, 1996), nutrition label reading (Kreuter, Brennan, Lukwago, Scharff, & Wadud, 1997), etc.

Nowadays, information and communication technologies have made possible rapid processing and interpretation of individuals’ responses to assessments, as well as rapid customization of feedback messages (Kreuter et al., 2000; Neuhauser & Kreps, 2003). As a result, tailored public health communication has become increasingly sophisticated, broader reaching, and less expensive (Kreuter, Strecher, & Glassman, 1999). One of the most popular applications of computerized tailoring is the smoking cessation program —— usually composed of assessments, algorithms and feedback protocols —— and their efficacies have been demonstrated by rich evidence (Kreuter, Oswald, Bull, & Clark, 2000; Strecher, Shiffman, & R. West, 2005).
However, although its cost could be lowered by computerization, tailored public health communication is still relatively more expensive to carry out (Kreuter et al., 1999). Besides, tailoring implies self-correction and victim blaming, where individuals alone tend to be held responsible for their own health and the contextual factors tend to be largely ignored (Cohen & Cphen, 1978; Guttman, 1997; Ryan, 1971; Thornton & Kreps, 1993). Although the stronger an individual’s belief is in his or her personal responsibility for a disease, the more motivated he or she is to take preventive actions; such motivation could be easily diminished if the individual is frustrated by the environmental barriers (Quah, 1998).

**Health-related information behavior**

Information behavior is “the totality of human behavior in relation to sources and channels of information, including both active and passive information seeking, and information use” (T. Wilson, 2000, p. 49). It includes all the activities people engage in when identifying their information needs, acquiring such information, and using and transferring it (T. Wilson, 1999). Information seeking behavior is “the purposive seeking for information as a consequence of a need to satisfy some goal” (T. Wilson, 2000, p. 49). The process of information seeking behavior begins with people’s information needs, i.e. people’s recognitions or perceptions that their existing knowledge is not enough to achieve their goals (Case, 2002, p. 5), or that they need to bridge the gap between what they already know and what they need to know in order to solve a problem (Krikelas, 1983). The process of information seeking behavior ends when the perceived knowledge gap is bridged and the state of knowledge is changed (Marchionini, 1995). This is a conscious and purposive sense-making process and effort of inquiry, information acquisition, and learning (Case, 2002; Dervin, 1983; Dervin, Jacobsen, & Nilan, 1982). Information seeking
behavior takes place within context (A. Foster, 2004) and is characterized by negotiation between inquirers’ personal ignorance and the public knowledge (P. Wilson, 1977).

The research focus of information behavior in the health context has been largely on information seeking behavior. Information seeking is believed to play a critical role in people’s health-related information behavior (J. D. Johnson & Meischke, 1993), especially nowadays when “the health consumerism movement has placed responsibility for decision making in the hands of individuals” (Case et al., 2005, pp. 358,359) and “the social norms which cast doctors and public health officials as the brokers of medical information are yielding to an era in which individuals actively seek information” (J. D. Johnson & Meischke, 1991, p. 742).

Except for a few studies on the comprehensive process of information seeking (J. D. Johnson & Meischke, 1993), most of the research in health-related information behavior focuses on isolated stages in the information seeking process as identified by Wilson (1996), including context of information need, activating mechanisms, and intervening variables. From the literature reviewed in the following sub-sections, it can be seen that there is little research specifically dedicated to women’s information behavior on government health websites in the context of HIV/AIDS prevention.

**Context of information need**

Abundant studies on the context of information need have been conducted concerning diseases such as cancer (Andrews, J. D. Johnson, Case, Allard, & Kelly, 2005; Degner et al., 1997; Graydon et al., 1997; J. D. Johnson & Meischke, 1991; Kendall, D. Thompson, & Couldridge, 2004; Pinquart & Duberstein, 2004; Rozmovits & Ziebland, 2004; Rutten, Arora, Bakos, Aziz, & Rowland, 2005; Vries, Mesters, Steeg, & Honing, 2005) and asthma (Raynor, Savage, Knapp, & Henley, 2004). With regard to women, Crawford and Hudson (2003)
conducted a survey of females with epilepsy in the UK to identify their information needs. Bar-Ilan, Shalom, Shoham, Baruchson-Aribib and Getz (2006) investigated women’s different information needs in the different phases of their prolonged efforts to maintain weight. With regard to HIV/AIDS, Kalichman and Belcher (1997) developed “a structure of AIDS knowledge” (p. 281) to identify HIV/AIDS information needs based on topics of questions received by two local AIDS information hotlines that were supposed to satisfy HIV/AIDS information needs of the public (Kalichman, 1996). This structure (Figure 3.4) is composed of three overarching information concepts (“Transmission”, “Disease Processes”, and “Living with HIV”), eleven information domains, and twenty-four information areas. These identified information needs are more comprehensive and systematic than findings from studies which only look at information needs of people living with HIV/AIDS (Hogan & Palmer, 2005).
Figure 3.4: A structure of AIDS knowledge
(Kalichman & Belcher, 1997, pp. 282, 283)
Activating mechanisms

Besides self-efficacy that Johnson, Andrews and Allard (2001) have examined in their research on individuals’ skills to find generic information of cancer, another activating mechanism is anxiety reduction, which could lead to information avoidance.

On the one hand, for people who have a disease, especially a serious one such as cancer, although they may seek information about their illness to reduce uncertainty and the associated anxiety, they may not always want to know everything, e.g. they may seek information on treatment, but may avoid information on prognosis, which could be potentially harmful (Brashers, Goldsmith, & Hsieh, 2002; Leydon et al., 2000; Mishel, 1988, 1990). They “oscillate between the desire for more information and the avoidance of new information” to reduce the anxiety that could arise from the knowledge that their hopes for life are threatened or even destroyed, while hope is “essential for coping” and “the management of chronic illness” (Leydon et al., 2000, pp. 912,913). People may also not want to know everything about the health conditions of those they care about in order to reduce anxiety. For example, people may not want to know the results of genetic testing of their family members (Case et al., 2005). Pregnant women may not want to be told whether the fetus has or is at risk for a disease in order to avoid making difficult decisions concerning abortion (Case et al., 2005; P. McKenzie, 2003).

On the other hand, for people who are “healthy” or “without signs or symptoms of illness” (Brashers et al., 2002, p. 261), they may seek information about risk factors and prevention practices concerning a disease to reduce their anxiety caused by not being certain of how to maintain their good health (Brashers et al., 2002). However, not all people who have received information from a consumer health information service would feel the information has reduced their anxiety about a health concern (Case, 2002; Pifalo, Hollander, Henderson, DeSalvo,
For example, people’s level of anxiety and depression increased in response to the genetic testing for cancer (tests that inform people of their predisposed chances to get cancer, and thus make prevention and treatment more effective) (Brashers et al., 2002; Case et al., 2005; Fanos & J. P. Johnson, 1995). The anxiety level was higher for those who declined to take the tests than those who were tested whatever the results were (Case et al., 2005; Chaliki et al., 1995; Kash et al., 2000; R. Klausner, 1996; Lerman et al., 1999; Lerman, Seay, Balshem, & Audrain, 1995; K.R. Smith & Croyle, 1995).

Preventive health information could also increase people’s anxiety, especially when fear appeals are utilized, because such information could make people realize the unpleasant fact that they are potentially at risk for a disease (Case, 2002; Maslow, 1963) and thus doubt their beliefs about their own health status (Brashers, 2001; Brashers et al., 2002). According to the Extended Parallel Process Model (EPPM), people could be forced to resort to fear-control strategies in order to reduce such anxiety. One “attractive response to threat” they might use is to avoid such potentially threatening information and remain in their current health status (Bandura, 1986, 1977b; Case et al., 2005, p. 359; E. Katz, 1968) as well as “maintain their current state of knowledge or beliefs” (Brashers et al., 2002, p. 259), even if they are aware of their ignorance (Case et al., 2005). Therefore, “strong arousals” sometimes could be less effective than “milder portrayals” in persuading people into practicing health behaviors (Case, 2002; Case et al., 2005, p. 355).

People particularly tend to avoid preventive health information in order to reduce anxiety under three conditions. First, they feel the threat is personally relevant and imminent. For example, they are already suspicious of their risks (Alpert, 2003; Brashers et al., 2002; Brashers et al., 2000; Case et al., 2005; Leydon et al., 2000). Second, they perceive little benefits in the recommended safe practices (Case et al., 2005; J. D. Johnson, 1997; Murray-Johnson et al., 2001). Third, their self-efficacy is limited. For example, since genetic testing for cancer is
involved with a currently incurable and sometimes even unpreventable disease (Alpert, 2003; Case et al., 2005), if people cannot find an effective way to deal with the anxiety such testing results could bring, they may feel that “it does not make much sense to learn more about things over which they have no control” and “searching for information is relatively futile” (Bandura, 1986, 1977b; Case et al., 2005, p. 359; E. Katz, 1968).

**Intervening variables**

Borgers *et al* (1993) and Cameron *et al* (1994) identified obstacles that inhibited patients’ successful information seeking from the doctor. Phillips and Zorn (1994) found that consumers of health information had a problem with accessing the information. One of the hottest topics in intervening variables is information sources or channels, especially those used by women. Feick *et al* (1986) examined how women used different sources of nutrition information. Johnson and Meischke (1991) looked at frequency of women’s using different channels of information on cancer. Nicholson *et al* (2003) found a huge disparity concerning the use of health information resources among adult women of different races after adjusting other demographic characteristics. Sources of HIV/AIDS information have been explored that were used by the female partner of male injection drug users (Krauss *et al*., 1999), Asian-Indian adolescents born in the U.S. whose parents emigrated from India (Bhattacharya, Cleland, & S. Holland, 2000), high school students (Buseh, L. Glass, McElmurry, Mkhabela, & Sukati, 2002; Ndlovu & Sihlangu, 1992), young men (Bradner, Ku, & Lindberg, 2000), etc.
Theoretical framework

Although Rimal and Real’s (2003) Risk Perception Attitude framework emphasizes information seeking as a form of preventive health behaviors, it is limited in guiding this research because it implicitly assumes that information seeking leads to knowledge gain. This assumption is not valid because of the dynamics of information finding and reaction to information as indicated in the literature in website evaluation, cognitive dissonance and selective exposure, social construction of gender and sexuality in the HIV/AIDS discourse, as well as public health communication strategies. Therefore, in building the theoretical framework of this research (Figure 3.5), I added “Information Finding” and “Reaction to Information” to the Risk Perception Attitude framework as two factors that intervene between information seeking and knowledge gain.
Figure 3.5: The theoretical framework
Research questions

Based on the theoretical framework, the overarching research question that informs this research is:

*What are the intervening factors between information seeking and knowledge gain when women look for HIV/AIDS prevention information on government health websites?*

The two lower-level research questions that need to be addressed in order to answer the overarching research question are:

**RQ1:** *What factors influence women’s finding of HIV/AIDS prevention information on government health websites?*

Specifically, this research question aims to find out how website design in information accessibility could influence women’s information finding.

**RQ2:** *What factors influence women’s reactions to the HIV/AIDS prevention information they find on government health websites?*

Specifically, this research question aims to find out (1) how website design in information format and quality could influence women’s reactions; (2) how the way the website socially constructs gender and sexuality in the information women find could influence their reactions; (3) how women’s perceived relevance in the information they find as a result of the public health communication strategies adopted by the website could influence their reactions.

Summary

Information seeking aiming at gaining knowledge is an important form of preventive health behaviors. However, women’s seeking for HIV/AIDS prevention information on
government health website may not necessarily lead to their knowledge gain as a result of information finding and reaction to information. First, women may not be able to find the information because of the website’s poor design in information accessibility. Second, women may not like the information they find because (1) the website’s design in information format and quality is poor; (2) the ideologies on gender and sexuality that are socially constructed in the information are dissonant with their existing cognitions; (3) they do not perceive relevance in the information because of the public health communication strategies adopted by the website. A review of the research on health-related information behavior showed that there were few studies that specifically investigated women’s information behavior on government health websites in the context of HIV/AIDS prevention.

Based on the literature reviewed, I developed the theoretical framework of this research by extending the Rimal and Real’s (2003) Risk Perception Attitude framework. This theoretical framework then informed the construction of the research questions.
Chapter 4

Research Methodology

In this chapter, I explain the approaches and process of the empirical study I conducted with the female participants to investigate the research questions. I discuss (1) the user orientation that emphasizes a qualitative paradigm, as well as the approaches of user oriented research; (2) the process of data collection, including methods, participants, procedures and activities; (3) the process of data analysis, including transcribing and coding; (4) measures for increasing the trustworthiness of this empirical study, i.e. credibility, transferability, dependability and confirmability.

User orientation

User study is one of the most common approaches in library and information science research, serving as the foundation for effective design and delivery of information services (S. Crawford, 1978; Siatri, 1998).

According to Dervin and Nilan (1986), there are two orientations in user study: system orientation and user orientation. In the system orientation, users are believed to be passive (Dervin & Nilan, 1986). The research focus is on users’ external behaviors, which are examined through quantitative methods (Dervin & Nilan, 1986) such as survey (Barrett, 2005). The participants are often anonymous and their involvement is often minimal (Martzoukou, 2004). Therefore, the system-oriented study only describes users’ behaviors on the surface, thus is limited in offering elaborated and comprehensive data about the cognitive and affective
motivations, experiences and processes that could explain users’ external behaviors (Dervin & Nilan, 1986; Newby, 1998).

In the user orientation, on the contrary, users are believed to be active and conscious (Dervin & Nilan, 1986). The research focus is on users’ internal activities, which are examined through qualitative methods (Dervin & Nilan, 1986). According to Denzin and Lincoln (2003), the qualitative paradigm calls for a relativist ontology and a subjectivist epistemology. It is believed in the relativist ontology and the subjectivist epistemology that realities are socially constructed and value-laden, and thus there are more than one reality. Therefore, constrained by both the inquirers and the contexts, inquiries should be “emic”, “idiographic” and “case-based”, instead of “etic” and “nomothetic”. Inquiries should focus on the specifics and details of “how social experience is created and given meaning”, instead of generalizable measurements and relationships between variables in a broad data set (pp.13, 16).

Wilson (1990) believes that qualitative methods are particularly fit for user oriented study because the goal of user oriented study is to design and deliver effective information services based on useful theories on users’ behaviors. The results of this approach could enable better understandings of users. Vakkari’s (2008) review of research in information behavior in recent years shows that the percentage of studies using qualitative methods has been increasing to more than 50 percent. Therefore, this empirical study took the user orientation to guide data collection and analysis to depict a more complete and in-depth picture of women’s information finding and reaction to information on government health websites in the context of HIV/AIDS prevention (Dervin & Nilan, 1986).

According to Sugar (1995), there are four approaches in the user oriented study: cognitive, holistic, action and usability. The cognitive approach focuses on users’ cognitive information needs and processing, while the holistic approach also looks at other influencing factors such as physiological and affective factors. The action approach emphasizes users’ roles
as active participants, thus the important research topics include the language they use, the activities they are engaged in, and the social relationships they have. The usability approach has developed because of the use of information technologies in users’ information seeking. The goal of the usability approach is to create user-friendly systems by having users to complete specific tasks in specific environments in the process of system building and evaluation (DeSouza & Dejean, 2000).

This research is a user-oriented empirical study that employs both the cognitive and the usability approach. These two approaches were chosen because data on women’s information finding and reaction to information online had to be collected both cognitively from the female participants’ mind and behaviorally from their activities in completing information seeking tasks online.

Data collection

Methods

In this empirical study, I used think aloud and structured individual interview to collect data. Such mixed methods allow for triangulation that enables researchers to look at the research problem from multiple perspectives based on a wide coverage of data and to minimize possible deficiencies or limitations inherent in any single approach (Barnes & Vidgen, 2006; Kaplan & Duchon, 1988; Kuzel & Like, 1991). Thus, triangulation could help obtain as “complete, rich, and in-depth data” as possible and add “breadth, depth, and rigor” to the understandings of the complicated phenomenon under study (Barnes & Vidgen, 2006; Branch, 2000, p. 372; Denzin & Lincoln, 1998; Kaplan & Duchon, 1988; Kuzel & Like, 1991).
**Think aloud**

Verbal protocol analysis is a good option for qualitative researchers to collect a rich set of data on the participants’ subjective experiences with the tasks (Branch, 2000; Pressley & Afflerbach, 1995; Wood, 1997), even when the number of participants is small (Holzinger, 2005). It is a method for analyzing spoken language and testing hypothesis through asking the participants to talk aloud continuously to themselves about their thoughts. Researchers usually do not “interrupt unless specifically asked a question by the participants” (Branch, 2000, p. 377; Larkin & Rainard, 1984; Ransdell, 1995).

There are two forms of verbal reports: retrospective and concurrent. Both of them could generate a rich dataset, but they need to be utilized wisely based on the nature of the task.

Retrospective verbal reports or think after gather data after the tasks have been completed on what the participants were thinking or why they were doing what they were doing. Think after should not be used in tasks where the participants are more likely to provide incomplete interpretations because of unreliable memories. Forgetting of details and short-term memory constitute a potential source of error and threaten the research trustworthiness (Kari & Savolainen, 2007; Mahoney, 1997; Warren, 2006).

Concurrent verbal reports or think aloud gather data in real time as the participants are performing tasks in order to identify problems (Holzinger, 2005). This is a powerful way to bring the participants’ ideas into their consciousness and gain insight into their cognitive process when they are solving problems (Branch, 2000; Nielsen, Clemmensen, & Yssing, 2002; Russo, E. Johnson, & Stephens, 1989; Warren, 2006; T. Wilson, 1994). Think aloud should not be used for tasks that involve a high cognitive load on the participants (e.g. new, complicated tasks or tasks performed on systems of which the participants do not have adequate knowledge) (Martzoukou,
2004), or involve information that is difficult to verbalize (e.g. visual information) (Branch, 2000; Ericsson & Simon, 1993).

Compared with think after, think aloud has been more accepted by researchers (Branch, 2000). Since there is almost no gap between the moment the participants are performing an activity and the moment they verbalize their thoughts, the negative effects of short-term memory are minimized. Think aloud could also help the participants concentrate on the tasks (Holzinger, 2005).

Think aloud has been more accepted by researchers also because it could generate the type of data that no other methods could (Branch, 2000). Compared with interview, think aloud could harvest more unanticipated responses. Think aloud invites the participants to talk, rather than leads them to talk. Therefore, think aloud is especially suitable to be used in studies like the current one where there are no hypotheses about the research findings. In addition, compared with interview, think aloud could provide “more concrete and situational information about the research subject” (Kari & Savolainen, 2007, p. 55) because the participants could simply be asked to talk about certain topics (Rozmovits & Ziebland, 2004).

Think aloud is particularly suitable for this empirical study that takes a cognitive approach. Cognitive data can only be inferred instead of directly observed (Belkin & Vickery, 1985; Case, 2002). Thus, cognitive data are more than superficial and straightforward (Robson, 2002). For this empirical study, think aloud could help elicit thoughts from the female participants’ mind and get deeper insights into their thought process when they are completing tasks online. Think aloud is suitable for this empirical study also because the cognitive load on the female participants is expected to be relatively low when they are performing tasks online. As will be mentioned later, the female participants’ computer and Internet surfing skills were expected to be relatively high, and they were expected to be able to read, speak, and write in
English. Besides, the information they would be faced with was expected to be mostly texts, which would make it easier for them to verbalize their thoughts.

In this research, I adopted three strategies to ensure the quality and completion of the data I collected using think aloud. First, I reminded the female participants to think aloud when they failed to do so because of forgetting or reluctance to talk, possible cognitive overload, not being used to or comfortable with talking out their thoughts in front of others, or not being able to express their intuitive thoughts (Birru et al., 2004; Ericsson & Simon, 1993; Kari & Savolainen, 2007; Tombros, Ruthven, & Jose, 2005; Warren, 2006). For example, when I noticed a female participant had been browsing the Web silently without thinking aloud for a while, I said to her, “Could you talk aloud about what you are thinking?” Second, I reminded the female participants of what they should have thought aloud when they failed to do so. For example, when I realized a female participant was simply summarizing the information she was reading while thinking aloud, I said to her, “Could you share your opinions of the information?” Third, I used concurrent probing to supplement think aloud (Tombros et al., 2005). For example, when I heard a female participant was criticizing the information without giving reasons in her thinking aloud, I said to her, “Could you talk about what made you think so?” Nevertheless, I tried to use as little concurrent probing as possible to make the female participants less distracted by forced task switching thus involved and to minimize the excessive cognitive load on them.

**Structured individual interview**

According to Denzin and Lincoln (2003), in structured interview, the same standardized questions in the same order are predetermined for all the participants to answer. The goal is to capture “precise data of a codable nature in order to explain behavior within pre-established categories” (pp.74,75). Compared with structured interview, unstructured interview is an “open-
ended, ethnographic (in-depth) interview” in a looser format (p.74). Its goal is “to understand the complex behavior of members of society without imposing any a priori categorization that may limit the field of inquiry” (p.75).

Since the participants’ responses could be kept more focused in structured interview, I used it in this empirical study to gather the female participants’ general reactions to the HIV/AIDS prevention information on government health websites. Such data are hard to be collected through think aloud. Researchers believe that structured interview is too rigid to allow flexibilities for making necessary adjustments to the interview questions according to the participants’ responses, thus could potentially limit the emergence of variations and new concepts from the data collected (Fontana & J. Frey, 2003; A. Foster, 2004). This shortcoming of structured interview, however, would not threaten the trustworthiness of this empirical study because structured interview only acted as a supplement to think aloud.

Although focus groups could produce data that could not be obtained by means of one-on-one interview (Feltwell & Rees, 2004), individual interview was preferred for this empirical study. Individual interview could help this empirical study make the best of direct, time-constrained interactions with every female participant and obtain more in-depth responses from them (Mahoney, 1997; Warren, 2006). Besides, because of the sensitive nature of HIV/AIDS, the female participants could be hesitant to share as abundant opinions when they were in focus groups as when they were in an individual interview.

Participants

Fallows (2005b) found that women between 18 to 29 years of age who had a college degree or higher were more likely to go online. Valleroy, MacKellar, Karon, Janssen and Hayman (1998) found that young women were more at risk for HIV/AIDS. Therefore, the target
population for recruitment in this empirical study was female university students at least 18 years of age since HIV/AIDS prevention education on government health websites was more relevant to them. Forty female student volunteers on the main campus of a northeastern university in the U.S. were recruited as participants (Eysenbach & Köhler, 2002).

Researchers argue that the presence of users’ task-related information needs that are real, instead of hypothetical or simulated, is central to the user-oriented study on information seeking (Martzoukou, 2004; P. Wang, 1999). In other words, it is only when participants are looking for information they really need, regard information seeking as a personal task, and thus have more interest, stake and motivations can rich data be obtained about how they formulate and satisfy their information needs based on their understandings of what information is necessary to address their information problems (Borlund, 2000; Eysenbach & Köhler, 2002; Martzoukou, 2004; White & Iivonen, 2001).

However, although admittedly important, I do not consider it essential for this empirical study the presence of the female participants’ needs for HIV/AIDS prevention information for three reasons. First, the focus of this research is not on what women need or how they satisfy their information needs, but on how they feel about their information seeking process and the information they find. Second, even for those female participants who may not have the needs for HIV/AIDS prevention information, they could still be more likely to realize their knowledge gaps and be educated if they participate in this empirical study. They are the population that is at more risk. Third, the female participants who may not have the needs for HIV/AIDS prevention information could add diversity to this research. Therefore, there is no need to recruit female participants from the group of women who feel they are at risk for HIV/AIDS and thus need HIV/AIDS prevention information. Thus, there were no screening questions about the female participants’ perceptions of their own risks for HIV/AIDS or their current HIV status.
Since the female participants were recruited exclusively from university students, their computer and Internet surfing skills should be enough for performing basic information seeking tasks online. They should also be able to read, speak and write in English. Therefore, there were no screenings questions about their computer/Internet literacy and the language(s) they spoke.

For the pilot study, four female participants were recruited from my female friends via email through convenience and judgment sampling. They were suitable for the pilot study because their demographics were representative of the target population --- they were from both the majority and minority groups; their ages ranged from 18 to 54 years old; they were either undergraduate or graduate students; they had at least 6-10 years of experience with the computer/Internet; and they were from three different majors. In addition, those female participants who were PhD students were conducting research in a field related to information science. Thus, they were in a especially good position to provide insightful thoughts concerning this study design.

For the full study, thirty-six female participants were recruited. Twenty-one of them were recruited through judgment sampling from students enrolled in three courses and two student organizations related to HIV/AIDS prevention or women’s health, as well as from graduate students enrolled in the graduate student organization. The three courses were retrieved from the university course registration system online. The two student organizations were recommended by the instructor of one of the three courses. I also used the graduate student organization for recruitment because the female participants recruited from the three courses and the two student organizations were mostly undergraduate students.

I first explained this study via email to the instructors or facilitators of the three courses and the coordinators or secretaries of the three student organizations. After obtaining their verbal or written permission regarding recruitment, I sent them the recruitment message. They then distributed it to their students or members via collective email, listserv or newswire.
The other fifteen female participants for the full study were recruited through snowball sampling. I asked the female participants already recruited to identify their female acquaintances who might also be interested in participating into this study, especially those who were minorities (M. Patton, 1990).

Table 4.1 shows a summary of the demographic information of the female participants for the full study. It can be seen that they are quite diversified. They are from different racial/ethnic groups, at different ages, and from different academic, educational or social-economic background. These female participants also have different years of experience with the computer and the Internet. In addition, they attend different courses or organizations. Thus, compared with the female participants recruited from the graduate student organization and those recruited from the female participants’ female acquaintances, those recruited from the three courses and the two student organizations related to HIV/AIDS prevention or women’s health are expected to be more interested in HIV/AIDS information, more enthusiastic about this research topic, more motivated to perform HIV/AIDS related tasks and contribute to this empirical study, and more knowledgable about HIV/AIDS because of the trainings and practices they have (Murray-Johnson et al., 2001; Rosenstock, Strecher, & Becker, 1994; Witte, 2001).

1 None of the female participants are Pacific Islanders and American Indian & Alaska Natives because there are only about fifty Pacific Islanders (0.1%) and fifty-eight American Indian & Alaska Natives (0.2%) where this university is located (U.S. Census Bureau, 2000).
Table 4.1: Demographic information of the female participants for the full study

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>No. (%)</th>
<th>Age</th>
<th>No. (%)</th>
<th>Annual family income</th>
<th>No. of family members</th>
<th>No. (%)</th>
<th>Education level</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian (Not Hispanic/Latina)</td>
<td>24 (66.7)</td>
<td>&lt;18</td>
<td>0</td>
<td>&lt;10,000</td>
<td>≥1</td>
<td>1 (2.9)</td>
<td>Undergraduate or lower</td>
<td>25 (69.4)</td>
</tr>
<tr>
<td>African American/Black (Not Hispanic/Latina)</td>
<td>4 (11.1)</td>
<td>18-24</td>
<td>30 (83.3)</td>
<td>10,000-13,500</td>
<td>≥2</td>
<td>0</td>
<td>Master</td>
<td>2 (5.6)</td>
</tr>
<tr>
<td>Hispanic/Latina (White or Caucasian)</td>
<td>1 (2.8)</td>
<td>25-34</td>
<td>4 (11.1)</td>
<td>13,500-17,000</td>
<td>≥3</td>
<td>0</td>
<td>PhD or higher</td>
<td>9 (25)</td>
</tr>
<tr>
<td>Hispanic/Latina (All other races or multiple races)</td>
<td>3 (8.3)</td>
<td>35-44</td>
<td>2 (5.6)</td>
<td>17,000-20,500</td>
<td>≥4</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>5 (13.9)</td>
<td>45-54</td>
<td>0</td>
<td>20,500-24,000</td>
<td>≥5</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>0</td>
<td>55-64</td>
<td>0</td>
<td>24,000-27,500</td>
<td>≥6</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0</td>
<td>≥65</td>
<td>0</td>
<td>27,500-31,000</td>
<td>≥7</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td></td>
<td></td>
<td>31,000-34,500</td>
<td>≥8</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34,500-38,000</td>
<td>≥9</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>≥38,000</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of experience with the computer/Internet</td>
<td>No. (%)</td>
<td>Course/Organization</td>
<td>No. (%)</td>
<td>College</td>
<td>No. (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 year</td>
<td>0</td>
<td>Course 1</td>
<td>0</td>
<td>Communication</td>
<td>2 (5.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>4 (11.1)</td>
<td>Course 2</td>
<td>2 (5.6)</td>
<td>Health</td>
<td>10 (27.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-10 years</td>
<td>14 (38.9)</td>
<td>Course 3</td>
<td>5 (13.9)</td>
<td>Liberal Arts</td>
<td>12 (33.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15 years</td>
<td>11 (30.6)</td>
<td>Organization 1</td>
<td>9 (25)</td>
<td>Science</td>
<td>5 (13.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20 years</td>
<td>6 (16.7)</td>
<td>Organization 2</td>
<td>3 (8.3)</td>
<td>Education</td>
<td>4 (11.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;20 years</td>
<td>1 (2.8)</td>
<td>Graduate student organization</td>
<td>6 (16.7)</td>
<td>Arts and Architecture</td>
<td>2 (5.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>None of the above</td>
<td>15 (41.7)</td>
<td>Business</td>
<td>1 (2.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not a student of this university</td>
<td>0</td>
<td>Engineering</td>
<td>2 (5.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Therefore, I considered the female participants recruited for this empirical study to be suitable cases to provide in-depth and rich data to help solve the research questions and achieve the research goal (Dhillon, 2007; Mushi, 2004; M. Patton, 1990). Although the purposive sampling methods I used could potentially produce bias and result in less than the most statistically representative sample of the target population (Dhillon, 2007; L. Frey, Botan, & Kreps, 2000; M. Patton, 1990), this shortcoming could be offset to a certain extent by the fact that the female participants were recruited from multiple sources and thus could “offer both typicality and variety” from multiple perspectives in their contributions to this empirical study (Feltwell & Rees, 2004; Pollach, 2003, p. 280; Stake, 1994). Besides, the diversity of the female participants and the relative consistency of themes presented in Chapter 5 “Research Findings” suggested that the findings about the female participants were not isolated (Kendall et al., 2004).

Compared with the sample size of a typical quantitative study, the sample size of this empirical study may be considered to be too small to be statistically representative of the target population, thus could potentially threaten the trustworthiness of the research findings (Kendall et al., 2004). However, according to Morse (1994), sample size in qualitative research is measured by the degree of richness and depth of the data collected, not the number of participants (Warren, 2006). The goal is to obtain rich and in-depth data, not statistical representativeness. How rich the data should be or how much data is sufficient depends on when the data set reaches theoretical saturation --- the point when there begins to appear repetitions in coding and the participants have covered all the possible variations. It can be seen from Chapter 5 “Research Findings” that the sample size of this empirical study has enabled data collection to get closest to theoretical saturation. Besides, a relatively small sample size is common for qualitative studies on information behavior online. For example, Tombros, Ruthven, and Jose (2005) recruited twenty-four participants. Sandvig and Bajwa (2004) had forty-eight participants. Eysenbach and Kohler
(2002) recruited thirty-two participants. Therefore, I considered forty participants for this empirical study to be acceptable.

**Procedures**

This empirical study was approved by the university’s office of research protections (IRB# 27112; Expire 10/30/2010). The fieldwork took place in a small collaborative room (reserved for the exclusive use of the research center that I belonged to) in the building where my office was located. The fieldwork lasted for more than two and a half months from February 12, 2008 to April 29, 2008.

When the female participants arrived individually at different scheduled times, I asked them to sit at a round table with me. My laptop with a mouse was placed on the table for their use. I first asked them to read the Informed Consent Form. Specified in this form were what they were expected to do in general, the risks involved in participating in this study, how their privacy and confidentiality would be protected, how they would benefit from participating in this study, and how they would be paid. After I made sure they understood everything in this form, I asked them to sign on two copies: one for their records and one for mine. I then described to them the study procedures and activities in general as well as anticipations from them, and handed them the task sheet. I encouraged them to ask questions whenever they felt necessary during the session. I read aloud the instruction for each task before it began and they read along silently.

When the female participants were performing the activities, I listened and observed without any interruption for most of the time unless I needed to remind them to think aloud, remind them of what they should have thought aloud, or ask them probing questions. I used a screen capturing software *Screen Recording Expert 7.5* (a small application free for download and use that could synchronize video and audio) to record in the format of video clips their online
movements (mouse and keyboard) together with the computer screen and sound, as well as their think alouds and verbal interactions with me. I also used an audio recording software *Audio Recording Wizard (ARW)* (a small application free for download and use) simultaneously as a backup during the entirety of each session.

After the female participants completed the activities, I handed them a paper form for them to fill out their demographic information, including race/ethnicity, age, annual family income, number of family members, years of experience with the computer/Internet, education level, major, and course(s) or organization(s) they were enrolled in.

For the pilot study, after the female participants completed all the procedures and activities, I asked them to comment on the study design and make suggestions for improvement. After each session of the pilot study, I transcribed, organized and analyzed the data collected, and modified the data collection instruments and techniques accordingly in an ongoing process. The modifications were also made based on my own comments and suggestions. I sent the main modifications to the Office of Research Protection for review. No more female participants were recruited for the full study until the modifications were approved. The modified task sheet for the reference of the female participants and the demographic information form used in the full study are in Appendix A. The modified scripts used for my own reference in the full study are in Appendix B.

The female participants for the pilot study received a small ornamental gift worth approximately one dollar as a token of appreciation for their participation. The female participants for the full study received twenty dollars in cash as compensation for their participation. Since the money came from the research funding of my dissertation adviser, I asked the female participants to fill out name, university ID number, and amount of money received in a payment confirmation form on paper, and sign and date on it as well. As an indication of receipt of payment, this form could be used for appropriate audit in the future.
As required by the Office of Research Protection, the female participants were told in the recruitment document and the Informed Consent Form that each session of this empirical study would last 45-60 minutes. In fact, I did not set any time limit for the online activities, but explicitly told the female participants to take their time (Eysenbach & Köhler, 2002). It was because no research questions were concerned with examining women’s speed with or their time spent on making cognitive and behavioral responses when performing activities online (Aula & Nordhausen, 2006; Bilal & Kirby, 2002; Kim, 2008; Sandvig & Bajwa, 2004). Therefore, as long as the female participants could keep generating rich data through their behaviors, they could take as long as they need until they themselves judged that they had completed the activities (Tombros et al., 2005). The duration of each session turned out to range from thirty to eighty minutes.

Activities

In each session, I asked the female participants to finish an information seeking task online and an interview. Although nearly half of Internet users’ health information seeking sessions are related to someone else’s health or medical situations (Fox, 2006), I asked the female participants to think about only themselves when completing the activities. It is because this research is focused on health inequality and health education concerning women themselves.

Information seeking task

I asked the female participants to look for HIV/AIDS prevention information targeted to women on the two U.S. government health websites I selected, starting from the homepage. They could search in any way they wanted or felt comfortable with, and use any available tools they found necessary. I also asked them to think aloud at the same time everything occurring in their
mind during the whole process of performing this task, especially their comments on the information seeking process and the information they found. This task was intended to find out female participants’ information finding in order to answer RQ1, and their reactions to the information they found in order to answer RQ2.

According to the report from Pew Internet and American Life (Fallows, 2005b), most of the Internet users interested in health information visit at least two websites in their most recent search sessions and only 22% visit only one website. Therefore, I selected two U.S. government health websites in this empirical study. They were CDC (Center for Disease Control and Prevention) HIV/AIDS (http://www.cdc.gov/hiv/) and Womenshealth.gov (http://womenshealth.gov/). I selected these two websites because they were among the rare U.S. government health websites that were not portals --- websites providing collections of links leading to other websites (e.g. AIDSinfo: http://www.aidsinfo.nih.gov/). Thus, it would be easier for the female participants to focus on the government health websites per se without being distracted. Besides, these two websites had different foci. CDC HIV/AIDS was more focused on HIV/AIDS, while Womenshealth.gov was more focused on women. Both of them, nevertheless, had a separate section of information on women and HIV/AIDS. This feature would help make sure the female participants could find the relevant information.

**Interview**

I asked the female participants to answer two interview questions. First, I asked them about their preferences of the focus of HIV/AIDS prevention information targeted to women on government health websites, i.e. whether the focus should be on the behavioral factors or the contextual factors contributing to women’s vulnerability to HIV/AIDS, or both. Second, I asked the female participants to suggest anything else that was important, but not addressed in the
HIV/AIDS prevention information targeted to women they found on the two U.S. government health websites.

The interview was intended to collect the female participants’ general reactions to the HIV/AIDS prevention information targeted to women on the two U.S. government health websites from the perspective of the factors contributing to women’s vulnerability to HIV/AIDS. Thus, the data collected in the information seeking task that were used to address RQ2 could be enriched and triangulated.

Data analysis

Transcribing

For the video- and audio-taped data collected during the information seeking task, I transcribed them verbatim into a table in a Word file. In this way, I was able to take down both the talking and the female participants’ online movements in the original order. Table 4.2 is a sample of the transcripts.

Table 4.2: Sample of transcripts for the information seeking task

<table>
<thead>
<tr>
<th>CDC HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Movements</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>…</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>Search “HIV women”</td>
</tr>
</tbody>
</table>
come out with first.

<table>
<thead>
<tr>
<th>HIV/AIDS and women/Topics</th>
<th>Prevention Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Women may not earn as much money…” I don’t like that statement. I don’t know about the rest. Let’s see. I don’t know. They are kind of biased statements “women have to find someone to take care of their children…”…</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Women'shealth.gov</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Online Movements</th>
<th>Talking</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Search “HIV/AIDS prevention”</td>
<td></td>
</tr>
<tr>
<td>Best Bets: Women and HIV/AIDS</td>
<td></td>
</tr>
<tr>
<td>Prevention</td>
<td>This should be helpful</td>
</tr>
<tr>
<td>Know your ABCs to prevent HIV</td>
<td>I think talking to your doctor (“See your doctor if you think you have HIV”) is very important…</td>
</tr>
</tbody>
</table>

In the left column, numbers such as “5” are identification codes I assigned to the female participants to protect their privacy (Feltwell & Rees, 2004). Words and phrases in quotes are the keywords the female participants typed in when searching. All the remaining content is links the female participants clicked on. In the right column, the content enclosed in both parentheses and quotes is the information the female participants commented on without reading aloud. I placed such content behind the corresponding comments. The content only enclosed in quotes is the information the female participants read aloud. The content only enclosed in parentheses is what I
said to the female participants. All the remaining content not enclosed in any punctuation marks is the female participants’ think alouds.

For the audio-taped data collected in interviews, I transcribed them verbatim into the same Word file as listening to the audio clips. I clustered the female participants’ responses to the same interview questions. Here is a sample of the transcripts.

**Interview Question 1**

...  
6

*I think it should look at the individual behaviors, maybe state the behaviors that put you at high risk and then give that information...*

7

*I think it’s important to have like on both levels, but on the individual basis, it is important to tell them how they can prevent in themselves. I think it is also important to like inform them how different things in society. (Just inform, but they can’t do anything about it right) no, I don’t think that...*

**Interview Question 2**

5

*I think the most important is what should be addressed and how. Maybe you can ask like how they should state the information...*

6

*I like that having the facilitators, maybe having support groups, so maybe information on where I could find the support groups in that area...*
Coding

Because of the nature of qualitative data, the guiding principle for my data coding was data reduction based on meaningful data sorting and categorization (Denzin & Lincoln, 2003; Miles, 1979). Data reduction allows data to be reformatted into a story or picture that could facilitate drawing conclusions regarding the research problem (Branch, 2000; Huberman & Miles, 1998; Luke, 2000; Mushi, 2004; Taylor, 2001). In order to reduce data, I manually coded them in five phases both deductively by imposing priori codes to the data, and inductively by refining the priori codes based on the themes that emerged from the data (Lincoln & Guba, 1985; W.L. Miller & Crabtree, 1999; Mushi, 2004; Strauss & Corbin, 1998; Warren, 2006).

First, I developed a preliminary coding schema (Appendix C) based on the research questions.

Second, during multiple times of careful line-by-line close reading and analysis of the transcripts (Denzin & Lincoln, 1994; Kendall et al., 2004), I identified and highlighted relevant information units (Feltwell & Rees, 2004; Mushi, 2004; Strauss & Corbin, 1998, 1990) -- “the smallest amount of information that is informative by itself” (Feltwell & Rees, 2004; Vaughn, Schumm, & Sinagub, 1996, p. 106) such as words, phrases, sentences and paragraphs (Lincoln & Guba, 1985; Warren, 2006). At the same time, I labeled the information units identified to map to the two higher-level codes in the literature-driven coding schema, i.e. “information finding” and “reaction to information”.

Third, for the convenience of summarizing research findings, I copied the labeled information units in the transcripts and pasted them into a new table, clustering those with the same higher-level codes while maintaining participant identification codes. I abstracted the information units whenever I saw necessary and replaced the original texts with the abstracts.
Fourth, I microanalyzed each information unit or its abstract in the new table and labeled it again to map to the lower-level codes in the literature-driven coding schema (Mushi, 2004). For information units that I could not map to any of the lower-level codes in the literature-driven coding schema, I assigned either in vivo or in vitro new codes to them based on their themes. In vivo codes are category labels that are the exact terms drawn from the information units (Denzin & Lincoln, 2003; Mushi, 2004; Strauss & Corbin, 1990, 1998). In vivo codes are best at maintaining the authenticity of the original data (Warren, 2006). In vitro codes are category labels that are either paraphrased actual terms drawn from the information units or terms imposed from outside of the information units (Baptiste, 2001; Mushi, 2004). I made decisions on the generation of in vitro codes based on the literature as well as my related knowledge and research experience (Mushi, 2004).

I added the new lower-level codes into the literature-driven coding schema under the corresponding higher-level codes. I modified the new codes throughout the process of data analysis by constantly and iteratively comparing the literature-driven lower-level codes with the new lower-level codes, as well as by re-examining the information units (Lincoln & Guba, 1985; Miles & Hubermann, 1994; Warren, 2006). In this way, the initial literature-driven coding schema was “dynamically extended as new concepts and categories not part of the initial schema emerged” (Joshi & Kuhn, 2007, p. 408), and “developed and refined as the research goes along” (Cohen, Manion, & Morrison, 2002; Denzin & Lincoln, 2003, p. 276; Fielding, 2001; Hummelinck & Pollock, 2006; Strauss, 2003).

Table 4.3 is the final version of the refined coding schema together with the definition of the new codes (highlighted in italic). The codes in the literature-driven coding schema that were not eventually used have been deleted from this table. Appendix D is a sample of the coded transcripts.
Table 4.3: Literature- and data-driven coding schema

<table>
<thead>
<tr>
<th>Higher-level code: Information Finding</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lower-level code</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>Information Accessibility</td>
<td></td>
</tr>
<tr>
<td>• <em>Visibility of Links</em></td>
<td>How visible links are or how easily links can be noticed on the Web page (Sutherland, Wildemuth, Campbell, &amp; Haines, 2005)</td>
</tr>
<tr>
<td>• <em>Retrievability of Links</em></td>
<td>How easily links can retrieved through the local search function or application of a website (Sutherland et al., 2005; R. Wang &amp; Strong, 1996), where keywords entered directly lead to the needed information within the website (Huizingh, 2000)</td>
</tr>
<tr>
<td>• <em>Duplication of Links</em></td>
<td>How many different locations of a website where links leading to the same information are placed (Pollach, 2003)</td>
</tr>
<tr>
<td>• <em>Depth of Links</em></td>
<td>How many links have to be followed on a website before the needed information can be found (Huh &amp; Cude, 2004; P. Moore &amp; Newton, 1998)</td>
</tr>
<tr>
<td>• <em>Name of Links</em></td>
<td>How well named or textually indicated links are</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher-level code: Reaction to Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lower-level code</strong></td>
</tr>
<tr>
<td>Information Format</td>
</tr>
<tr>
<td>• <em>Language</em></td>
</tr>
</tbody>
</table>
- **Interactivity**

- **Media Use**

- **Aesthetics**

| Information Content | The textual, visual and aural messages contained and communicated on the Web (Brashers et al., 2002; Salinas, 2006), including “documents, data, applications, e-services, images, audio and video files…and more” (Rosenfeld & Morville, 2002, p. 219) |

- **Information Quality**
  - Accuracy
  - Coverage
  - Arrangement/Organization
  - **Informability** How new the information is perceived

- **Social Construction**
  - **Availability of alternative strategies** Whether multiple options for HIV/AIDS prevention are provided to women in the information
  - **Availability of how to do** Whether advice on how to overcome the barriers in HIV/AIDS prevention is provided to women in the information
  - **Availability of local services** Whether information on local services is provided to women in the information who need help with HIV/AIDS prevention
  - **Visibility of men** Whether men’s responsibilities in women’s efforts to prevent HIV/AIDS are made salient in the information
- Consistency with reality: How real women’s situations described in the information are

- Perceived Relevance
  - Importance for women to know: How important the information is for women to know
  - Degree of being scary: How scary the information is for women
  - Consistency with the cultural values: How consistent with women’s cultural values the information is
  - To women as a group: Whether the information is specifically designed for women as a group
  - To women as individuals: Whether the information is specifically designed for women as individuals

Lastly, for the convenience of summarizing research findings, for information units labeled with the lower-level code of “information content” in the new table, I further labeled them to map to the list of topics and sub-topics of the HIV/AIDS prevention information targeted to women on CDC HIV/AIDS and Womenshealth.gov (Table 4.4). These topics and sub-topics were the original or paraphrased terms used on these two websites, or terms used in the structure of AIDS knowledge (Figure 3.4). Appendix E shows text examples of these topics and sub-topics.

Table 4.4: Topics and sub-topics of HIV/AIDS prevention information targeted to women

<table>
<thead>
<tr>
<th>Topic</th>
<th>Sub-topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemiological Facts</td>
<td>(None)</td>
</tr>
<tr>
<td>Transmission</td>
<td>• How HIV is and is not spread</td>
</tr>
<tr>
<td></td>
<td>• Share your story</td>
</tr>
</tbody>
</table>
### Prevention Strategies
- ABC (Abstinence, Be faithful, Condom)
- Safer sex
- Male and female condoms
- Talking with the male partner
- Do not
- Injecting drug use
- Myths
- Overall

### Gender-Specific Problems
- Poverty/Low income
- Caregivers
- Lack of education
- Lack of control in relationships
- African American women
- Biological differences
- Overall

| Overall | n/a |

### Research trustworthiness

Qualitative research uses written texts as fundamental data sources for analysis and thus faces the threat of being subjective (Mushi, 2004; R. Rogers, 2004; Scheuer, 2003; Taylor, 2001). Therefore, research trustworthiness is particularly important. According to Denzin and Lincoln (2003) and Guba and Lincoln (1981), the traditional criteria to evaluate trustworthiness of quantitative research are internal validity, external validity, reliability, and objectivity. In qualitative research, the parallel criteria are credibility, transferability, dependability and
confirmability. These criteria are also techniques used in study design to establish or maintain research trustworthiness (Warren, 2006).

Table 4.5 shows the comparison of the evaluation criteria for quantitative and qualitative research, as well as measures I have taken in this qualitative empirical study to increase the research trustworthiness. In the following sub-sections are further details.

Table 4.5: Evaluation criteria and measures to increase the qualitative research trustworthiness

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Quantitative Research</th>
<th>Qualitative Research</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal validity</td>
<td>Credibility</td>
<td></td>
<td>• Triangulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Prolonged engagement in the field</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Peer debriefing</td>
</tr>
<tr>
<td>External validity</td>
<td>Transferability</td>
<td></td>
<td>• Thick description</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Purposive sampling</td>
</tr>
<tr>
<td>Reliability</td>
<td>Dependability</td>
<td></td>
<td>• Thick description</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Careful data management</td>
</tr>
<tr>
<td>Objectivity</td>
<td>Confirmability</td>
<td></td>
<td>• Data audit trail</td>
</tr>
</tbody>
</table>

**Credibility**

Credibility measures the extent to which the research findings match the reality in the participants’ eyes (Barnes & Vidgen, 2006; Guba & Lincoln, 1981). Credibility is usually maintained through researchers’ engagement in the field for an extended period of time, collection of data of various types, and peer debriefing (Denzin & Lincoln, 1994; Lincoln & Guba, 1985; Warren, 2006).
In order to make this qualitative research more credible, I spent two and a half months in the field collecting data. I triangulated or cross validated the data by using multiple types of female participants, data collection methods, data sources, and data formats such as video, audio and interview (Barnes & Vidgen, 2006; Kaplan & Duchon, 1988; Kuzel & Like, 1991; Warren, 2006). I collected data in real time by recording them, thus avoided the potential errors caused by retrospection (Kari, 2004). I told the female participants that there were no right or wrong answers in their responses in order to avoid their attempts to satisfy my expectations. I also tried to avoid giving the female participants any hint or direction, or showing my personal opinions (Fontana & J. Frey, 2003; Rozmovits & Ziebland, 2004). In addition, the color of the links online that had been clicked in previous sessions would change and the keywords that had been entered in previous sessions would automatically show in the search box. Therefore, before each session, I cleared the browsing and searching history so that the female participants would not be influenced by the online activities in the previous session or be given any hint on what to click or what keywords to use.

In data analysis, I repeatedly read the transcripts and returned to them many times to double-check the codes against them before making decisions on coding (Hummelinck & Pollock, 2006; Kari, 2004; Klobas & Clyde, 2000; Mushi, 2004). As Branch (2000) once mentioned, in this “learning process”, “my judgments became increasingly sophisticated as I worked with the data” and the research findings “became increasing explicit as the data collection and analysis continued” (p. 377). I also discussed with colleagues with relevant research experiences, and cross checked and confirmed with them on generation, categorization and interpretation of codes (Denzin & Lincoln, 1994; Lincoln & Guba, 1985; Warren, 2006).

Furthermore, since I coordinated all the data collection sessions and conducted all the data transcribing and coding myself, the potential inconsistencies in research findings across different sessions could be largely avoided (Mahoney, 1997; Warren, 2006).
Transferability

Different from quantitative generalizability, i.e. how much the research findings can be claimed to be generalized to the whole population of interest (A. Foster, 2004; Kari, 2004), transferability in qualitative research measures the extent to which the research findings can be generalized to other contexts (Guba & Lincoln, 1981). Transferability is usually maintained through purposive sampling and thick description (Denzin & Lincoln, 1994; Lincoln & Guba, 1985; Warren, 2006).

In order to make this qualitative research more transferable, I tried to restrict my research findings to the characteristics of the sample (Warren, 2006). I also kept a detailed and thorough record of descriptions of the research settings, assumptions, and participants (A. Foster, 2004; Lincoln & Guba, 1985; Mushi, 2004; M. Patton, 1990; Sanjek, 1990; Warren, 2006).

Dependability

Dependability measures the extent to which similar findings can be consistently observed when a study is conducted with similar participants in similar contexts (Guba & Lincoln, 1981; Warren, 2006). Dependability is usually maintained through careful data management and thick description (Guba & Lincoln, 1981; Warren, 2006).

In order to make this qualitative research more dependable, I transcribed the video and audio clips verbatim, clearly labeled the transcripts, and kept a clear record of the transcripts and stored them in a word file (Warren, 2006). I also kept a detailed record of descriptions of the research procedures and methods (A. Foster, 2004; Lincoln & Guba, 1985; Mushi, 2004; M. Patton, 1990; Sanjek, 1990; Warren, 2006).
Because of the volatile and fluid nature of the Web (Lapinski, 2006; Weare & W. Lin, 2000; Yeung & Lu, 2004b, 2004a) --- one of the main methodological challenges facing Web-based research (E. Green & Witte, 2006), I saved the Web pages of the two U.S. government health websites that contained relevant information to the local hard drive before the empirical study started. Thus, in case of data ambiguity concerning either of these two websites, I could always refer to the saved offline version of the Web pages (Kari, 2004). In addition, these two websites did not undergo any major change during the whole period of my data collection.

**Confirmability**

Confirmability measures the extent to which researchers are aware of and/or provide accounts for personal subjectivity and bias in order for the research findings to be confirmed by other researchers (Guba & Lincoln, 1981). Confirmability is usually maintained through data audit trail (Guba & Lincoln, 1981; Warren, 2006).

In order to make this qualitative research more confirmable, I kept a systematic and accurate record of the audit trail of the data analysis process, including the process of coding data, interpreting data, and developing concepts, categories and excerpts that emerged from the data (Warren, 2006). In addition, I also inserted quotes from the female participants where appropriate in Chapter 5 “Research Findings” (Mushi, 2004).

**Summary**

In this user-oriented empirical study, I took both the cognitive and the usability approach to qualitatively examine women’s information behavior on government health websites in the context of HIV/AIDS prevention. I collected data through think aloud and structured individual
interview from forty demographically diversified female participants I recruited through purposive sampling methods, including convenience, judgment and snowball sampling.

In each session of this empirical study, I asked the female participants to complete an information seeking task online and an interview. In the information seeking task, I asked the female participants to look for HIV/AIDS prevention information targeted to women on the two selected U.S. government health websites, CDC HIV/AIDS and Womenshealth.gov, starting from the homepage. During the interview, I asked the female participants about their general reactions to the HIV/AIDS prevention information targeted to women on government health websites.

After I transcribed the data I collected, I coded the transcripts both deductively by imposing *priori* codes and inductively by refining the *priori* codes based on the themes that emerged from the data. I first developed a literature-driven coding schema and used it to preliminarily code --- at both the higher- and lower-level --- the information units I identified and highlighted during my close readings of the transcripts. I then refined the literature-driven coding schema in an ongoing process as data analysis went along and new codes emerged, until the literature- and data-driven coding schema came into shape and guided the remaining data coding.

Furthermore, I established the trustworthiness of this qualitative empirical study by taking measures to meet the four criteria used for qualitative research: credibility, transferability, dependability and confirmability.
Chapter 5

Research Findings

Based on the two research questions, I present in this chapter the main research findings of this empirical study in two sections: information finding and reaction to information. I have assigned a figure ID number to the screenshot of each relevant Web page of CDC HIV/AIDS and Womenshealth.gov, and placed the screenshots in Appendix F. I have also assigned a label to each specific image of these screenshots that the female participants commented on. Thus, I use such figure ID numbers and labels in this chapter as references. In addition, I insert quotes where appropriate that were representative of the female participants’ comments. Figure 5.1 and Figure 5.2 respectively show the screenshot of the homepage of CDC HIV/AIDS and Womenshealth.gov.
Figure 5.1: Screenshot of CDC HIV/AIDS homepage (February 12, 2008)

Source: http://www.cdc.gov/hiv/
Figure 5.2: Screenshot of Womenshealth.gov homepage (February 12, 2008)

Source: http://womenshealth.gov/
RQ1: Information finding

Information accessibility

In this sub-section, I present the female participants’ comments in the original order of the lower-level codes in the literature- and data-driven coding schema (Table 4.3). In Table 5.1 is a summary of the influencing factors of information accessibility.

Table 5.1: Influencing factors of information accessibility

<table>
<thead>
<tr>
<th>Influencing Factors</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility of Links</td>
<td>Not visible or noticeable enough on the side of the Web page</td>
</tr>
<tr>
<td>Retrievability of Links</td>
<td>Hard to be retrieved through the local search function</td>
</tr>
<tr>
<td>Duplication of Links</td>
<td>Present at only one location on the whole website</td>
</tr>
<tr>
<td>Depth of Links</td>
<td>Far away from the homepage of the website</td>
</tr>
<tr>
<td>Name of links</td>
<td>Not named appropriately based on the actual topic of the information content</td>
</tr>
</tbody>
</table>

Visibility of links

The female participants shared their opinions on the three different locations where the main links of a website are usually placed on the Web page: side, center and top.

Twenty-six female participants liked that all the main links of popular HIV/AIDS topics were listed in the menu bar on the top left side of the Web page on CDC HIV/AIDS. These female participants believed that links there were most noticeable and explicit because people generally tended to look at and click on the links there first when they were on a Web page. In this way, women were offered an easy way of browsing. They might not even have to use the
search function. This design strategy was particularly important considering that women might not know of any other way to get the information they needed. However, two female participants were not used to looking at the side of a Web page for information. As a result, one of them did not even realize there was more information beyond the page she was on because she did not even notice there were links listed on the side.

Seven female participants liked that all the main links were listed at the center of the homepage of Womenshealth.gov. These female participants believed that links there were visible and eye-catching because it was where people would look for information. This design strategy could help women easily know exactly what was on this website and figure out where everything was.

Eight female participants liked that some links, e.g. the search box, were placed at the top of the Web page below the website title on both websites. These female participants believed that links there were visible because it was where people tended to look first when they were on a Web page. Besides, considering that people usually would not want to scroll down to the bottom of a Web page to get the information, this design strategy could help them easily find what they wanted. If they had to scroll all the way to the bottom of a Web page in order to see it all, they might lose confidence in the website’s ability to reach out to them and thus stop reading the Web page half way through.

Retrievability of links

Three female participants liked that it was nice and easy to find HIV/AIDS prevention information targeted to women in the search results that matched their queries entered into the search box. However, eight female participants felt the opposite and were not satisfied with the search results. For example, it was difficult to find information that matched the query “female
and male condoms” on Womenshealth.gov. One of these female participants particularly found it disconcerting that the message “no matches” was shown on the search result page. She commented several times on this that:

> I hate when it says “no matches” found. I feel like punching the computer when that comes up, so I’m like “are you trying to tell me what I’m interested in is not, doesn’t exist?” Like that makes me mad, you know, like, how you are gonna tell me that none of the combination of those words, you know, can be found in your website. Like, you know, because a lot of times when you are searching for things, everybody has a different way of thinking about something, but a really good search box, like I don’t know what technology goes into that, but the good ones are kind of like Google, like they take the combinations of your words and they approximate the different possible things and just give me the possibilities. I know, you know, I can understand if you don’t know exactly what I’m looking for, but I want to see like you are working with me instead of just giving up and saying “no matches” found. So whatever you do, tell the website people don’t do “no matches” found because it makes me feel invalided as a person like I’m stupid or something.

... 

Oh, “no matches”. Well, that really sucks, because you don’t ever want anyone to be in that situation that they type something like that in your search box, and then they don’t get anything. Ok, this page, this website tells me that there is nothing, that they have no information about what women can do to prevent HIV/AIDS. That’s interesting. They didn’t come up with anything! Great, now if I only knew about this website, or somehow I saw something womenshealth.gov and I went there and I looked, I really don’t know whether I can think of [trying] to find something [Participant 33].
Five female participants liked that there was a search box on both websites. These female participants believed that the search box was always helpful for women since they could simply enter their queries in it and see what came up. Some women liked to search this way because they could find what they needed no matter where it was.

Two female participants found the search function of Womenshealth.gov helpful with searching. After they entered their queries and searched, the website provided not only the search results, but also the link “best bets” at the top of the search results that suggested a path that was believed to be able to lead to the best match. However, three female participants did not like the search function of this website. It was still hard to find the needed information even when the link “best bets” was followed. It was also annoying that links of news article titles always came up at the top of the search result page. Furthermore, there were too many search results on one page.

**Duplication of links**

Two female participants suggested it would be good for both websites to place multiple links on different pages that led to the same HIV/AIDS prevention information targeted to women. These female participants believed that the more ways there were to find the same information, the better. Women might not have paid attention to it initially, and multiple duplicate links could help them better remember the information as well.

**Depth of links**

On Womenshealth.gov, twelve female participants commented that this website should have placed a list of diseases, particularly “HIV/AIDS”, on the homepage or within one instead of many clicks from the homepage. Women could then find the link “HIV/AIDS” by simply
browsing the menu on the homepage. They would easily know where to start from when searching HIV/AIDS prevention information. They would not have to go to “Health topics” or use the search box to look further for the link “HIV/AIDS”. In this way, women would not feel it hard to find HIV/AIDS prevention information and would not get confused and give up easily, especially for those who were new to the Internet and did not know how to search. In addition, for women who initially had not intended to look at HIV/AIDS information, they would be more likely to click on HIV/AIDS-related links to have a look and get educated unexpectedly. In all, these female participants believed that HIV/AIDS prevention information targeted to women should not have been hidden away and made seemingly less important while a lot of women were actually infected. Otherwise, when women looked at this website, they might never know HIV/AIDS was such a serious and prevalent disease that threatened women’s health.

Name of links

On Womenshealth.gov, two female participants liked the links in the side menu. The names of these links were simple and easier to understand, and they exactly stood for what the information was about as well. However, one female participant did not like the name of the link “gender-specific problems”. She argued that women might not understand what it meant and it did not sound like targeting to women looking for information for their own use. As a result, women might not want to look at information thus labeled. Another female participant did not like the name of the link “best bets” on the search result page. She found it confusing and suggested it be changed to “best search response”.

On CDC HIV/AIDS, two female participants liked the name of the link “what women can do” because it was straightforward and sounded personal. However, six female participants were confused about the name of the link “prevention challenges”. They argued that, although
this name had the word “prevention”, there was little information about how to prevent on the page this link led to. One of these female participants also pointed out that women might not want to click on this link because its name sounded like targeting to women already infected. In addition, one female participant did not like the name of one of the podcasts “HIV/AIDS prevention among women” on the page “resources”. She found that, although there was the word “prevention” in the name, this podcast did not talk about prevention at all.

**RQ2: Reaction to information**

**Information format**

In this sub-section, I present the female participants’ comments in the original order of the lower-level codes in the literature- and data-driven coding schema (Table 4.3). In Table 5.2 is a summary of the influencing factors of information format.

**Table 5.2: Influencing factors of information format**

<table>
<thead>
<tr>
<th>Influencing Factors</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Language</td>
<td>A lack of information in other languages than English</td>
</tr>
<tr>
<td>- Interactivity</td>
<td>Limited applications of interactive tools, e.g. forums, chat sections, and quizzes</td>
</tr>
<tr>
<td>- Media use</td>
<td>Limited or ineffective applications of the media, e.g. images and audio/video clips</td>
</tr>
<tr>
<td>- Aesthetics</td>
<td>Unattractive or unappealing appearance of the Web page; unfriendly layout of the Web page that makes it hard to read</td>
</tr>
</tbody>
</table>
Language

Two female participants --- one was Latina and the other was Asian --- liked that both websites provided HIV/AIDS prevention information targeted to women in Spanish (“VIH/SIDA en español” on CDC HIV/AIDS and “Recursos en Español” on Womenshealth.gov). These female participants believed that language was important and availability of multiple languages made a website more accessible. However, the Latina female participant was disappointed to find that the information available in Spanish was very limited, although HIV/AIDS was clearly represented as an issue that affected Latina women.

Two female participants --- both were Asian --- were disappointed that neither of the websites provided HIV/AIDS prevention information targeted to women in Chinese. These female participants argued that the Chinese population in the U.S. was growing and this appropriate design might put the Chinese women at risk. One of these female participants did not think low infection rates among the Chinese population in the U.S. meant they should be ignored in HIV/AIDS prevention. She argued that:

What about, well, I guess you don’t need for the other, I was gonna say like “what about Chinese”, but only “0.6” of Asian Pacific Islanders are infected with the disease, but hey, if you are trying to do prevention, you need to reach out to everybody, you can’t just base it on prevalence rates, you have to think about getting the message out, so that nobody will have it if you want it to be zero. So I’m a little disappointed that there are no other languages available...I’m gonna really think that they are not doing that good of a job as far as cultural competency and making sure that everybody in the United States can, you know, will get this information. So yeah, I’m a little disappointed, there are no other ethnic groups, but that’s me [Participant 33].
Interactivity

One female participant liked the link “contact us” on both websites that led to email addresses or forms. She believed this link was helpful because women reading HIV/AIDS prevention information targeted to them might have questions and want to talk to someone, but might not know where to go or have anyone to turn to.

Two female participants suggested both websites enable women to have public discussions on HIV/AIDS prevention in the form of forums, e.g. blogs or message boards. These female participants argued that such forums could not only help women bring up the questions that they were scared to ask, but also let them feel connections with other women and that they were not alone or rare since the questions they had, e.g. those concerning condom use, were shared by other women as well.

Two female participants suggested both websites incorporate such tools as chat sections in their design, e.g. “ask an expert online”. In such chat sections, women could find help with answering their questions and addressing their concerns, e.g. what icebreakers they could use to initiate conversations with their male partner about safe sex. These female participants believed that such chat sections would be especially useful for women who were intimidated by their doctors and thus would not talk to them about certain issues on HIV/AIDS prevention. These women would feel more comfortable talking to experts in a different setting, i.e. on the Internet.

One female participant commented that women should not just be passively told what to do to prevent HIV/AIDS. Tools such as quizzes that could test women’s knowledge and awareness on HIV/AIDS, their own risks, or how to respond to certain situations could be used to engage them in HIV/AIDS prevention efforts that were more active.
**Media use**

One female participant liked that there were graphics on CDC HIV/AIDS that depicted the statistic data of HIV/AIDS infections (Image 1 in Appendix F). She argued that, although possibly a little complex for some women, these graphics were generally helpful for women to have an idea of the trends and patterns of this epidemic, e.g. how the infection rates among women changed over time.

Four female participants liked the images of male and female condoms on Womenshealth.gov (Image 20 in Appendix F). These female participants argued that these images made the website look nice and friendly as well as less stereotypical. More importantly, a lot of women might have never seen female condoms before.

In general, three female participants liked that, on some Web pages of the two websites, there were images that broke up the texts. Similarly, four female participants did not like some of the other Web pages because they were overwhelmed with pure texts but few images. These female participants argued that this design was not user-friendly and would make it hard for women to browse the information. As a result, they may not want to read it any further.

One female participant liked the podcasts on the page of “resources” on CDC HIV/AIDS because they were helpful for women to visualize the information. Two female participants liked the video clip “take time to talk before having sex” on Womenshealth.gov because women would not have to read the texts. In addition, the fact that this video clip showed up surprisingly could make women pay more attention to it.

However, one female participant suggested a video clip showing quick statistical data about the HIV/AIDS epidemic be included on both websites to draw women’s attention. Another female participant did not like the video clip “take time to talk before having sex” on Womenshealth.gov because its voice-over sounded distant and heartless. She mentioned that:
The delivery, like her voice, like she is reading it, you know “take time to talk before having sex”. It doesn’t, you know, it doesn’t really convey how important it is. She sounds like the teacher. It doesn’t make it sound like something you need to do or want to do, you know, like it’s like acknowledging this is really hard and we have to do it anyway. This is something you realize you’ve got to talk about this, you can’t put your life at risk, you know, in this way. It has to be much more urgent and much more personal message, I think, anyway [Participant 32].

In general, one female participant suggested there be more video clips on both websites. She argued that some women might connect better with videos. In addition, they probably would not want to read the texts. They might have read texts all day long for school or work, therefore wanted to look at different things that were more relaxing and entertaining.

**Aesthetics**

On Womenshealth.gov, two female participants liked that the page of “prevention” looked brighter and prettier on the layout. Three female participants liked the pink color of this website because it was helpful to identify that this was a website for women. In addition, one female participant liked that the white background was a good contrast to the texts that were bright blue.

However, two female participants did not like Womenshealth.gov because some of its Web pages looked boring, rather than exciting or attractive. These female participants felt there was nothing that caught their eyes when they were browsing. They argued that this design would make women lose interest and want to quit reading it even if there was what they were looking for. One of these two female participants also argued that the layout of a website was as important
as its information content. A website is similar to a magazine. People would not want to read a magazine if it looked like a journal.

Sixteen female participants liked that important information was bolded or bullet pointed on some of the Web pages of the two websites. These female participants argued that bolding and bulleting points could help divide the information by changing the flow of the texts. Such a more organized and straightforward layout would make it easier for women to browse or skim the information and know what was on the Web page or find specific things they were interested in.

Two female participants liked that the information on some of the Web pages of the two websites was only about one screen long and thus was not hard to read. These female participants were willing to spend more time on such Web pages than on those long ones since they would not want to scroll down to the end of the Web page see it all if just browsing and they hated to feel frustrated in the middle at the amount of information there was left for them to read as well. Similarly, one female participant did not like the information on the page of “prevention” on Womenshealth.gov since it was too long to be included in one screen.

Three female participants liked that the texts on Womenshealth.gov were in larger fonts and thus were more noticeable. These female participants believed that this design would help women easily know what was on a Web page when browsing. On CDC HIV/AIDS, although one female participant liked that the texts were in different fonts, another female participant complained that the texts looked too small.

One female participant liked that there was rich information available on CDC HIV/AIDS. However, three female participants did not like that there was too much information on some of its Web pages or there were too many underlined links. Such heavy texts that overwhelmed the Web pages made these female participants confused about where to go or not want to read them.
Information content

In this sub-section, I present the female participants’ comments in the original order of the topics and sub-topics of HIV/AIDS prevention information targeted to women on the two websites (Table 4.4). Within each sub-topic, I organize the female participants’ comments in the original order of the lower-level codes in the literature- and data-driven coding schema (Table 4.3). In Table 5.3 is a summary of the influencing factors of information quality, social construction, and perceived relevance.

Table 5.3: Influencing factors of information quality, social construction, and perceived relevance

<table>
<thead>
<tr>
<th>Influencing Factors</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Quality</strong></td>
<td></td>
</tr>
<tr>
<td>• Accuracy</td>
<td>Ambiguous or unspecific terms; misrepresentation of the truth</td>
</tr>
<tr>
<td>• Coverage</td>
<td>Inadequate coverage in depth or breadth</td>
</tr>
<tr>
<td>• Arrangement/Organization</td>
<td>Inappropriate mixture of information of different nature</td>
</tr>
<tr>
<td>• Informability</td>
<td>Common sense or well-known facts</td>
</tr>
<tr>
<td><strong>Social Construction</strong></td>
<td></td>
</tr>
<tr>
<td>• Availability of alternative strategies</td>
<td>No alternative HIV/AIDS prevention options provided</td>
</tr>
<tr>
<td>• Availability of how to do</td>
<td>No information provided on how to overcome the social barriers to HIV/AIDS prevention</td>
</tr>
<tr>
<td>• Availability of local services</td>
<td>No mentioning of the local services for HIV/AIDS prevention</td>
</tr>
<tr>
<td>• Visibility of men</td>
<td>Men’s responsibilities in women’s HIV/AIDS prevention rendered invisible</td>
</tr>
<tr>
<td>• Consistency with reality</td>
<td>Descriptions of the social barriers to women’s</td>
</tr>
</tbody>
</table>
### Perceived Relevance

<table>
<thead>
<tr>
<th>Importance for women to know</th>
<th>Not perceived to be directly important to women’s HIV/AIDS prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of being scary</td>
<td>Not perceived to be wise applications of scare tactics</td>
</tr>
<tr>
<td>Consistency with the cultural values</td>
<td>Not perceived to consistent with cultural values</td>
</tr>
<tr>
<td>To women as a group</td>
<td>Not perceived to be relevant to women as a group</td>
</tr>
<tr>
<td>To women as individuals</td>
<td>Not perceived to be relevant to women as individuals</td>
</tr>
</tbody>
</table>

### Epidemiological facts

With regard to the information on epidemiological facts (Figure 1, Figure 4, and Figure 10 in Appendix F), two female participants felt the statement that “younger women are more likely than older women to get HIV” was ambiguous since the age range of the “younger women” was not accurate. These female participants wanted to know exactly how young these infected “younger women” were. Two female participants felt that the meaning of “leading” in “HIV/AIDS is the leading cause of death for African American women aged 25 to 34” was ambiguous. They argued that there were so many other diseases that had been labeled as “the leading cause of death”. It was not clear exactly how deadly HIV/AIDS was compared with these other diseases. In addition, one female participant would like to see explanations on how a disease was quantified as “a common killer”.

One female participant found it contradictory on Womenshealth.gov between its claim based on the epidemiological facts that women were more at risk for HIV/AIDS and what she had noticed in the search results about women. She argued that:

*I just feel like HIV/AIDS is like something that occurs in the gay community and it kind of spreads out, the gay male community, so I really don’t think about HIV/AIDS affecting women, and when I look at this list of search results that kind of reinforce that because, there is, you know, HIV/AIDS doesn’t pop up as one of the prevention, like one of the main things, like, obviously what looks like a trend or a theme here is “violence against women”. It’s obviously a priority in terms of women’s health. So judging by the search results that come up, it kind of gives me an idea what this website considers as priorities for, you know, that topic. What’s the most important, and they don’t really think, I don’t think this website really thinks HIV/AIDS is that important, at least not by the search functions, and just by me like looking things up [Participant 33].*

When it comes to information coverage, one female participant did not think the epidemiological facts were in-depth enough. She believed it would be more helpful for HIV/AIDS prevention if there could be more statistical data on women’s infections. She argued that, if women could realize how serious this disease was, they would be more likely to think of it as a reality.

Twenty-four female participants believed the epidemiological facts on the high probabilities of women being infected with HIV/AIDS were **important for women to know** for prevention. These female participants argued that a lot of women, especially those at risk, might not know how many women were infected. They might not think HIV/AIDS infections could happen this often to women or they themselves might get it someday. Thus, they needed to know how serious and prevalent HIV/AIDS was among women. The epidemiological facts could put them to think, awake them, and make them become more careful and more likely to pay attention
to HIV/AIDS prevention. They would protect themselves better if they realized they could get infected if they chose to engage in risk behaviors. In addition, numbers were helpful. A lot of people felt more comfortable with looking at numbers. They might not want to read the epidemiological facts if there were no statistic data. One of these female participants particularly liked that both websites specified certain minority women who were more affected by HIV/AIDS.

With regard to the **degree of being scary**, one female participant would rather the epidemiological facts to sound even scarier. She suggested that:

> *Like someone designs like this website, let’s say they put, when you go to the homepage, they’ll be like a link, just some very scary statistics, like, there is like “an HIV person gets infected every 20 seconds”, or something, something really quick and short, but it will grab your attention, and you’ll be like, oh, yeah, I think I want to read that, because 20 second is positive and it’s gonna be me* [Participant 37].

However, one female participant did not see it appropriate for a website to stress the epidemiological facts at the beginning. She believed that women might then have the wrong impression that they needed to take actions to prevent HIV/AIDS just because the infection rates among women were increasing, while, in fact, HIV/AIDS prevention was something they had to do to protect themselves no matter what. She argued that:

> *I also realize that even if something has a smaller probability if you are doing prevention, you want to tell people about it anyway. And you don’t want people to say “ok, you can do this because it’s not as that bad” but “don’t do this because this is really bad”. I mean I don’t think you should do that* [Participant 33].

Five female participants argued that the websites should not scare women with the epidemiological facts, especially those who were not that prone to HIV/AIDS. The websites needed to place the emphasis on telling women what to do to prevent since the risk was there, instead of on the number of women infected or how dangerous HIV/AIDS was. Scare tactics
might make women feel like the risk was everywhere and they could not even have sex. Scare tactics might also make them think the information was too extreme to be true, thus disregard it. This was especially the case for African American women since they were more affected. In all, these female participants suggested the websites maintain a balance when applying scare tactics.

**Transmission**

- **How HIV is and is not spread**

  One female participant did not think the information on how HIV is and is not spread (Image 23 in Appendix F) was informative because she had already known about it all. Although she admitted that this could be her own bias and she might not represent other women, she still could not imagine there were still women today who did not know ways to get infected with HIV/AIDS. Six female participants argued that it was important for women to know the risk behaviors for HIV/AIDS transmission. Women might not know this. Such information could not only clear their misconceptions, i.e. how HIV was not spread, but also educate them and help them with behavioral change. If they knew certain behaviors were risky, they would take precautions and avoid engaging in these behaviors or doing whatever they wanted in order to prevent HIV/AIDS. In all, these female participants believed that knowledge about HIV transmission was essential for women and should be what HIV/AIDS prevention information was all about.

- **Share your story**

  One female participant argued that these stories of women on how they were infected with HIV/AIDS (Figure 8 in Appendix F) were important for women to know. She believed
that women would be most touched since they could feel actually seeing the incidents happening when reading such real testimonials of others’ experiences.

**Prevention strategies**

- **ABC (Ablstinence, Be faithful, Condom)**

  Two female participants did not think the information on ABC as a whole (Image 2, Image 6, and Image 16 in Appendix F) was informative because women should have already known about it. Specifically, five female participants mentioned that abstinence was an obvious way to keep safe because it meant refraining from sexual intercourse. One female participant believed that being faithful was common sense. Three female participants found it obvious that the condom was a practical and effective physical means for HIV/AIDS prevention if used properly.

  Eleven female participants generally did not like the information on ABC because it neglected the availability of alternative strategies. They argued that it was “not hitting home”, and, more importantly, it was unrealistic and silly. ABC might only be an effective and useful strategy if it was taught to teenagers in high school. For adults, it was less important than the other more practical prevention strategies. One of these female participants particularly did not like that the information on ABC sounded to be judging what women had been through and what they were doing.

  Specifically, seventeen female participants did not think abstinence would be effective for HIV/AIDS prevention because of two reasons. First, abstinence was easier said than done. The risk for being infected with HIV/AIDS and the benefits of abstinence would not win over sex if women had already chosen to have sex as well as whom to have sex with. They would not tend to think they might get HIV/AIDS. Second, abstinence did not make sense for women looking at
this information because they had not practiced abstinence to begin with and could already be at risk. Therefore, these female participants argued that, compared with asking women to have safe sex, asking them not to have sex because of HIV/AIDS was a ridiculous, unrealistic and impractical strategy and expectation in most cases. The information on abstinence was not going to help them because they would not pay attention to it and stop having sex, especially for young women who were more at risk or those whose male partner did not enjoy abstinence. They might even be annoyed, turned away from the website, or put on defense. Thus, although it was the government policy to have abstinence included in sex education in order to get funding, abstinence should not be taught to women as the best thing for them to do to prevent HIV/AIDS, while what they wanted to know was how to prevent if they did or were going to have sex.

Thus, these female participants suggested the websites recognize women’s lifestyle choices, and the fact that some women believed abstinence was a better option, while others believed it was not even an option. The websites should make it clear that abstinence was just one option or one way of going about preventing HIV/AIDS, and provide detailed information to them on what else to do for HIV/AIDS prevention when abstinence was not an available option for them. This was a more practical and important prevention strategy. These female participants also suggested the websites at least present the information on abstinence in an objective, instead of condescending way that sounded like “do not have sex”. The websites should also make such information less of the main focus by placing it at the bottom of the page instead of the top. Alternatively, the websites could at least target abstinence promotion to the right audience, i.e. teenagers in high school who were going to have sex and thus should practice abstinence, instead of adults.

Nine female participants argued that being faithful was simplistic, assumptive and “cheesy”, and was not the best way for HIV/AIDS prevention for three reasons. First, even if women had only one male partner, this male partner might already have HIV/AIDS and had not
been tested. Second, even if women were able to be faithful, they could never be completely sure about their male partner. He might not necessarily be faithful even if he said so. As a result, women might feel powerless because they had no control. Third, even in a monogamous relationship, some women might find it hard to be faithful. One of these female participants put her argument in the context of today’s transitioning society and maintained that:

_I think in today’s society, it is like we are at a point of time where there is like transitioning. You have very liberal feminists who super express their sexuality. They choose to be promiscuous because that’s how they express themselves. That’s completely fine. Then you have all these other women who identify better with the traditional role. The society is still transitioning; they don’t really know how to react to either. I guess the society is more comfortable with the traditional roles of women, though. I think there are still huge like prejudices out there to women who choose to live a lifestyle. They have sex with people. That’s their choice. I don’t know how the website would address it...I think it’s very assumptive. Like I said, there are women on both ends of the spectrum_

[Participant 5].

In all, these female participants maintained that, since being faithful might not always be helpful, the websites should not focus on it in HIV/AIDS prevention information. It was more important for the websites to give every woman an option by telling them what to do to prevent HIV/AIDS if they did or were going to have more than one male partner. Otherwise, women who would not want to have just one male partner might be offended, feel being judged, and thus click out of the website and not want to look at the information, as one of these female participants argued that:

_I know I am young, I am not probably going to you know just marry. I will probably be with more than one person. I will feel offended by reading it. I don’t feel like I am being a bad person, you know what I am saying, or not doing anything or not protecting_
myself...I mean I don’t think it’s the best way to do it. No. I am not that impressed [Participant 16].

Nine female participants believed that condom use was less important than abstinence because of the three concerns they showed about condoms. First, it was important for women to know that condoms were not as 100 percent effective or reliable for HIV/AIDS prevention as abstinence because they did break. In other words, condoms did not always work and women needed to be careful with them. Second, when women were having sex under influence, their mind could be so clouded that they might not think clearly and make the right decisions as to what to do, thus might not necessarily remember to use condoms. Third, whether or not to use condoms was not always what women could choose.

Fourteen female participants in general believed that the information on ABC was **important for women to know.** They liked that it was easy to follow and generally accepted. More importantly, these female participants liked that it covered all the main points for HIV/AIDS prevention, thus could help women reduce their risks and keep safe. Therefore, considering that HIV/AIDS was such a serious disease, these female participants believed that ABC was a good prevention strategy for all women to take. One of these female participant also suggested CDC HIV/AIDS move the information on ABC upward from the end of the page “what women can do” so that women did not have to scroll all the way down to see it. Another female participant even believed that it was important for every government website to put the information on ABC at the front so as to have a better impact on women.

Specifically, eleven female participants argued that abstinence, as the only 100 percent effective method or the best way for HIV/AIDS prevention, was a good and important choice for women. One of these female participants particularly mentioned that abstinence was good for women who were not having sex to know because they would think about practicing abstinence if they knew they might get HIV/AIDS. Abstinence was also good for women who were already
having sex to know because they would then realize that they could choose to be abstinent. Another of these female participants even suggested the websites put abstinence at the very front and repeat it multiple times.

Seven female participants agreed with the information on being faithful and believed it was important for the websites to highlight it. These female participants argued that women were obviously put at risk for HIV/AIDS by those they had sex with, and thus being faithful could reduce their risks.

Regarding the information on condoms, twenty-one female participants argued that telling women who were going to have sex what to do for HIV/AIDS prevention was more realistic than asking them to be abstinent, and was the most effective tool in the long run in reducing their risks and saving their lives. Therefore, it was important for women to know the benefits of condoms and remember to use them all the time to keep safe regardless of whether or not their male partner was already infected or how many male partners they had. No one could ever be sure about their risks and everyone was at risk in every sexual act even in a monogamous relationship. These were also reasons why these female participants preferred to see condom use stressed as the first priority on the websites.

Five female participants commented that the information on ABC would not be effective because it was not consistent with the cultural values in which they were born and raised. For example, advocating abstinence in today’s society in the U.S. was ridiculous at least for adults because they did not practice abstinence to maintain relationships. It was also not good to emphasize being faithful because it was hard to work. Sex was knowingly natural, and women today were having multiple male partners and doing anything they wanted about sex regardless of being seen as bad women for doing that. For Hispanic women, advocating using condoms for HIV/AIDS prevention would not work because birth control was not allowed in their culture. As a result, they might not want to use condoms.
• Safer sex

When it comes to information coverage, eleven female participants did not think the information on safer sex (Image 4 and Image 17 in Appendix F) was in-depth enough for the benefit of HIV/AIDS prevention. They argued that it was more important to mention or even make prominent the reasons why some women did not like using condoms, as well as the extra benefits of condom use besides HIV/AIDS prevention, e.g. enhancement of sexual pleasure. If women were made aware of these facts, their worries that condoms could interfere with sexual pleasure would be eliminated and they would be persuaded to use condoms. This was also a form of prevention strategy. These female participants suggested the extra benefits of condoms be presented as “there were a lot of different types of condoms as available options nowadays”, “condoms could not only prevent HIV/AIDS, but also could be fun”, “HIV/AIDS prevention did not necessarily mean women could not have sex, but that they could enjoy sex and be safe at the same time”, “using condoms was less of a medical necessity, but more of an everyday thing women would like to do”, etc.

Two female participants commented on the information on safer sex from the perspective of the availability of how to do. These female participants argued it was not enough or pointless just telling women to “use a latex condom” every time they had sex. Using condoms was not as easy for women to do if their male partner said “no”. Therefore, there should be information on how to increase women’s power in relationships or how to overcome gender inequalities.

Four female participants suggested the websites should increase the visibility of men and target the information on safer sex not only to women, but also to men. These female participants argued that both women and men might not like condoms because of the feelings. It was often men, especially young men, who did not want to use condoms, instead of that women did not want them to use. Thus, men needed to be educated, too.
- **Male and female condoms**

Six female participants were not satisfied with the coverage of the information on female condoms (Image 21 in Appendix F), and suggested the website provide more details. For example, why women should use female condoms instead of male condoms for HIV/AIDS prevention given the higher price of female condoms; what the advantages and benefits of female condoms had; how effective female condoms were considering that the general statistics about condom effectiveness were only based on male condoms; what was the most effective way of putting on and using female condoms; where women could get female condoms; how much female condoms cost, etc. Women might not know such information although they might already be aware that female condoms could prevent HIV/AIDS.

Two female participants preferred to see more **visibility of men**. They believed that it would still take two people to decide whether or not to use female condoms. In other words, it still depended on whether or not men were willing to use female condoms. If men did not want to use them, women might still be afraid to put them on.

Nine female participants believed the information on the technical use of male and female condoms was **important for women to know**. These female participants argued that skills on the proper use of condoms were important for HIV/AIDS prevention and some women might not know them. For example, some women might think putting on both of these two kinds of condoms simultaneously was more helpful, but might not know that it could actually put them more at risk. Five female participants believed that it was especially important for the websites to provide information on female condoms. These female participants argued that women needed to have condoms at their own disposal for HIV/AIDS prevention, too. A lot of women might not know female condoms were great for HIV/AIDS prevention, or female condoms could help them take their sexuality into their own hands so that they did not have to wait and rely on men to use condoms for protection and they could be ready themselves. Four of these female participants also
pointed out that it was important for the website to provide information on how to properly use female condoms, e.g. female condoms could be put on “8 hours before sexual intercourse”.

Women might need to know this or might need help with this.

- **Talking with the male partner**

  Nineteen female participants commented on the information on talking with the male partner (Image 3 and Image 19 in Appendix F) from the perspective of the availability of how to do. They did not think simply suggesting talking with the male partner about HIV/AIDS status, past behaviors, or safe sex was adequate or practical for women to prevent HIV/AIDS if there was nothing about how to talk assertively and nicely, but only the necessities to talk. These female participants argued that women online could be in a relationship where they did not know how to talk, although they felt the pressure to do so after reading this information. They might not be strong or confident enough to talk to their dominating male partner because of the problems that talking might cause, e.g. mistrust in relationship, men were triggered to seek unprotected sex outside of the relationship, women were accused of doing the same thing, etc. Women could be particularly afraid to talk when they knew their male partner had been infected with HIV/AIDS, or when women were at the early stage of a relationship where they cared about their male partner’s reactions very much. Sometimes, talking might only work when women were in healthy relationships where both parties trusted each other’s motivations; otherwise, even if women asked, men could still lie. One of these female participants particularly found it sound contradictive and odd that the websites already talked about women typically being less likely or scared to talk to their male partner about safe sex or to refuse to have sex without condoms, but at the same time told women they should do so for each sexual contact. She wondered how women could possibly do this then.

  Therefore, these female participants believed that it was more important for the websites to make talking an easier thing for women to do by providing them with tips or skills on how to
talk, how to deal with self-esteem, and how to take control in sexual relationships. Women could have more confidence if they clearly knew what topics they could use to bring up the issue of condom use and what approaches they could take to start a conversation. As a result, women could have an open relationship where both parts were on the same page about the importance of safe sex, and thus keep themselves safe.

One female participant believed that, considering the importance of talking with the male partner, it was not enough to just tell women this information, but also men. She suggested more visibility of men that:

Not only the prevention behavior is a burden, should be a burden on women, you know, because ideally the point is to have everybody be involved in prevention behaviors like that, think about, you know, how important it is to talk about that. That should public service campaign for everybody, so that men are also just as disposed to talking about it with their partners, you know, and so ideally will get to the point where no one is like having to say, you know, we need to talk about this and having to be like, oh, you know, it’s gonna be bad, they are gonna resist. It’s just something that’s naturally occurring that no one question that this is, we talk about this, you know, which is kind of starting to happen [Participant 32].

Generally, one female participant liked that the websites called on women to talk when they felt they were placed at risk for HIV/AIDS. She believed that it was important for women to know they were entitled to protecting their own body.

Specifically, three female participants believed it was important for women to talk to their male partner and find out about his HIV/AIDS status before having sex so as to make sure he had been tested, especially when he did not know his own status and might accidentally transmit the virus to women. Therefore, these female participants appreciated that the websites reminded women to do such a simple thing.
Three female participants believed it was important for women to talk to their male partner about his past behaviors or sexual background. Women could then decide whether or not to have sex with him and how careful they had to be.

Seven female participants believed it was important for women to talk to their male partner about safe sex before having sex or even before being in the mood of sex since it might color their conversation. These female participants argued that not every woman was aware they needed to talk, thus educating them on this was helpful for them to prevent HIV/AIDS. If women were not assertive enough to tell their male partner that they needed to use condoms and condoms were helpful for HIV/AIDS prevention, they might put themselves at risk. In all, these female participants liked that the websites asked women to talk to their male partner about safe sex.

- **Do not**

With regard to the information on “Do not” (Image 7 and Image 18 in Appendix F), one female participant found the information on N-9 was not **accurate**. She argued that:

*With the N-9 here, it just doesn’t make sense, like the government knows it’s a huge problem, so why would they allow companies to use that in the contraceptive if they know it makes it easier to get HIV when you are using it. I mean they forbid all kinds of things from going into food and other products that would be put on the market, so why wouldn’t they forbid that from being put into contraceptives when it makes you more liable to get a deadly virus…it seems kind of illogical to make something that’s spermicidal but can make it easier for you to get HIV [Participant 27]*.

When it comes to information **coverage**, eight female participants did not think the information on N-9 was in-depth. They argued that the websites should provide more explanations on, e.g. what N-9 was, whether it was a spermicide or not, why it would not protect women from HIV/AIDS or why it should not be used for HIV/AIDS prevention, and how to pronounce this difficult word “nonoxynol”.
One female participant commented that the information on “do not” as a whole was **informative** because it was not the regular ways for HIV/AIDS prevention that women normally heard about. Another female participant specifically mentioned that the information on douching and technical condom use, e.g. water-based lubricants and N-9, was less obvious. However, four female participants believed that women today should have already known that they should not use other birth control methods for HIV/AIDS prevention. They would not confuse other birth control methods with condoms just because condoms could prevent both pregnancy and HIV/AIDS. Therefore, there was no need for the websites to even put on such information.

Two female participants believed this information on “do not” as a whole was **important for women to know**. However, another female participant commented that the website was impractical since it sounded too negative by saying “don’t do this” and “don’t do that”. The fact was that the real world was just how it was.

Specifically, six female participants believed it was important for the websites to let women know about birth control methods, especially the specific ones that did not protect them from HIV/AIDS. These female participants argued that some women, especially those with limited education, might not know about them. They might think any birth control method could cover for everything including HIV/AIDS prevention, and might not know they still needed other methods, such as condoms, in order to keep safe.

Two female participants maintained that it was necessary for the websites to tell women not to douche. Three female participants commented that it was important for the websites to mention the facts about N-9 since a lot of women might not know about it. One of these female participants also mentioned that women might be challenged in this respect because they might think they could use spermicides to prevent HIV/AIDS without having to discuss it with their male partner, but might not be aware that they could actually put themselves more at risk.
Five female participants commented that it was important for the websites to explain water-based lubricants since some women might not know oil-based lubricants could do damage to condoms. One of these female participants also mentioned that parents usually did not talk about such things.

- **Injecting drug use**

  With regard to the information on injecting drug use (Image 5 and Image 22 in Appendix F), one female participant thought it was **accurate**. It was only when sharing “unclean needles” or sharing needles with those who already had HIV/AIDS, not just sharing needles, could people get infected. Another female participant found it made sense that “drugs also cloud your mind” and “result in riskier sex”.

  Two female participants found it obvious that women should “stop using and injecting drugs” and they should have already known about it. Likewise, one female participant found it common sense and not **informative** that women should not “share needles”. One female participant believed that women should have already known what to do for HIV/AIDS prevention if using needles.

  Three female participants commented on the information on injecting drug use from the perspective of the **availability of alternative strategies**. These female participants did not think it would work or helpful for the websites to ask these women to change their lifestyles and tell them what to do to stop injecting drugs just for the sake of HIV/AIDS prevention. These female participants argued that these women might still ignore this prevention strategy even if, after reading it, they became aware that they might get HIV/AIDS from injecting drugs and to stop injecting drugs was the best way for them to prevent HIV/AIDS. They just could not or would not break their habit. If they were going to or could stop it, they would have done so already.

  Therefore, regarding the information on safely practicing injecting drugs, thirteen female participants commented that the websites were realistic because it recognized the lifestyle choices
of women who were injecting drugs by not only asking them to stop it, but also providing practical solutions on what to do to reduce their risk for HIV/AIDS if they could not or were not going to stop it. This was the most effective strategy in the long run, considering the well-known fact that it was difficult to get out of the habit of injecting drugs. Thus, these female participants believed it was more important for the websites to try to think of any possible situations women could be in and address their concerns accordingly. Women might not know there were other options they could choose to prevent HIV/AIDS. Besides, even when these women decided to stop it, it usually took time and they still needed to prevent HIV/AIDS during this transition period.

Three female participants believed the information on stopping injecting drugs was **important for women to know**. Two female participants liked the information on safely practicing injecting drugs. They argued that it was easier for women who were injecting drugs to know what to do for HIV/AIDS prevention from a website than from others such as a doctor, who might be more judgmental and simply response with “stop it!” Thus, with the help of the information online, women did not have to be dreaded of disclosing this habit to anyone. Five female participants liked that the websites told women not to “have sex” when “taking drugs or drinking alcohol”. These female participants commented that this was necessary for women to know because drugs could cloud their mind and “result in riskier sex”. One of these female participants particularly mentioned that a lot of college girls did drink and thus put themselves at risk for HIV/AIDS.

- **Myths**

  Five female participants liked that the information on myths (Figure 6 in Appendix F) addressed the questions and doubts that might exist in women’s mind, thus was **important for women to know**. These female participants argued that some women might indeed think that way, but were hesitant to talk about it since they did not want to sound silly. The website could
then help them get clear about things they did not know and remind them to avoid getting infected with HIV/AIDS through such a ridiculous way as having tattoos.

With regard to the degree of being scary, twenty-four female participants believed it was necessary for the website to mention “there is no cure for HIV” or the fatality of HIV/AIDS in order to educate and warn women, especially those who had thought HIV/AIDS was curable. HIV/AIDS was such a serious and life-threatening disease. Thus, the information had to be the concrete facts and get to the bottom line, i.e. “are we going to die?” Such information could help women get the picture and understand the seriousness or why they had to prevent HIV/AIDS. They would then make HIV/AIDS prevention a priority, and be more likely to protect themselves and avoid taking part in risk behaviors. Considering the importance of such information, these female participants even suggested the websites stress it at the beginning. One of these female participants also mentioned that the tone had to be harsh and strong. Another female participant did not think it was enough for the website to just mention that HIV/AIDS would lead to death or it was life-threatening. The website also needed to tell women other severe consequences of HIV/AIDS so as to scare them at least a little bit. She argued that:

Prevention, yes, but you will do the prevention only if you know the outcome. I think after reading everything, I don’t know how long, like, you know, people, people need to know number, like this, you know, if you have, average life expectancy after getting AIDS is ten, five years, six years, how many more years, I don’t know myself, how long you live after that...it will scare them, the whole point is I feel human need to be scared. Anything, even if you know about the deadline, you won’t do it, you know what I mean, you want to complete it. So the fear should be instant, but shouldn’t be unnecessarily instant, so I would say forget about the number of years to live, just the symptoms, after that, what now can happen, you know, that you might cough blood, I don’t know, you might become thin, you might lose hair, you know, things like that, forget about how long to live. I think
that information should be here...[but] not very scared, I think you should scare them a little by what can happen to you after that, just life-threatening is not enough, you should tell them what can happen [Participant 35].

However, eighteen female participants argued that, compared with the information on what women needed to do to prevent HIV/AIDS, it was less important or less of the primary focus of the website to warn women that there was “no cure for HIV” although it was part of the facts about HIV/AIDS. Thirteen of these female participants argued the information on “the truth” that “there is no cure for HIV” was not stressed in a well-written way because it sounded scary and threatening. It was not appropriate for the website to make everything sound like the end of the world, or scare women into prevention when the whole purpose was to let them understand the risk. Otherwise, women searching online, especially those who were engaged in risk behaviors and thus perceived themselves at risk, might react negatively when they saw the fatality of HIV/AIDS being stressed, and choose not to read such information or to learn about what could happen after they got HIV/AIDS. It had to be up to them to decide what to look at. Therefore, the website needed to keep a balance between scare tactics and getting women to read such information. Besides, any logical woman reading HIV/AIDS information could make a conscious decision that it was not worthwhile to engage in risk behaviors. Stressing the scary nature of the fatality of HIV/AIDS may only increase the stigmas associated with it.

- Overall

With regard to information coverage, seven female participants liked that the two websites offered different prevention strategies for different groups of women, and explained in-depth why and why not women should do certain things. Ten female participants liked that such information was thorough and broad, and covered everything women needed to know.

However, one female participant found it surprising and odd that blood-to-blood contact or information concerning universal precautions, e.g. wearing gloves and staying away from
accident scenes to keep safe, as well as using bandages to cover open wounds, were not mentioned as much as she had expected. She argued that it would be easier to talk about these issues considering that they were not as sensitive as those on sex. She suggested that, at the top of the prevention page, there be an overview of the four bodily fluids and three ways of transmission besides sex, particularly blood-to-blood contact. Women needed to know these were how people could get infected and they were as important and risky as sexual contact. Otherwise, women might think the only way of getting HIV virus was through sex without condoms. Another female participant pointed out that there were no specific prevention tactics for Latina women.

When it comes to information arrangement/organization, one female participant suggested the two websites divide the whole information on prevention strategies into two parts: information women might have already learned in school, and information they might not know yet, e.g. not using spermicides with N-9.

Five female participants liked that the information on prevention strategies on the two websites as a whole was informative and not obvious. However, eleven female participants argued that they had already learned, heard or read such information before, or had been taught about it in school. Thus, they believed women today were more likely to have already known a lot of basic and common knowledge on HIV/AIDS prevention, and the websites needed to talk about more than such obvious things as what to do to prevent HIV/AIDS as individuals.

Twenty-three female participants commented on the information on prevention strategies on the two websites as a whole from the perspective of the availability of alternative strategies. These female participants believed that, in promoting prevention strategies to women, the websites had empowered them by telling them it was fine to keep their lifestyles choices, and giving them other options they could choose from if they could not or would not follow the optimal prevention strategies. In other words, the websites recognized the fact that nobody was
perfect and it had to be up to women themselves to decide, and told women how to lead a life whether or not they were in a situation that put them at a higher risk.

However, six female participants argued that the information on prevention strategies on the two websites as a whole should be more neutral and objective. It was important for the websites not to sound condescending if they wanted to be inclusive of all demographics of women. In other words, the websites should not judge women and condemn or degrade them for their behaviors. Women involved in risk behaviors should be made to feel fine to have different lifestyle choices. One of these female participants also pointed out that, although hard and complicated, the websites should still try to balance between acknowledging the realities facing women at risk and talking to them in a way that made them feel less positive about themselves.

Five female participants commented on the information on prevention strategies on the two websites as a whole from the perspective of the availability of how to do. These female participants found that the information on prevention strategies on the two websites as a whole was pointless and not helpful because prevention strategies were easier said than done. These female participants argued that, instead of just telling women the lot of simple things that they specifically should do to protect themselves, the websites should have gone into more details to tell women how to do them, or specifically how to overcome the social barriers to practicing the prevention strategies, which women might not know.

One female participant argued that both women and men were engaged in risk behaviors and it was an issue of two parties. Therefore, both should be blamed if there was any, and there should be more visibility of men. The websites had to be careful with their value orientations.

Twenty-three female participants commented that the information on prevention strategies on the two websites as a whole got to the point and was important for women to know. Thus, women needed to be taught about it, especially those who did not know anything about it, so that they could apply the strategies and prevent HIV/AIDS.
With regard to the **degree of being scary**, one female participant liked that one of the websites did a good job by making such information seem welcoming and easy to look around, instead of sounding scary. Since no scare tactics were used, she did not feel afraid to look at it.

Five female participants commented that the information on prevention strategies on the two websites as a whole spoke to all demographics of women looking for such information and thus was more relevant to **women as a group** than the information on gender-specific problems or the social barriers women faced in HIV/AIDS prevention. These female participants argued that women reading the information on prevention strategies would feel more connected and would pay more attention to it and read more into it. Another female participant particularly liked that the websites talked directly to women using “you” instead of “women”, since women were looking for HIV/AIDS prevention information for themselves.

However, one female participant did not think the information on prevention strategies on the two websites as a whole was relevant to women that much. She argued that, although labeled as information targeted to women, it did not seem much different from the information targeted to the general population.

One female participant did not think the information on prevention strategies on the two websites as a whole was relevant to **women as individuals**. She believed that it was more important for such information to target to women as individuals who were in a particular situation so that they could relate more to it and would pay more attention to it as well.

**Gender-specific problems**

- **Poverty/Low income**

Three female participants did not think the information on poverty/low income (Image 10 and Image 14 in Appendix F) was **consistent with reality**. They even found it surprising that
such information appeared on a U.S. website. They believed that at least most women in the U.S. did have jobs and could find a ride to the doctor. There could be only a small percentage of women in this situation, but not all.

Nine female participants found it made sense that poverty/lower income or unemployment could put women at more risk for HIV/AIDS. These female participants argued that money was indeed an issue and it could make it hard for women with lower income or no jobs to accommodate family demands as well as afford prevention methods, e.g. condoms, if there was no place for them to get free ones. Women in this situation might also have to subordinate to their male partner and compromise. One of these female participants also pointed out that, in the U.S., the poorer, the sicker, because people would have no health insurance if unemployed.

However, nine female participants found it ridiculous and stereotyping to say that low income or unemployment could put women at greater risk for HIV/AIDS. These female participants argued that being poor did not necessarily mean women did not take their health seriously or was not concerned about their health so much so that they would do such immoral things as injecting drugs. They might still try to find ways to help themselves and not to be engaged in risk behaviors. A lot of women in this situation did not put themselves at risk. It was more of their demographics that engaged them in risk behaviors. Such information could give poor women the feeling that “if you are poor, you are more at risk”. It was never a nice thing to hear. As a result, they might be offended and go to a different website that might not provide as good HIV/AIDS prevention information. One of these female participants also pointed out that the context was nuanced. One thing might be appropriate in one context, but not in a different context. The websites should not universalize the information.

Thirteen female participants believed that the information on the economic barriers to HIV/AIDS prevention was important for women to know. These female participants argued that, for women who might not realize they were one of those with low income or without a job,
such information could awake them and make them become aware that they did not have enough resources. For women who were already aware they were in this situation but were unaware what they were doing could make them vulnerable to HIV/AIDS, such information could communicate with them, and help them increase their knowledge and think more about the link between their situation and their risk for HIV/AIDS. In all, these female participants maintained that women in this situation should not be ignored and had to know about such information. Otherwise, it might be easier for them to be engaged in risk behaviors and put themselves more at risk. One of these female participants also pointed out that such information was important for the general public to look at, too, since they usually did not pay much attention to it. She argued that educating the general public on it would make sex work less prevalent as a whole.

However, three female participants believed the information on poverty/low income would not be the first thing women with low income or without a job tended to look for, thus would not be helpful to them. These female participants argued that women were not going to decide to get a job or a better job in order to prevent HIV/AIDS even after they had read this information. They should already have known they needed to get a job or a better job because of other societal factors, but might still be forced to continue to do whatever they could to survive, including behaviors that could put them at risk for HIV/AIDS. The websites were just randomly selling women all kinds of information. One of these female participants also argued that women with low income or without of a job might feel they had no hope and they were going to get HIV/AIDS since they could do nothing about their situations. As a result, they might be turned away from being educated. The websites should let women feel hope.

- **Caregivers**

  With regard to information **coverage**, three female participants did not think the information on caregivers (Image 11 in Appendix F) was in-depth enough. They argued that, since women were more socially or relationally minded, they might begin to feel that taking care
of their own health was worthwhile and thus be willing to practice prevention behaviors if they knew they did so not just to protect themselves, but also their beloved ones. Therefore, these female participants believed that the website needed to tap into this orientation of women’s in order to help them realize that it was not just about their HIV/AIDS prevention. In order to better involve women into HIV/AIDS prevention, the website could tell them that “when you are helping yourself, you are also helping others” or “you can prevent HIV/AIDS to support others”. In this way, the problem could be solved that being caregivers or nurturers put women more at risk.

Thirteen female participants believed the stereotype of women as caregivers or nurturers was consistent with reality and was still true nowadays for most women in the U.S. In other words, this mindset was still present in women although subconsciously. These female participants argued that women did tend to think about the needs of others, e.g. children and family, and protect others’ health first before themselves’. Two of these female participants commented that this mindset could be the result of the fact that women had been brought up to perform the traditional roles and to believe they were meant to care for others.

However, eleven female participants did not think this stereotype of women as caregivers or nurturers was necessarily true in the U.S. These female participants argued that, unlike women in the past when HIV/AIDS first surfaced, women nowadays (except for older ones) were generally more progressive, and did not think, feel or act like women in the past. Women nowadays did have time to protect and take care of themselves. They would seek help from health services when they were sick. They would also worry and think about their health and put it first, especially for such a serious disease as HIV/AIDS. One of these female participants also pointed out that only those with personality disorders were in the stereotype of caregivers or nurturers, and the website generalized women by saying they had personality disorders, not that there was anything wrong with their knowledge about HIV/AIDS. Another of these female participants
argued that the truthfulness of this stereotype depended on the situations and the people women were dealing with.

Three female participants did not think being caregivers could put women at risk for HIV/AIDS. One of these female participants commented that such information was not useful because, if women cared about their male partner, they would be using condoms to keep him safe and at the same time also caring about themselves. Another female participant believed that, if women knew the consequence of HIV/AIDS infection and still put themselves at risk; it had something to do with being reckless, rather than being caregivers. The third female participant pointed out that, if women were sick and were experiencing down time, they would go quickly to the doctor so as not to take time away from what they would like to do, i.e. taking care of others.

Fifteen female participants liked that the information on caregivers was important for women to know in preventing HIV/AIDS. These female participants argued that, although women reading this information might be in this situation, they might only have this notion in the back of their mind without realizing it. By making this notion more salient, such information could make women think about their own behaviors and become aware that they were indeed in this situation. Even when women realized their situation, they might not necessarily know being caregivers or caring for others could put themselves at risk for HIV/AIDS. Such information could help them realize they had the rights to care about themselves and prevent this serious disease. In addition, such information could help women realize that they were not the only ones that were faced with this problem. In all, these female participants maintained that women needed to be informed and such information could equip them with more knowledge. One of these female participants believed that availability of the information on the structural problems in our society was a good start in fighting against HIV/AIDS as well as the stigmas associated with it.

However, five female participants believed the information on caregivers was not as important or useful to women as the information on prevention strategies or the statistic data on
women’s infections of HIV/AIDS, thus should not be emphasized much as one of the main topics. These female participants argued that, when women were searching for HIV/AIDS prevention information for themselves, they were already caring about their own health and putting it in the first place. Besides, some feminists would not appreciate such information since it was stereotyping them. As a result, they might not want to read it. In all, the website did not realize that there were other factors that could also influence women’s decision making process concerning HIV/AIDS prevention.

Two female participants did not think the information on caregivers was relevant to women as individuals. They argued that not all women looking at it had children or were caregivers or nurturers, thus might not need to worry about such things. One of these female participants also suggested the website address such information to all women as a whole, instead of just a section of them.

- **Lack of education**

Five female participants agreed that the information on lack of education (Image 14 in Appendix F) was consistent with reality. This structural problem could indeed put women more at risk for HIV/AIDS. These female participants argued that limited education usually meant low income or lack of resources, and people usually had limited education about HIV/AIDS if they were not educated much. A doctor might not tell them about HIV/AIDS.

However, four female participants did not think limited education could put women at risk for HIV/AIDS. These female participants argued that, on the one hand, even if women had limited or no education, they could still have access to a lot of information, and get to understand the points about HIV/AIDS prevention as well as follow the guidelines. On the other hand, even if women had education, even a PhD degree, they might not necessarily know much about HIV/AIDS prevention and thus were still at risk.
Seven female participants believed the information on lack of education was **important for women to know**. These female participants argued that women who felt they were not educated and did not know much about HIV/AIDS might be interested in such information and wanted to look at it. These women needed to know they would be at risk for HIV/AIDS if they did not have much education. Another benefit they could get from knowing such information was that they might take initiatives to become educated and better prevent HIV/AIDS. One of these female participants also believed such information could even motivate women reading it to share with other women.

However, one female participant believed such information might offend those women who had a lower educational level. As a result, they might not want to read the rest of the HIV/AIDS information and go to a different website. Another female participant believed such information was useless since women could still do nothing to improve their educational level. She mentioned that:

> *What can someone do if they happen to have limited formal education and you are lucky enough they are reading your website, what are you expecting them to do about it. You are trying to tell them to go to school to prevent HIV/AIDS? You know, like they are gonna have a lot of other reasons to go back to school* [Participant 33].

**Lack of control in relationships**

With regard to information coverage, one female participant pointed out that, although the information on lack of control in relationships (Image 9 and Image 12 in Appendix F) on CDC HIV/AIDS was not rich enough, it was already good for a website. Women could not learn everything about taking control of sexual relationships from just one website.

However, five female participants preferred to see explanations of why women “may lack control in relationships”, or specifically why they were afraid to communicate with their male partner or to refuse to have sex without condoms. These female participants argued that such
explanations were important for women to know considering that they were at an increasing risk for HIV/AIDS.

When it comes to the availability of how to do, one female participant argued that the websites needed to provide information to women on how to overcome this social barrier to HIV/AIDS prevention and stand up against their disadvantageous status. In this way, they would know they could solve this problem and have hope as well.

In addition, fourteen female participants believed these statements on women’s lack of control in relationships were consistent with reality. In other words, these female participants agreed that men were in charge in relationships and women were at a disadvantageous status --- women were subordinate to their male partner, not assertive, intimidated to talk about safe sex, and unaware if they were put at risk. One of these female participants mentioned that this unequal status could be the result of women having been brought up to be polite and nice. Three of these female participants, who were Latina, also pointed out that, in the Hispanic culture, the stereotype was “men are men”. In other words, men were dominant and supposed to be caretakers and breadwinners, while women were supposed to be subordinate to them and non-confrontational.

However, twelve female participants did not think it was true, at least not in the U.S. that women were in a disadvantageous status in relationships. These female participants argued that most women had equal status with men and have control or agencies in relationships. Women were also able to talk to their male partner about safe sex or ask for condom use. Therefore, since women might not think they were in a disadvantageous situation, they might not need information to talk about this. Besides, such information could give the wrong idea to women that they were less dominant and were subject to male standards. One of these female participants also pointed out that whether women lacked control in relationships depended on age and generation. Women could probably be able to talk to a younger male partner, who would not still be resistant to using condoms, but could not talk to an older male partner who usually was more resistant. Another of
these female participants argued that it was inappropriate to consider a disadvantageous status in relationships to be common to all women, or put women as a whole as victims. Since women’s contexts might not be the same, such information on women’s disadvantageous status in relationships should be divided into subcategories that targeted to different groups of women.

Five female participants agreed that lack of control in relationships could indeed put women at risk for HIV/AIDS because structural components could influence the spread of HIV/AIDS and a lot of women with HIV/AIDS were truly in such a disadvantageous situation. Specifically, one of these female participants found it made sense that women could not refuse to have sex without condoms. Another female participant found it made sense that women were scared to ask their male partner to “use a condom”. She argued that men could just put the condom on, but women could not, thus did not control the situation.

However, one female participant did not think lack of control in relationships could put women at risk. She argued that if women could not make their sex a priority or think for themselves, they would not be in the relationship that they were in.

Twenty female participants believed that the information on women’s lack of control in relationships was important for women to know. It was good for the websites to educate women on this and help them understand it without shying away from the facts. If nothing was said about it, women would probably not be going to talk about it, either. One of these female participants even suggested the websites put more emphasis on such information. She argued that simply addressing HIV/AIDS prevention in terms of what women could do as individuals was less important than addressing it in the context of their relationships with their male partner. Women needed more guidance on this. In addition, these female participants particularly liked that such information could reach every woman, empower them, and help them with HIV/AIDS prevention, not just those in the middle class. For women who were in a submissive role in sexual relationships but had never thought about it, such information could make them aware of their
situation and the fact that they could be at a higher risk for HIV/AIDS so that they could then try to prevent it. For women who already realized that they were in a disadvantageous status in relationships, such information could support and encourage them to use their rights to take control, and let them realize they were not the only ones in such a disadvantageous status in relationships as well. Otherwise, they might hardly realize that they needed to stand up and reach out for help or information. Even for women who were not disadvantaged in relationships, they still needed to know about such information.

However, ten female participants believed the information on women’s lack of control in relationships was not as important as the information on prevention strategies, thus should not be one of the main points of HIV/AIDS education. These female participants argued that such information had little to do with HIV/AIDS prevention and might bring down women’s prestige and confidence by implying that women were weaker. Two of these female participants also believed that such information could scare women looking at it and make them believe that they were truly unable to stand up and “talk to their partner” about HIV/AIDS prevention. In addition, another three of these female participants found that such information was presented in a way that was strong and blunt, thus was bothering and offensive instead of appealing. As a result, women would not acknowledge it even if it was true, still insisting that they were strong. Therefore, these participants believed that addressing such information as one of the primary issues on the websites would not effectively help women who were in a disadvantageous status in relationships. It would be better for the websites to focus more on HIV/AIDS prevention and transmission. What these women needed was more information on prevention and take prevention into their own hands, rather than information on how they “may lack control in relationships”.
One female participant did not think such information was relevant to women as individuals, at least not to her. Thus, it meant anything to her. She believed it was other women instead of her who could not “say no to sex”.

- **African American women**

  On the one hand, two female participants commented on whether the reasons for African American women’s being at more risk (Image 15 in Appendix F) were consistent with reality. One of these female participants believed they were true, but another one argued that, since African American women could be from different countries or areas as well as different cultural background, it was problematic to claim that all of them were in a certain way. Thus, the reasons for their high rates of HIV/AIDS infections were not necessarily true for every African American woman. This female participant suggested the website individualize, rather than essentialize such information. Still another female participant had similar opinions. She argued that:

  *They don’t have to follow the society’s rule … [and] might not listen and read more into it, and pay so much attention to it as opposed to more individual situation… it depends on the person… it’s a personal thing and it might not influence people the same way … but there is people inside those culture, people in there that don’t follow the culture* [Participant 31].

  On the other hand, some female participants commented on whether or not African American women were truly so different from other women that it was necessary to single them out and address them separately. Two female participants believed it was true that African American women were in different situations in the HIV/AIDS epidemic because they were from different cultures and had different experiences. However, three female participants believed African American women did not differ that much from the majority women because everybody was prone to HIV/AIDS and everybody contracted HIV virus the same way. Besides, these female participants argued that there were also a lot of White women in poverty. It was lifestyle,
rather than race, that made the difference. Thus, these female participants suggested that African American women be addressed the same way as other women in order to get HIV/AIDS prevention information to everybody, whatever their ethnic groups were.

Regarding the specific information on “incarceration of African American men”, three female participants believed that it was true and there could be some African American women who were in this situation where they felt available African American men were harder to find. However, one of these female participants, an African American woman, also commented that she could not relate this situation to her generation that much. In other words, she did not believe she was in the generation where many African American men were incarcerated.

One female participant found it made sense that, since African American women had higher HIV/AIDS infection rates, the website placed more emphases on them. Two female participants found it made sense that “incarceration of African American men” could put African American women at risk for HIV/AIDS. These female participants agreed that, if a lot of African American men were in jail and thus harder to find, African American women might feel limited supply and, as a result, tend to subordinate to the remaining African American men in sexual relationships. However, one female participant did not think “incarceration of African American men” could put African American women at risk. She argued that African American women were strong and loud in relationships.

Fifteen female participants believed the information on the special barriers African American women had to face concerning HIV/AIDS prevention was important for women to know. They needed to know they were different, but more infections among them showed their limited knowledge on this. Thus, the websites should not ignore them, but educate them more on the unique things about themselves, e.g. how they were infected, why they were at a higher risk, what cultural differences they had, etc. Besides, they themselves might be more concerned with the special issues of their own race.
Regarding the specific information on how “incarceration of African American men” could put African American women at risk for HIV/AIDS, one female participant believed it was relevant to prevention, thus needed to be mentioned. Otherwise, African American women might not realize that they were engaged in risk behaviors.

One female participant believed that the website should not concentrate much on why African American women were more infected with HIV/AIDS. Rather, the website should target more to women as a group, instead of those of a particular race/ethnicity. Otherwise, those African American women who were not prone to HIV/AIDS would be unnecessarily scared, and some African American women would be offended or disturbed as well. She argued that:

*The White people would think they can’t get it, you know what I mean. They keep talking about African American women. I don’t understand why. They should make it as serious. Just because they are getting it all the time, it doesn’t mean that the others are not prone unless it’s scientifically proved that, you know, black women can get it easier than white women. A black woman is getting it because maybe her life styles are different compared to somebody else, not because she is black, you know what I mean. I still don’t like it because the first thing you read it that, then like the white women will take it easy, they are not gonna bother about it. They should also be scared, you know. Talk about women on the whole, you know, women, any type of women* [Participant 35].

Five female participants liked this section that was specifically targeted to women as individuals. These female participants argued that women were a broad category. African American women might want to know issues that were addressed to them as a minority, e.g. why they were at a higher risk for HIV/AIDS. They might want to feel the information was applicable and relevant to them, as well as they were part of their own community. They could then better relate their social contexts to HIV/AIDS prevention. Therefore, these female participants suggested the websites provide HIV/AIDS prevention information targeted to African American
women as much and as specific as possible. However, one female participant commented that such information was not talking about her.

- **Biological differences**

  Five female participants liked that the information on biological differences (Image 8 and Image 13 in Appendix F) was **important for women to know** and the websites had done a good job talking about it. These female participants believed a lot of women might not realize that there were biological reasons for their being more prone to HIV/AIDS.

  However, one female participant argued that, compared with the avoidable and changeable social factors that made women more vulnerable to HIV/AIDS, such as inequality in education and economic status, the unavoidable biological factors were less of an issue and not as important.

- **Overall**

  When it comes to the **availability of how to do**, nineteen female participants believed that the information on gender-specific problems as a whole was not helpful for HIV/AIDS prevention if the websites simply told women about the social barriers leading to their vulnerability. These female participants argued that even if women were made to be aware of their social contexts after reading this information, they still would not know what to do or just could not do anything about them. As a result, those women who were not able to do anything about the social barriers might feel upset or depressed about being in their situations. They might thus ignore this information because they did not see it as empowering.

  These female participants continued to argue that it was more important, practical and effective for HIV/AIDS prevention if the websites could provide in-depth advice or tips for women on how they could assertively overcome the social barriers to practicing prevention strategies in different social contexts and stand up against or get out of their disadvantageous status. Such information could help women become aware of the fact that they could overcome
the barriers and realize what they could do to be less likely to be infected. This was a more empowering way of prevention. Women needed such information and needed help when having problems. One of these female participants also suggested the websites provide real women’s testimonials about their experiences on overcoming the social barriers.

In addition, these female participants mentioned some specific aspects of advice or tips the websites could tell women on how they could overcome the social barriers. For example, what they could do to get out of the situation of unemployment and low income so that they did not have to be reliant on men and subordinate to them; how women could stand up against their disadvantageous status in relationships so that they could have more control in using condoms and not having sex; why women should not feel scared to refuse to have unsafe sex or to ask their male partner to use condoms; how women could talk about safe sex (examples of mock conversations could be provided); how women could get out of the traditional role as caregivers, etc.

One female participant found the information on gender-specific problems as a whole was consistent with reality or what she had found in her research on women and HIV/AIDS, particularly reasons why women were at an increasing risk as well as gender sensitive prevention strategies.

However, two female participants doubted the truthfulness of such information. They argued that the information might only apply to some women. For those it did not apply to, they might not want to read it. This issue was particularly controversial in the U.S., as one of these female participants mentioned, because of the highly diverse population. Even if women indeed found themselves in a disadvantageous social status, they might not want to be stereotyped or think of themselves as in such a status that put them at risk for HIV/AIDS. As a result, they might not want to read the information as well. The websites had to approach this topic carefully.
Three female participants would like the information on gender-specific problems as a whole to be more neutrally and objectively designed without any hidden assumption. They would also like such information to be presented to women in disadvantageous situations in an educational and non-judgmental, instead of a condescending, presumptuous or accusatory way. This was as important as providing the information itself if the websites wanted to educate women. Otherwise, women would be put off even if the information was good. In addition, two female participants believed that the traditional representations of women were gender biased stereotypes that were popular in our male dominated society. One of these female participants even believed that it had to be men who made such statements against women. She argued that:

*Whoever wrote this part of traditional society is saying like “women shouldn’t be promiscuous”, “they should be faithful”, “they should have just one partner”, or just “don’t have sex if you don’t want to get AIDS”, which I think is a male-dominated stereotype. They can’t just say it because you know they are not women and want women to be in certain roles... but I don’t think you can just say it [Participant 5].*

Furthermore, four female participants did not think the information on gender-specific problems as a whole was scientific enough and one of them even found it ridiculous. These female participants argued that the websites should not have assumed that all women infected had certain common characteristics and these characteristics were the reasons why they were at risk. It would be important and helpful for the government to run statistical studies first on frequencies or percentages, and then update or back up the information with clear charts or graphs that could explain the statistical data. Such studies could be interviews with women that led to such findings that 70% of women were infected because of lacking control in relationships, being in the traditional feminine roles, or ignoring what they should do. Women would identify with such data better and would be better educated.
Twelve female participants argued the information on gender-specific problems as a whole was **important for women to know**. Such information explained why women were at an increasing risk for HIV/AIDS or the social barriers they had to face. It could make the statistic data on women’s HIV/AIDS infections more important. In addition, one of these female participants pointed out that such information could not only educate researchers and help them recognize and examine the social barriers, but also educate and influence the society and the general public so that they could better accept the social facts. Another female participant explained why such information was just what she wanted. She mentioned that:

> It’s important to reach all those different people coming from the audience. That’s quite difficult, I think, for a government website because you are getting all these different people with all these different outlooks online and marry them all together and have them all find what they are looking for, I think is a difficult task...I mean you don’t want to shy away...because you don’t tell that one person, that person doesn’t know, and that person gets infected. You know. That’s who I always try to think about. That one person who, like I am gonna say this to the group of people I am giving a Safer Sex Parties to, and this is not applicable to 25 of them, but it’s applicable to that one and that’s the best I though. So that’s kinda of what I, and that’s why, like I said, it’s difficult for the government website because you have 295 million that you have to think about. That’s a little bit different from what I’ve experienced [Participant 17].

However, eight female participants believed it was not appropriate for the websites to label such information as targeted to women in general. Rather, such information was more about rationales for the existence of programs or efforts for reevaluating HIV/AIDS prevention strategies, thus needed to be on a research page in order for those interested in it to learn more about it. It might be more relevant, as well as more important and helpful to planners or researchers, who might not necessarily be infected with HIV/AIDS or in certain disadvantageous
situations, but ran organizational or government health programs that were dedicated to educating women on HIV/AIDS, and thus were interested in the social barriers to women’s HIV/AIDS prevention. Since such information could affect decisions and behaviors, they might consider using it to serve women by doing further research on, e.g. why women were more vulnerable to HIV/AIDS, what types of women were more prone to HIV/AIDS, and what the society could do for their HIV/AIDS prevention.

Eight female participants argued that such stereotypical information on gender-specific problems as a whole might not necessarily be relevant to women as individuals looking for HIV/AIDS information online. For those women looking at such information that did not apply to them, they might be offended or hurt. As a result, they might disregard or not want to know about such information since it would not affect what they were doing.

**Overall**

With regard to information coverage, nine female participants liked that the HIV/AIDS prevention information targeted to women on the two websites as a whole was thorough because it covered a broad range of important things that could inform women of HIV/AIDS prevention.

When it comes to information arrangement/organization, two female participants found that, in the HIV/AIDS prevention information targeted to women on the two websites as a whole, the information targeted to two different populations within women were mixed together --- information targeted to women already infected with HIV/AIDS, who wanted to know what to do next, e.g. the link “living with HIV/AIDS” and “treatment”; and prevention information targeted to women not yet infected, who wanted to know how to prevent and be safe, e.g. the link “prevention” and “gender-specific problems”. These female participants argued that, in order for
women to better find what they needed, it was important for the websites to separate the whole information by providing a clear link for each of these two types of information.

Four female participants believed the HIV/AIDS prevention information targeted to women was informative, and it was important for the websites to provide women with such information. These female participants had not learned much about HIV/AIDS when they were in high school, let alone before high school, since a lot of high schools lacked such education. For those high schools that did offer such education, the focus was mostly not on prevention strategies per se, and the extent of prevention education was restricted to “no sex without condoms”. Moreover, nobody with HIV/AIDS had ever come to their health class and talked about their own experiences. One of these female participants even had never heard HIV/AIDS issues being brought up again since she learned about it in high school. She found no courses in college about it, thus could not continue her education on it.

Seven female participants from the minority groups found that the HIV/AIDS prevention information targeted to women on the two websites as a whole could be very informing for minority women. According to four of these female participants who were Latina women, HIV/AIDS was frowned upon and not encouraged to talk about or even thought about in their culture, although it was encouraged a little bit more in the U.S. than in Latin America. Even their parents did not talk to them about it. What was always talked about or taught was not to get pregnant instead of such HIV/AIDS prevention strategies as condom use. It was the similar case with the Indian culture, according to two of these female participants who were from India, where people would not or were shy to openly talk about HIV/AIDS with their partner or a doctor. The remaining one of these female participants, who was from an unidentified Asian country, agreed that women in her country did not talk about HIV/AIDS as much as in the U.S. They would not even know they had to ask for condom use, and thus could be taken advantage of and be put at risk.
Thirty-three female participants made comments from the perspective of the availability of local services. They believed that it would be important and helpful if the websites could have information on the availability of local services for HIV/AIDS prevention. These female participants argued that women might want to find out more resources available to them outside of the websites. For example, women might want to learn more information about HIV/AIDS prevention in order to better protect themselves; they might need to know where to go to get free condoms; they might want to discuss face-to-face with people who could understand their specific needs concerning HIV/AIDS prevention and answer their questions that might not have been clearly explained online; etc. For a lot of women who were afraid of their male partner and did not want to be abused, they might not want to talk to either their male partner or their friends or families about using condoms. They might be more comfortable with going to local services and seeking for help or information on how to communicate with their male partner about safe sex.

These female participants continued to argue that local services were a big part of HIV/AIDS prevention and they could be even better than online education in terms of spreading knowledge, eliciting behavioral change, and promoting prevention behaviors. Considering that every case needed a special way to handle, one advantage of local services was that they could be case-specific. Therefore, with the help of local services, women could have more confidence and power to protect themselves since they would know there were people out there who cared about them and wanted to help them with HIV/AIDS prevention. Women were also more likely to use condoms if they knew they could get them somewhere for free. This was especially useful for unemployed or poor women since their not using condoms could be due to unavailability. One of these female participants particularly suggested that there should be information on local services that specifically served minority women.
In addition, these female participants maintained that, when women needed help or needed places to go for help, they might not know anything about the local services. Even if women were aware of such services, they might not have taken advantage of them. They might assume that they only needed to use them when they were already infected, rather than when they did not have HIV/AIDS and just needed to prevent it. Therefore, these female participants suggested the websites to have a link, such as “find services in your area”, on the prevention information page. Women could then type in their zip code or state and check out various information about the local services, e.g. where they could go, what hotline numbers they could call, what help was offered to them, and what special activities, events, festival or programs related to HIV/AIDS prevention promotion were coming up. In this way, women could not only look at HIV/AIDS prevention information targeted to them online, but also had somewhere to go to get more community resources whenever they needed them.

Besides the information on local services for HIV/AIDS prevention, one of these female participants pointed out that, although an HIV/AIDS website could help women become aware of their risks, they also needed information on non-HIV/AIDS resources. She argued that:

*I think maybe you could link to maybe resources, so that women that go to this website who are in this situation, maybe they can be like “oh gosh, on top of the fact, I don’t have a house and I can’t buy my food and I am going to have AIDS too”. It is another resource like women’s center or women’s shelter. That’s what gonna help them get out of here, not like an AIDS website. Even though those shelters may not be specific to AIDS, you can just put that on all the time, like embedded in the sentence, like if you are, I can help you, or the welfare officer, the unemployment office. Just a little resource, it doesn’t hurt to add* [Participant 5].

One female participant believed the HIV/AIDS prevention information targeted to women on the two websites as a whole should increase the **visibility of men** and be targeted to
them as well. She pointed out that, in order to protect women’s health, everybody needed to be informed and involved in HIV/AIDS prevention, including men. It was not just about getting the messages to women. The burden should be on men, too.

Twenty-nine female participants believed the HIV/AIDS prevention information targeted to women on the two websites as a whole was **important for women to know**. It could educate women and help them keep safe, especially those at risk for HIV/AIDS. These female participants argued that many women might not know much about such a serious disease, particularly its transmission and prevention. As a result, they might not do anything about it, thus were more likely to put themselves at risk. Therefore, education on HIV/AIDS prevention was important and essential for women. The more knowledge and education they had, the better they could protect themselves. These female participants even suggested the websites provide as much information as possible for women as long as it was related to their HIV/AIDS prevention. Women were increasingly infected and thus should not be ignored.

Regarding what the HIV/AIDS prevention information targeted to women these two websites should focus on, twenty-seven female participants believed the information on prevention strategies was at least as important for women, if not more important, as the information on gender-specific problems.

These female participants argued that telling women what they could do to keep safe as individuals was the best way of HIV/AIDS prevention. HIV/AIDS was preventable and prevention was the key to all. Such information could help them become aware of the prevention strategies and change behaviors. Every individual woman was the only one responsible to protect herself, thus had to be in charge of her own health. It only depended on the individuals whether or not they could be more likely to be engaged in risk behaviors and more prone to HIV/AIDS.

In addition, these female participants maintained that the information on prevention strategies met women’s needs. When women were looking for HIV/AIDS prevention information
online, they were only interested in knowing what specifically they as individuals needed to do to protect themselves as well as the concrete facts about HIV/AIDS instead of the social barriers, no matter what their social economic situations were. Although they might read about the social barriers, they might not pay as much attention to such information. They could not do anything about the social barriers and they did not want to be scared by such facts that they were biologically more predisposed to HIV/AIDS. They knew that, if they followed the prevention strategies, they could be reassured that they would be less likely to get infected. Furthermore, such information could reach most women since it was easier to read and put into practice. Any woman trying to get quick information could look at it and know what they needed to do and how to do it. Besides, one of these female participants mentioned that every woman needed to do the same things to prevent HIV/AIDS.

However, twenty-nine female participants believed the information on gender-specific problems was at least as important to women, if not more important, as the information on prevention strategies, no matter what social contexts women were in.

These female participants argued that providing women with information on prevention strategies was one thing, but having them to practice these strategies was another thing. Even if they were told how to prevent HIV/AIDS, they might not necessarily be able to or know how to do so if they were in a disadvantageous status and constrained by the society. Therefore, women needed to be provided with more guidance on the social barriers they were faced with. The more educated they were and the more they understood their situations that put them more at risk, the more likely they would protect themselves. If they did not know the social facts, they might be engaged in risk behaviors without even knowing they were more at risk. Besides, as one of these female participants mentioned, women had different social issues, thus might get infected in different ways. However, the information on prevention strategies targeted to women was not much different from that targeted to the general public.
These female participants also believed that information on gender-specific problems could help and encourage women to become aware of what they should do to overcome the social barriers and protect themselves, e.g. to get a job. Even if they could not do anything to overcome the social barriers, they still needed to know about them. Such information could at least empower them with knowledge, and help them realize if any of the situations applied to what they were doing and make their own decisions on how they could be safer. Besides, as one of these female participants mentioned, not all women would deny the truth about them, feel bad about it, or even disregard it. In addition, two of these female participants commented that some women were more individualistic, while others were more socially oriented. In certain cultures or communities, the social context was more important. It was more about what people should do as a society, not individuals. Therefore, the information on gender-specific problems could target broader groups of women.

Summary

In this chapter, I presented the research findings of this empirical study in the form of the female participants’ comments, thus answered the two research questions concerning women’s information finding and reaction to information on government health websites in the context of HIV/AIDS prevention.

The research findings showed that the female participants’ comments were generally far from being uniform on almost every topic of HIV/AIDS prevention information targeted to women on CDC HIV/AIDS and Womenshealth.gov in almost every aspect of information accessibility, format and content. Although the two selected government health websites generally did a good job in their design, the research findings showed that the female participants still had some difficulties in finding the information because of the design problems with regard
to information accessibility. Even when the female participants succeeded in finding the
information, they might react negatively to the information that was presented in an unfriendly
format, of poor quality, dissonant with their existing cognitions concerning gender and sexuality,
or perceived irrelevant to them.
Chapter 6

Discussion

The findings of this research unpacked both the positive and negative aspects of the design of the two selected government health websites. Particularly noteworthy were the facts that the female participants sometimes felt it difficult to find the HIV/AIDS prevention information on government health websites, and they often reacted negatively to the information they found as well. As a result, as their comments suggested, they might give up searching or reading the information.

In this chapter, I discuss the theoretical implications of the research findings based on the theoretical framework as well as the literature reviewed in Chapter 3. I also discuss the practical implications of the research findings and provide recommendations to website designers on how to improve their design for women concerning information accessibility, format and quality; social construction of gender and sexuality in the HIV/AIDS discourse; and public health communication strategies.

Theoretical implications

Risk Perception Attitude framework

The influencing factors identified in this empirical study indicate the potential impacts information finding and reaction to information could have on the amount of knowledge women could eventually gain from seeking HIV/AIDS prevention information on government health
websites. Some of the female participants’ comments implied their tendency to give up searching or reading any further if they had difficulties to find the information or were not satisfied with the information they found. Examples of such comments that I have paraphrased include: women might lose confidence in the website’s ability to reach out to them and thus stop reading the Web page half way through; women would get confused and give up easily, especially for those who were new to the Internet and did not know how to search; women might lose interest in the information and want to quit reading it even if there was what they were looking for; women would not pay attention to such information; women might be annoyed, offended or depressed, and be driven away from being educated even if the information was good; it was up to women themselves to decide what to look at; women might click out of the website and go to a different one that might not provide as good information; etc. According to Festinger’s (1957) theory of cognitive dissonance, since women as information users have no control over the website design and thus cannot make any changes to the information in their desired directions, they tend to refuse to let the information to which they have negative reactions even enter their existing cognitive systems, let alone to incorporate such information into their knowledge base.

The findings of this empirical study are contrary to the implicit assumption of Rimal and Real’s (2003) Risk Perception Attitude framework that information seeking as a form of preventive health behaviors leads to knowledge gain. Because of the possible problems with information accessibility, information format and quality, social construction, and perceived relevance, even if responsive and proactive women are motivated to adopt preventive behaviors and initiate information seeking on government health websites upon perceiving their risks for HIV/AIDS with beliefs in their ability to prevent this disease, they may still fail to reach their initial goal, i.e. to enrich their knowledge base on HIV/AIDS prevention and thus be better equipped to fight against HIV/AIDS.
Therefore, through uncovering the intervening factors between information seeking and knowledge gain, an extended Risk Perception Attitude framework (Figure 6.1) constructed based on the research findings of this empirical study would better represent the fact that information seeking may not necessarily lead to knowledge gain. This extended framework would thus be more useful in guiding public education of women on HIV/AIDS prevention. The following subsections present further explanations of the new constructs in this framework.
Figure 6.1: Extended Risk Perception Attitude framework
According to the research findings of this empirical study, women may not be able to find the HIV/AIDS prevention information available to them on government health websites because of the poor design in information accessibility. First, the relevant links that are placed on the side of the Web page may not be perceived visible or noticeable enough. Second, the search function of the website may not always be effective. Sometimes, there could be no links in the search results that match the queries entered into the search box. The link in the search results suggested by the website as the “best” match may not lead to the information that it is supposed to lead to. The number of search results on one page could be overwhelming. In addition, links of news articles as an informal source of information may be listed at the top of the search result page. Third, the relevant links may be placed at only one location of the whole website, thus could be easily missed and would not be encountered again. Fourth, the relevant links may not be placed on or near to the homepage of the website, but multiple clicks away. Fifth, the name of the relevant links may not appropriately represent the actual topic of the information content they lead to. As a result of the confusing names, the truly relevant links may not be identified as such, and the links wrongly identified as relevant may be followed.

The interactive nature of the Web has changed information users’ role from passive receivers of whatever is pushed to them to active seekers who pull whatever they think is useful. However, because of social construction and the resulting ideological reproduction on the Web (Aarseth, 1997; Brock, 2005; S. Hall, 1982; S. Hall et al., 1978; Kvasny, 2002; Lamb & Poster, 2003; D. Miller & Slater, 2000; Nakamura, 2002; Salinas, 2006), what women are more likely to pull is still greatly influenced by the location, structure and availability of links, thus is limited by the number of searching routes predetermined by Web designers (Huizingh, 2000; P. Moore &
Newton, 1998; Pollach, 2003; Vigilante & Wogalter, 2001). For example, retrievability of links through the search function of a website is determined by the design of the search engine it uses. Such design aspects include searching, indexing and ranking algorithms based on which queries are matched with relevant documents stored and indexed in the system, as well as on how the relevant documents are output in a certain order (Lawrence & Giles, 1999).

Nevertheless, website designers should not be held solely responsible for the potential obstacles to information accessibility. According to Sklar (2003), online information users are usually impatient. They are very oriented towards their specific information seeking goals and always try to find exactly what they need with as little time or effort as possible (Marchionini, 1995). As a result, they would easily think of the needed information as “unavailable” on a website if they cannot find it after quickly browsing a Web page without even scrolling up and down, viewing only a few documents retrieved by the search engine, or checking out just the first page of the search results (Jansen & Spink, 2003; Sklar, 2003).

**Reaction to information**

According to the research findings of this empirical study, women may not have positive reactions to the HIV/AIDS prevention information they find on government health websites because of the poor information format or quality, the dissonance between their existing cognitions and the ideologies on gender and sexuality that are socially constructed in the information, or their failure to perceive relevance in the information to women’s general or specific individual situations.

**Information format and quality**

Poor information format could result in women’s negative reactions. First, there could be no or limited information available in other languages than English. Second, interactive tools
such as forums, chat sections, or quizzes may not be incorporated into the website interface. As Hassan and Li (2005) pointed out, it is important to make interactivity features available on a website. Third, media such as images and audio/video clips may not be adequately or effectively applied in the website design. According to Hassan and Li (2005), media “are things that cannot be described by words”, thus are “very helpful” to “emphasize text” and enhance website usability (p.53). Fourth, the Web page may not appear attractive or interesting, thus may not be aesthetically appealing. In addition, the Web page could be hard to read because the texts are too long to fit into one screen, the font size is too small to be recognized, or there is too much information. Researchers have recognized the importance of the interface aesthetics in the usability and acceptability of computerized systems (Kurosu & Kashimura, 1995; Tractinsky, 1997).

Poor information quality could also result in women’s negative reactions. First, the information may not be perceived to be accurate because the terms used are perceived to be ambiguous or unspecific, or because it is contradictory with what is actually emphasized on the website. Second, the information may not be perceived to be covered in adequate depth or breadth. Third, information of different nature could be perceived to be inappropriately mixed together, thus in need of reorganization. Fourth, the information may not be perceived to be informing, but common sense or well known facts.

**Social construction**

Social construction that results in biased representations of gender and sexuality in discourse is another source of women’s negative reactions. First, the information may not be perceived to be practical or realistic if it lacks respect for women’s different lifestyle choices and fails to provide alternative options for women to select from to keep them safe. Second, the information could be perceived to be meaningless if it fails to provide specific tips, skills or advice on how women could overcome the social barriers to their HIV/AIDS prevention. Third,
the information may fail to mention the availability of the local services where women could get help with HIV/AIDS prevention. Fourth, men’s responsibilities in women’s HIV/AIDS prevention efforts may be rendered indivisible in the information. In other words, men as an important party that should also be involved in protecting women’s health could be largely ignored. Such information is thus perceived to be pointless considering the fact that existence of the barriers to women’s HIV/AIDS prevention is often caused by their male partners (CDC, 2007a). Fifth, the information may not be perceived to be describing the reality. Not all women are in a particular disadvantageous social situation, and disadvantageous social situations may not necessarily put them at greater risks for HIV/AIDS.

**Perceived relevance**

Failure to perceive relevance is yet another source of women’s negative reactions. First, the information may be perceived to be meaningless by women in disadvantageous social situations. Thus, it may not be perceived to be directly important to women’s HIV/AIDS prevention *per se*, but more relevant to researchers. Second, scare tactics may not be wisely applied in the information. There may not be a healthy balance maintained between making women who are at risk for HIV/AIDS feel the relevance and avoiding leading them to get unnecessarily too scared to even want to read such information. Third, the information may be perceived to be contradictory with certain values in both the mainstream and the minority culture. Such values include freedom in sex in the contemporary Western culture, no use of birth control in the Latino culture, etc. Fourth, the information may not be perceived to be relevant to women as a group. Fifth, the information may not be perceived to be relevant to women as individuals if it is not tailored to the particular situation of every woman.

The degree of relevance women perceive in the information largely depends on the public health communication strategies adopted by website designers, including generic, targeted and tailored public health communication. The smaller the size of the intended audience and the more
detailed the information collected about the intended audience is, the more individualized the information would be perceived (Kreuter et al., 2000). However, although more desired, tailored public health communication has not been widely applied because of its relatively higher cost (Kreuter et al., 1999). Since the HIV/AIDS prevention information on the two government health websites selected for this empirical study is labeled to be targeted to women as a group, it would be natural for women not to feel it speaking to their individual situations, although they might appreciate the fact that there is information specially designed for them.

**Social construction of gender and sexuality in the HIV/AIDS discourse**

According to Gupta’s (2000) framework, the identified factors that influence reaction to information in the category of social construction exemplify the stereotypical or disempowering construction of gender and sexuality in the HIV/AIDS discourse.

First, the information concerning “prevention strategies” and “gender-specific problems” reproduces the stereotypical feminine ideals such as purity, faithfulness and submission to males’ dominance. For example, abstinence and being faithful --- two of the most frequently stressed prevention strategies on government health websites --- are forced on women, instead of being provided to them simply as two options available. Although some women may think abstinence and faithfulness are good choices, others may not think so or find it hard to do so. Thus, all women may not practice abstinence and faithfulness, especially those who are not hesitant to express their sexuality. In addition, not all women lack control in relationships, submit to males’ dominance, or cannot say no to sex. According to Foucault (1972), women are not uniformly powerless victims and subordinated by the patriarchal power. Rather, unequal power relations provide a space for enacting agency. No power relations exist where there is no resistance.
Despite the many structural inequalities such as poverty, racism and sexism faced by women, they make reasonable choices in the context of facing these circumstances.

The information concerning “gender-specific problems” also reproduces the stereotypical female role as caregivers, where women are supposed to subordinate their needs to those of whom they care for, i.e. men and children (Charlesworth, 2003). Not all women have children or are caregivers. Even for those who do have children and are indeed caregivers, they are already caring about their own health when they are looking for HIV/AIDS prevention information for themselves.

In addition, the information concerning “gender-specific problems” reproduces the stereotypical social-economic status of women, such as low income, poverty, unemployment, and lack of education. As a matter of fact, not all women are or would admit they are in such disadvantageous situations.

Second, the information concerning “prevention strategies” and “gender-specific problems” is not empowering. For example, it tells women the societal reasons for their increased HIV/AIDS infections, without telling them specifically how to overcome these social barriers to their HIV/AIDS prevention either as individuals or as a society. It represents the female condom as a magic instrument that is under the full control of women for HIV/AIDS prevention and can liberate them from relying on men to use condoms. However, it fails to tell women how to increase their power in sexual relationships and overcome gender inequalities so that they are able to use the female condom willingly and take their sexuality into their own hands.

In addition, such information strongly advocates to women the idea of being faithful without telling them what to do if their only male partner is not faithful or already have HIV/AIDS. It recognizes the great dependency of women’s capabilities to stay safe on the behaviors of their male partner. However, it fails to speak to men regarding their responsibilities
in women’s HIV/AIDS prevention. It also fails to involve men into this effort to make women feel easier to talk to them about safer sex. In all, men are largely absent actors.

Furthermore, such information urges women to talk to their male partner about safer sex. However, it fails to provide women skills on how to talk and “obtain their partner’s cooperation through effective communication and persuasion” (Gil, 1998, p. 14), especially when they are in a man-dominated sexual relationship. It tells women the biological factors contributing to their vulnerability to HIV/AIDS, but fails to realize that biological factors are unavoidable and unchangeable. As a result, it could be more useful and important to researchers than to women looking for HIV/AIDS prevention information. It provides all kinds of HIV/AIDS prevention information, but fails to tell women the availability of local services or resources. Such local services or resources could either be specifically on HIV/AIDS prevention, or be generally on women’s welfare that could facilitate their help seeking activities.

Thus, in agreement with Rosser’s (2005) criticism of cyberfeminism, the ideologies surrounding gender and sexuality are still reproduced in the HIV/AIDS prevention information on government health websites. In other words, the construction of gender and sexuality is homogenously not transformational or empowering. Such construction decontextualizes women’s cultural, interpersonal and sexual experiences with men (Amaro, 1995; C. Patton, 1994; Raheim, 1996). Consequently, the information fails to provide realistic, feasible and culturally relevant prevention strategies to women that could help them overcome the social constraints to their HIV/AIDS prevention (Raheim, 1996). More importantly, although the information recognizes women’s responsibilities for reducing their risks for HIV/AIDS and protecting themselves from its infections, it provides them with little advice or resource on the societal changes that could transform the old paradigm of the imbalanced gender power and afford women the power necessary to take on these responsibilities (Charlesworth, 2003; Chong & Kvasny, 2007; Gupta, 2000). As a result, women reading the information might experience “feelings of powerlessness
instead of a sense of self-efficacy and personal responsibility for their own health” (Raheim, 1996, p. 406). If patriarchal ideologies continue to influence such rhetorically powerful discourse as that produced by the government, the HIV/AIDS prevention information on government health websites would be limited in accomplishing the goal of reducing HIV/AIDS infections among women (Charlesworth, 2003; Chong & Kvasny, 2007).

In all, the influencing factors of information finding and reaction to information identified in this empirical study illustrate the relationship between information seeking and knowledge gain, thus fill the gap of Rimal and Real’s (2003) Risk Perception Attitude framework. The identified influencing factors of reaction to information also exemplify and add evidence to Gupta’s (2000) categories of social construction of gender and sexuality in the HIV/AIDS discourse.

**Practical implications**

The identified influencing factors of information finding and reaction to information also have practical implications for website designers on how they can ease women’s information seeking process and maximize their positive reactions to the HIV/AIDS prevention information. Specifically, the identified influencing factors imply practical recommendations for website designers on how they can improve information accessibility, format and content; how they can socially construct gender and sexuality in the HIV/AIDS discourse in a more empowering way; and how they can appropriately apply public health communication strategies. Such efforts could eventually contribute to alleviating the disadvantageous status of women in the HIV/AIDS epidemic.
Information accessibility, format and quality

With regard to information accessibility, website designers need to place the relevant links on the Web page preferably at all of the three locations where the information is perceived to be most visible, i.e. the side, center and top. Website designers also need to place the relevant links on different pages of the website and place them as near to the homepage as possible as well. In addition, website designers need to rely on tools such as the user survey to identify links whose name sounds confusing, and change such names to the ones that are easier to understand. Furthermore, website designers need to make it easier for users to search the relevant links by using the in-site “search” function and to successfully find them as well. This could be achieved by providing less links on one page to make it less overwhelming, and inserting one link for all instead of each of the relevant news articles on the search result page for those interested to click on. Besides, even when there are no exact matches, links should still be available that at least match one of the search terms in the queries instead of nothing provided at all. Like what Google does, suggestions of alternative search terms should also be made.

Compared with CDC HIV/AIDS which had stayed almost the same over the entire period of this research (November 2008-November 2009), Womenshealth.gov had undergone much more positive changes. Some of these changes coincidentally improved the original design in terms of the influencing factors of information finding that were identified in this empirical study. On the most recent version of Womenshealth.gov retrieved (Figure 6.2), the message “no matches” never showed up on the search result page even after I tried the queries used by the female participants that turned out to have “no matches”. At the top of the search result page, the link of “best bets” and the links of news article titles were replaced by tabs of relevant link categories, e.g. “FAQ”, “News” and “Clinical Trials”. These categories provided more options to women and were less distracting as well. In addition, the name of the link “gender-specific
problems” was changed to “women are at risk”. Judging from the female participants’ comments, the name “women are at risk” could more accurately reflect the actual topic of the information content, i.e. reasons for women’s increased vulnerability to HIV/AIDS.
Figure 6.2: Screenshot of one search result page on Womenshealth.gov (November 19, 2009)
Source: http://womenshealth.gov/
Two other strategies for improving information accessibility online that were suggested by Sandvig and Bajwa (2004) could be informative as well. First, the navigation system of a website is important. Users usually perceive browsing to be easier than searching and thus are more likely to find the information through browsing. Therefore, website designers need to improve their navigational design by identifying queries that frequently occur in their search engine logs that indicate the information that users fail to find using the navigation system, and “providing clear paths to the most commonly sought information on their site” to “accommodate this preference” (p.18).

Second, effective website design on information accessibility “depends upon the preferences and skills of individual users”. In other words, “a design that is effective for one user may confuse or irritate another user”. Thus, it is necessary for website designers to “test the design…on a representative sample of the target user population” and “offer multiple options to accommodate the preferences of different users” (p.13). However, the popularity of the Web has led to “the growing demographic diversity of the web user population” and “a wider diversity of web user skills and experience”. This has increased the difficulties in designing websites “that work well for all users” (p.13).

With regard to information format, website designers should try to provide information in other languages that is as rich as the information in English. Website designers also need to incorporate more interactive features that support two-way communications and enable both users and healthcare professionals to provide information content, including comments, concerns, questions and answers, etc. Such features should be able to help users solve problems, connect with others in similar situations, and get more actively involved. Website designers need to take into consideration whether such features are “effective and easy to use”, “especially when dealing with multiple forms” (Hassan & Li, 2005, p. 54). In addition, website designers need to create a more user-friendly interface by making more use of the available modern media, having the
Layout of the Web page appear more aesthetically appealing, and paying more attention to page length, font size, and information load.

With regard to information quality, website designers need to make sure the information content represents the truth and is specific and detailed. Website designers also need to separate the information that is more cliché from the more up-to-date information that needs more attention. In addition, website designers need to separate the information that targets people in different situations.

**Social construction of gender and sexuality in the HIV/AIDS discourse**

In order to improve the stereotypical and disempowering construction of gender and sexuality in the HIV/AIDS prevention information, website designers need to be committed to building a democratic cyberspace that is repression free and able to alleviate the social and health inequalities for women. Website designers also need to be committed to avoiding using stereotypical and disempowering strategies, and to advancing a more humane discourse that is discursively inclusive and free of damaging ideologies. Such discourse should empower women and encourage them to take active steps collaboratively to free themselves from the entrenched power inequalities dictated by patriarchal ideologies. Such discourse should also aim at transforming the imbalanced gender relations within the current system and making them equitable (Chong & Kvasny, 2007; Mushi, 2004; Renwick, 2002). This aim could be achieved through redefining gender roles at the personal, relationship, community and societal levels, and “seek[ing] to empower women or free women and men from the impact of destructive gender and sexual norms” (Gupta, 2000, p. 6).

Besides manipulating the assumptions and structural elements in their discursive practices in the desirable direction, website designers need to start from women’s daily lived
experiences, lead women to question their original understandings about their own identities, and leverage the authoritativeness of website designers to challenge the ideologies that may increase women’s risks for HIV/AIDS (Chong & Kvasny, 2007). Until that happens, when women are clicking their way through the HIV/AIDS prevention information online, they still need to be aware of and be critical about the embedded patriarchal ideologies to facilitate their decision-making process (Mushi, 2004).

Specifically, website designers need to accurately represent women’s cultural experience. Website designers need to go beyond ABC and provide both behavioral and contextual prevention strategies that are more responsive, relevant and empowering. Website designers also need to avoid placing a disproportionate amount of responsibility on women and address the sexual behavior of their male partner as well. In addition, website designers need to provide links leading to local services (e.g. “find help in your community”) or non-HIV resources to help women adopt the desired behaviors and move from information seeking to behavioral change.

On the “prevention” page of the most recent version of Womenshealth.gov retrieved, website designers made changes towards constructing more empowering HIV/AIDS prevention information for women. For example, there were examples of mock conversations between women and men that told women how to respond when their male partner refused to use condoms (Figure 6.3). Explanations on how to use male and female condoms were also much more detailed than before (Figure 6.4).
**Take Time to Talk Before Having Sex**

Talking about sex is awkward for some people. So, they don't bring up safe sex or STIs with their partners. But keep in mind that it's your body, and it's up to you to protect yourself. Talking with your sex partner about using condoms before having sex will help you to avoid misunderstandings during a moment of passion. Let your partner know that you will not have any type of sex at any time without using a condom. If your partner gives an excuse for not using condoms, be ready with a response. Here are some ideas:

- **If he says:** “Trust me ... I don't have any diseases.”
  You say: “It's not about trust. Some people have STIs and don't even know it because they have no symptoms. Using a condom will protect both of us.”

- **If he says:** “Sex doesn't feel as good with a condom.”
  You say: “Let's try another brand or style.”

- **If he says:** “Stopping to put on a condom spoils the mood.”
  You say: “I can't enjoy sex if it's not safe.”

- **If he says:** “Let's just do it this one time without a condom.”
  You say: “It only takes one time to get pregnant or get an STI.”

- **If he says:** “I don't have a condom with me.”
  You say: “That's okay, I do!”

---

Figure 6.3: Screenshot of “Take Time to Talk Before Having Sex” on Womenshealth.gov (November 19, 2009)

**How to Use Condoms**

Male and female condoms can be used to protect yourself against HIV. But don’t use them both at the same time! They do not stay in place when used together. Read the instructions and practice a few times before using condoms for the first time. Also, follow these guidelines:

**Male Condom**

Use male condoms made of latex, or polyurethane if you or your partner is allergic to latex. Use male condoms for vaginal, anal, or oral sex.

- Keep male condoms in a cool, dry place. Storing condoms where it can get hot, like in the car or your wallet, can cause them to break or tear.
- Check the wrapper for tears and make sure the condom is not too old to use. Carefully open the wrapper. Don’t use your teeth or fingernails. Make sure the condom looks okay to use. Don’t use a condom that’s gummy, brittle, discolored, or has even a tiny hole.
- Put on the condom as soon as the penis is erect, but before it touches the vagina, mouth, or anus.
- Use lubricants only made with water, such as K-Y jelly. Oil-based lubricants, such as Vaseline, can weaken the condom. The lubricant is put on the outside of the condom. It helps to keep the condom from tearing. Don’t regularly use lubricants with spermicide called nonoxynol-9 (N-9), which might make it easier for HIV to get into your body.
- After sex, pull out the penis while it is still erect, holding the condom firmly at the base of the penis so it does not slip off.
- Use a new condom if you want to have sex again or in a different way.

**Female Condom**

The Reality female condom is made of polyurethane. It has a ring on each end. The inside ring holds the condom in place inside the vagina. The outer ring stays outside the vagina so it covers the labia. Use female condoms for vaginal sex if your partner can’t or won’t use a male condom.

- Check the wrapper for tears and to make sure the condom is not too old to use. Open the wrapper carefully. Don’t use your teeth or fingernails. Make sure the condom looks okay to use.
- Put the condom into the vagina up to eight hours before having sex, but before the penis touches the vagina. The condom cannot disappear inside your body.
- It is okay to use water or oil-based lubricants. The lubricant is put on the inside and outside of the condom.
- After sex, remove the condom before standing up. Grasp the outside ring and twist the condom to trap fluid and gently remove.
- Use a new condom if you want to have sex again or in a different way.

Figure 6.4: Screenshot of “How to Use Condoms” on Womenshealth.gov (November 19, 2009)

Source: http://womenshealth.gov/hiv/prevention/
However, according to Chong and Kvasny (2007), although gender inequalities have to be radically challenged in the HIV/AIDS discourse, it is easier said than done. Imbalanced gender power relationships did not come into being overnight, thus could not be eliminated overnight, either. More actions are needed than words. Coutinho (2004) once mentioned, “it (HIV/AIDS) flourishes on our socioeconomic, cultural, and political structures; to deal it a death blow would require a revolution in the world order, and a rejection of the systems that condemn so many people to short, deprived, and unfulfilling lives” (p.1929).

**Public health communication strategies**

Although fear appeal or fear arousal is one of the most commonly used persuasive strategies in public health communication to promote desired behavioral change (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996; Murray-Johnson et al., 2001), this strategy has been criticized for manipulating individuals by using frightening messages that focus on “the noxious consequences that will befall message recipients if they fail to adopt the recommendations” (Dillard et al., 1996, p. 44). In addition, the findings of Dillard et al’s (1996) examinations of a sample of HIV/AIDS PSAs showed that, although fear appeal could promote acceptance of a health message, other affects also evoked by the same message could be barriers to acceptance. Therefore, website designers need to be wise when applying scare tactics in the HIV/AIDS prevention information. Specifically, website designers should not stress the information too much that could scare women into prevention. Rather, website designers need to keep a good balance between alarming women with the cruel facts about HIV/AIDS and, at the same time, preventing them from being too scared unnecessarily to even read the information.

In addition, website designers need to make the HIV/AIDS prevention information targeted to women truly different from the information targeted to the general population. More
importantly, for such a diversified population as that of women, each individual may have distinct socio-economic status, knowledge, beliefs, opinions, cultural values, and personal experience. Thus, women could differ sharply from each other in the determinants of their vulnerability to HIV/AIDS. It could still be the case even for women in the same racial/ethnic group. For example, the reasons given on Womenshealth.gov for the higher rates of HIV/AIDS infections among African American women may not necessarily be true for every one of them. In other words, HIV/AIDS may not influence every African American woman the same way. The extent of HIV/AIDS risks depends on the individual, not the group the individual belongs to. Therefore, it is almost impossible to identify determinants of the risk for HIV/AIDS that are common to all women as a whole. As a result, the non-individualized or universalized information could hardly speak to every woman or make all of them equally satisfied. Women reading it would then easily complain about its being unimportant, unacceptable or irrelevant. For example, some of the Latina female participants in this empirical study were discontent that the prevention strategies provided were not feasible in their culture.

Therefore, website designers need to adopt a comprehensive public health communication strategy that integrates both targeting and tailoring to maximize the efficacy and cost efficiency of HIV/AIDS prevention promotion for women. On the most recent version of Womenshealth.gov retrieved on November 19, 2009, information on reasons for women’s increased vulnerability to HIV/AIDS is broken into sections specifically designed for some subgroups of women, including “young women”, “women over 50”, and “Women Who Have Sex with Women”. Although this is a positive sign of change towards tailoring, it is still not individualized enough.

Website designers need to design computer programs capable of making an assessment of an individual woman based on the personal information she has entered and certain algorithms. Such computer programs should also be capable of automatically delivering tailored feedback
protocols to this woman concerning her HIV/AIDS risk and prevention (Kreuter et al., 2000; Strecher et al., 2005). More importantly, social issues and lifestyle choices that put women at risk, instead of demographic identities such as races, should be used to define women’s risks for HIV/AIDS. An example of such a computerized tailoring program for HIV/AIDS prevention can be found on The Body website (Figure 6.5), where users can assess their risks for HIV/AIDS through taking a survey of their demographic information and sexual behaviors.
Figure 6.5: Screenshot of the front page of the survey “Assess Your Risk for HIV” on The Body (December 5, 2009)
Source: http://www.thebody.com/surveys/sexsurvey.html
Although tailored public health communication could be especially difficult to practice given the large and highly diverse population in the U.S. as indicated in the female participants’ comments in this empirical study, website designers should still try to tailor the HIV/AIDS prevention information targeted to women. Eventually, the information could reach more individual women through recognizing and responding to their different needs and constraints (Gupta, 2000)

Furthermore, website designers can design computer programs that could track and keep a record of each woman’s information seeking activities, thus have website design be “tailored to individuals’ information-seeking style to help them become more self-sufficient, lifelong information seekers” (Case et al., 2005, p. 360).

**Summary**

The identified influencing factors of information finding and reaction to information have both theoretical and practical implications.

Theoretically, the identified influencing factors imply the potential impacts information finding and reaction to information could have on the amount of knowledge women could eventually gain from the HIV/AIDS prevention information on government health websites. Such impacts fill the gap of Rimal and Real’s (2003) Risk Perception Attitude framework. The identified influencing factors also imply stereotypical or disempowering construction of gender and sexuality in such information.

Practically, the identified influencing factors inform website designers of tactics on improving their design of the HIV/AIDS prevention information for women. These tactics are concerned with information accessibility, format and quality; social construction of gender and sexuality in the HIV/AIDS discourse; and public health communication strategies.
Chapter 7

Conclusions

This research identified the influencing factors of information finding and reaction to information, i.e. information accessibility, information format and quality, social construction, and perceived relevance. It is these influencing factors that intervene between information seeking and knowledge gain when women look for HIV/AIDS prevention information on government health websites. This research has theoretical implications for Rimal and Real’s (2003) Risk Perception Attitude framework, as well as for research in the social construction of gender and sexuality in the HIV/AIDS discourse. This research also has practical implications for website designers on how to improve their design for women.

In this chapter, I discuss the theoretical and practical contributions of this research, its limitations in the empirical study design, and its implications for future studies.

Research contributions

To my knowledge, this is the first study that examines women’s information behavior on government health websites in the context of HIV/AIDS prevention. This research represents the relationships among information, technology and people. It is significant both theoretically and practically.

Theoretically, this research makes contributions to three research communities. First, in the area of public health education, this research challenges and fills the gap of Rimal and Real’s (2003) Risk Perception Attitude framework through unpacking how information seeking as a
preventative health behavior may not necessarily lead to an increase in knowledge gain about a disease as a result of the influencing factors of information finding and reaction to information. This research improves this framework by proposing the Extended Risk Perception Attitude framework.

Second, in the area of gender studies, this research exemplifies Gupta’s (2000) categories of social construction of gender and sexuality in the HIV/AIDS discourse. This research also adds new evidence that proves the validity of this framework based on the insiders’ views from average women who actually interact with the HIV/AIDS discourse both behaviorally and emotionally, instead of the outsiders’ views from researchers who usually simply critique such discourse disinterestedly.

Third, in the area of information behavior, this research enriches the literature in health-related information behavior, especially information behavior related to women’s health and HIV/AIDS, through switching the traditional research focus on information seeking alone to the information behavior thereafter, particularly information finding and reaction to information.

Practically, this research provides recommendations to website designers on how to design HIV/AIDS prevention information for women in terms of making it more accessible, user-friendly, reliable, empowering and relevant. With the website designers’ efforts, women online could be better reached and educated, and gain more knowledge from the HIV/AIDS prevention information available to them. More importantly, the health inequality in the HIV/AIDS epidemic for them could be alleviated.

**Research limitations**

Although significant, this research is still limited in four aspects of the empirical study design.
First, the female participants of this empirical study performed the information seeking task in an artificial, controlled setting, instead of the natural environment that they would normally have in their daily life (Denzin & Lincoln, 2003; Eysenbach & Köhler, 2002; Kari, 2004). Although an artificial, controlled setting is more convenient for collecting more accurate data, it could undermine naturalism and contextuality --- two important considerations in empirical information seeking studies (Dutta-Bergman, 2005; Kari, 2004). In this empirical study, the female participants’ comments could be biased by my presence, observation and/or occasional interruptions. In other words, their comments might not be exactly the same with what they would think when they were searching online alone in their natural surroundings. In addition, it could be especially hard for them to disclose in front of me their opinions of information on such a stigmatized disease as HIV/AIDS (Rozmovits & Ziebland, 2004). Furthermore, this research imposed an information seeking task upon the female participants; instead of letting them look for what they truly needed on websites they located themselves by using search engines. Therefore, the findings of this research may only reflect the female participants’ simulated information behaviors that are only associated with the task at hand. As a result, the female participants’ performance and comments could be negatively affected (Martzoukou, 2004; Tombros et al., 2005).

In order to minimize these negative effects, I took some measures to create a study environment for the female participants that was as close to their natural surroundings as possible in order to let them feel unrestricted while performing the information seeking task (Tombros et al., 2005; Warren, 2006). For example, I did not set any time limits and explicitly told the female participants to take their time so that their performance would be as natural as when they were in their natural environment where they were not under felt time pressure (Eysenbach & Köhler, 2002; Sandvig & Bajwa, 2004). I also told the female participants explicitly before each session that there were no right or wrong answers and they were free to express their true feelings and
opinions. I told them to perform the tasks as if I was not present as well. I reinforced my “absence” by sitting in the background and silently watching and listening with minimal interruptions (Eysenbach & Köhler, 2002). In addition, I encouraged them to search in any way they wanted or felt comfortable with and use any available tools they found necessary. In other words, there were virtually no restrictions or recommendations on how they would go about completing the information seeking task (Eysenbach & Köhler, 2002; White & Iivonen, 2001).

Second, although female university students could well represent the general female population online (Sandvig & Bajwa, 2004), there are demographic limitations with the profiles of the female participants in this empirical study. In other words, the female participants are still not diverse enough. Although they have various racial/ethnic background, they are all university students and largely similar in age, social-economic status, computer skills, and education level. As a result, there are some education, class and identity biases in their comments.

For example, based on their own education levels, some female participants assumed that women should have already known how to prevent HIV/AIDS. In fact, there might still be a lot of women today in the U.S. who are not educated enough to know about HIV/AIDS prevention. Based on their own classes, some female participants found it ridiculous and hard to imagine that women were not able to afford the transportation to the doctor. In fact, in the U.S., 13.8 percent of women were poor and 11.1 percent of men were poor in 2007 (U.S. Census Bureau, 2008). Thus, transportation could indeed be a problem for a lot of women. In addition, based on their own identities as women who were still not responsible for caring for children or others, some female participants too easily believed that women would put their own health in the first place. In fact, most mothers will put themselves last.

Besides biases, some female participants even reproduced the stereotype of women as caregivers in their comments. These female participants suggested that, in order to motivate those women with a caregiver mindset to take care of their own health, the websites should tap into
their tendency to care for others and make them realize that their prevention of HIV/AIDS was not just for their own benefits, but also for the benefit of those they were caring for. What is of note is that even when these female participants seemed to be talking about “women” in general, they were very likely to be talking about themselves as well.

Third, the female participants occasionally failed to explicitly point out in their comments the specific information content on a Web page on which their comments were made. I also occasionally failed to ask them for clarification through concurrent probing. Thus, analysis of such comments required more of my interpretations. When it was hard for me to figure out what the female participants’ were actually referring to, I coded such comments as “overall”. As a result, it was likely that part of my analysis or interpretations were not completely consistent with the female participants’ original intentions when they were making such comments (Tombros et al., 2005).

Fourth, because of time and resource constraints, I did not apply the member checking techniques in this empirical study. In other words, I did not solicitate the female participants’ feedback afterwords on the findings of this research so as to let them conduct reality checking on my interpretations of their original comments.

**Future studies**

This research opens up new lines of scholarly inquiry and critique. It has three aspects of implications for future studies.

First, studies with different groups of female online users, different genres of websites, different versions of a website over time, and/or the emerging Web 2.0 applications could be conducted to gain a more comprehensive understanding of women’s information behavior online in the context of HIV/AIDS prevention (Yang & C. Chan, 2008). It would also be interesting to
see if and how the research findings might change (Sandvig & Bajwa, 2004), as well as how
different organizational interests and social contexts might influence such changes (Chong &
Kvasny, 2007). Different versions of a website over time could be collected by using such
applications as Wayback Machine, a Web interface for capturing and storing Web pages over the
years (Koman, 2002). Such longitudinal studies are regarded by Mautner (2005) as important for
revealing power dynamics.

Second, website evaluation tools on the accessibility, format and content of HIV/AIDS
prevention information could be developed based on the influencing factors of information
finding and reaction to information that were identified in this empirical study. Website designers
could use such tools to guide their practice through gathering female online users’ website
evaluation scores. Female online users could also use such tools to facilitate their website
selection process through evaluating websites and ranking them based on the calculated total
scores (Yang & C. Chan, 2008). Future studies could also try to identify and assign weights or
relative importance to each category --- even each item within each category of such tools --- so
that more accurate website evaluation scores could be generated (Hassan & Li, 2005; Yang & C.
Chan, 2008).

Third, future studies could try to test the theoretical propositions implied in the extended
Risk Perception Attitude framework with regard to the relationship between reaction to
information and knowledge gain, i.e. information users’ negative reactions to information would
not result in an increase in their knowledge base. Individual differences that could play a role in
this relationship, such as cognitive and affective styles and abilities as well as socio-cultural
contexts, could be tested, too.
Summary

This research has both theoretical and practical contributions. Theoretically, it challenges and fills the gap of Rimal and Real’s (2003) Risk Perception Attitude framework. It improves this framework by proposing the extended Risk Perception Attitude framework. This research also exemplifies categories of social construction of gender and sexuality in the HIV/AIDS discourse, and adds new evidence that proves their validity. In addition, this research enriches the literature in health-related information behavior by switching the research focus to other information behaviors than information seeking. Practically, this research makes recommendations to website designers on how to design HIV/AIDS prevention information for women that is more accessible, user-friendly, reliable, empowering and relevant.

However, this research is limited in its empirical study design with regard to the process of data collection and analysis. Future studies are needed that could expand the scope of this research, develop website evaluation tools, and test the relationship between reaction to information and knowledge gain.
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Appendix A

Modified Task Sheet and Demographic Information Form

1. Please look for HIV/AIDS prevention information targeted to women on the two U.S. government health websites I have selected starting from the homepage. You can search in any way you want or feel comfortable with, and use any available tools you find necessary. Please stay within these two websites without clicking on links leading outside of them. Please keep thinking aloud in the meantime everything that occurs in your mind, especially your comments on the information seeking process and the information you find (Note: here HIV/AIDS prevention information addresses women who are, or who believe they are HIV negative, instead of women who are already infected with HIV/AIDS and try not to contract opportunistic diseases or transmit the virus to others).

2. Please answer two interview questions.

3. Please fill out the demographic information about yourself.

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>___White or Caucasian (Not Hispanic/Latina)</td>
<td>___&lt;18</td>
</tr>
<tr>
<td>___Black or African-American (Not Hispanic/Latina)</td>
<td>___18-24</td>
</tr>
<tr>
<td>___Hispanic/Latina (White or Caucasian)</td>
<td>___25-34</td>
</tr>
<tr>
<td>___Hispanic/Latina (All other races or multiple races)</td>
<td>___35-44</td>
</tr>
<tr>
<td>___Asian</td>
<td>___45-54</td>
</tr>
<tr>
<td>___Pacific Islander</td>
<td>___55-64</td>
</tr>
<tr>
<td>___American Indian and Alaska Native</td>
<td>___≥65</td>
</tr>
</tbody>
</table>
### Others: please specify______________

<table>
<thead>
<tr>
<th>Annual family income</th>
<th>Number of family members</th>
</tr>
</thead>
<tbody>
<tr>
<td>__&lt;10,000</td>
<td>___1</td>
</tr>
<tr>
<td>__10,000-13,500</td>
<td>___2</td>
</tr>
<tr>
<td>__13,500-17,000</td>
<td>___3</td>
</tr>
<tr>
<td>__17,000-20,500</td>
<td>___4</td>
</tr>
<tr>
<td>__20,500-24,000</td>
<td>___5</td>
</tr>
<tr>
<td>__24,000-27,500</td>
<td>___6</td>
</tr>
<tr>
<td>__27,500-31,000</td>
<td>___7</td>
</tr>
<tr>
<td>__31,000-34,500</td>
<td>___8</td>
</tr>
<tr>
<td>__34,500-38,000</td>
<td>___≥9</td>
</tr>
<tr>
<td>__≥38,000</td>
<td></td>
</tr>
</tbody>
</table>

### Years of experience with the computer/Internet

| __<1 year           | ___1-5 years             | ___6-10 years | ___Undergraduate or lower |
| __11-15 years       | ___16-20 years           | ___>20 years  | ___Master                  |
| __≥38,000           |                          |               | ___PhD or higher           |

### Education level

### Major ________________________________

### Which course(s) or organization(s) are you currently enrolled in (check all that apply)

| __Course 1          | ___Course 2              | ___Course 3  |
| __Organization 1    |                          |              |
| __Organization 2    |                          |              |
| __Graduate student organization |          |              |
| __None of the above |                          |              |
| __Not a student of this university |        |              |
Appendix B

Modified Scripts

Please sit down here and read the Informed Consent Form.

Do you have any questions about it? Please sign on these two copies: one for your own record and one for mine.

There is an information seeking task for you to complete. Please think aloud or talk aloud freely to yourself while you are performing these two tasks as if I was not present. My main role is to listen and observe. I will try not to interrupt you unless I need to remind you to think aloud, to remind you what you should have thought aloud, or need to ask you probing questions. You can take as long as you need to finish these tasks. However, you are not supposed to ask for and will not get help from me concerning, e.g. searching strategies or locations of the information. After this task, there will be a brief interview. In the end, you will need to fill out your demographic information. Your online movements as well as the computer screen will be video-taped and the whole research process will be audio-taped. Please try to talk loudly, slowly and clearly. There are no right or wrong answers. Just let me know your true feelings and opinions.

Here is the task sheet. You may read along silently the instructions as I am reading aloud. Please feel free to ask questions whenever you feel necessary.

Please look for HIV/AIDS prevention information targeted to women on the two U.S. government health websites I have selected starting from the homepage. Please stay within these two websites without clicking on links leading outside of them. You can search in any way you want or feel comfortable with, and use any available tools you find necessary. Please keep thinking aloud in the meantime everything that occurs in your mind, especially your comments on
the information seeking process and the information you find. Please note that here HIV/AIDS prevention information addresses women who are, or who believe they are HIV negative, instead of women who are already infected with HIV/AIDS and try not to contract opportunistic diseases or transmit the virus to others.

Please answer two interview questions. First, what do you think HIV/AIDS prevention information targeted to women on government health websites should be focused on in order to better educate women? Should it be on how to prevent HIV/AIDS from the perspective of individual behaviors, on the contexts that could constrain their performance of prevention behaviors, or both? Why?

Second, do you have any suggestions of anything else that is important but has not been addressed in the HIV/AIDS prevention information targeted to women that you have found on the two U.S. government health websites in the information seeking task?

Please fill out the demographic information about yourself.

Thanks for your participation. Here is your payment. Please fill out this payment confirmation form to confirm that you have received it.
Appendix C

Literature-Driven Coding Schema

<table>
<thead>
<tr>
<th>Higher-level code: Information Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Accessibility</strong></td>
</tr>
<tr>
<td>• Functions of links</td>
</tr>
<tr>
<td>• Navigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher-level code: Reaction to Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Format</strong></td>
</tr>
<tr>
<td>• Interactivity</td>
</tr>
<tr>
<td>• Media use</td>
</tr>
<tr>
<td>• Consistency</td>
</tr>
<tr>
<td>• Aesthetics</td>
</tr>
</tbody>
</table>

<p>| <strong>Information Quality</strong>                    |
| • Sponsorship                              |
| • Authorship                               |
| • Authority                                |
| • Attribution                              |
| • Currency                                 |
| • Accuracy                                 |
| • Privacy/Confidentiality                  |
| • Coverage                                 |
| • Objectivity                              |
| • Writing                                  |
| • Arrangement/Organization                 |</p>
<table>
<thead>
<tr>
<th>Social Construction</th>
<th>n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Relevance</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Appendix D

A Sample of Coded Transcripts

<table>
<thead>
<tr>
<th>Higher-level code: Information Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information units/Abstracts</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>• The link of prevention is in the main sidebar where there are main points on the website, easy to find, didn’t have to use the search</td>
</tr>
<tr>
<td>• The more ways to find the information, the better, even the same info was repeated on different pages, make me remember</td>
</tr>
<tr>
<td>• HIV prevention info should be on the homepage, instead of searching for HIV then finding prevention later</td>
</tr>
<tr>
<td>• Hard to find information</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher-level code: Reaction to Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information units/Abstracts</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>

...
5.  
- Can only get HIV if sharing needles with people with HIV, not just sharing needles  
- Has diagrams of condoms  
- The video about taking time to talk before having sex is weird  

<table>
<thead>
<tr>
<th>Information Quality</th>
<th>Media Use</th>
<th>Prevention Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td></td>
<td>Injecting drug use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safer sex</td>
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<tr>
<td></td>
<td></td>
<td>Gender-Specific</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Problems-Lack of control in relationships</td>
</tr>
</tbody>
</table>
Appendix E

Text Examples of Topics and Sub-Topics of HIV/AIDS Prevention Information Targeted to Women on CDC HIV/AIDS and Womenshealth.gov

<table>
<thead>
<tr>
<th>Epidemiological Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-topics</strong></td>
</tr>
</tbody>
</table>
| (None) | • *Since 1985 the proportion of estimated AIDS cases diagnosed among women has more than tripled, from 8% in 1985 to 27% in 2005*
| | • *HIV/AIDS continues to be one of the leading causes of death for women aged 25-44*
| | • *Women of color (especially African American women) are the hardest hit*
| | • *Younger women are more likely than older women to get HIV* |

<table>
<thead>
<tr>
<th>Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-topics</strong></td>
</tr>
</tbody>
</table>
| How HIV is and is not spread | *HIV is passed from one person to another by:*
| | • *Having sex (vaginal, anal, or oral) with a person who has HIV*
| | • *Sharing needles with someone who has HIV, such as during injection drug use*
| | • *Pregnancy, birth, or breastfeeding if a mother has HIV*
| | • *Getting transfusions of blood that has HIV, which is rare in the United States* |
| | *HIV is NOT spread by:*
| | • *Sitting on toilet seats*
| | • *Hugging, handshakes, or closed-mouth kissing (there is a small chance of getting HIV from open-mouthed or "French" kissing if there's contact with* |
Sharing food or drinks  
• **Donating blood**  
• Work with or being around someone with HIV  
• **Using phones**  
• Getting bug bites  
• Tears  
• **Swimming in pools**

**Share your story**

- My name is CM, I will be turning 36 this year of our Lord 2009. I work with a Non Governmental Organisation in Zimbabwe. I tested positive in August 2007. I have two kids, a daughter and a son turning 16 and 10 respectively this year. Their father passed away in the year 2001, after being diagnosed with pneumonia. He was not tested for HIV and neither was I. I got into a relationship with new man in 2002 and also got a bit careless in the process by involving myself with another man...

### Prevention Strategies

<table>
<thead>
<tr>
<th>Sub-topics</th>
<th>Text examples</th>
</tr>
</thead>
</table>
| **ABC** (Abstinence, Be faithful, Condom) | The best way to prevent getting or spreading HIV is to know your "ABCs."  
- **A** stands for "abstinence" (not having sex of any kind). Abstaining from sexual activities, including vaginal, anal, or oral sex, is the safest way to avoid HIV.  
- **B** is for "be faithful". Being in a sexual relationship with only one partner who is also faithful to you can help protect you. This limits your number of sexual partners and the possibility of infection. |
- **C** is for condoms. Condoms should be used for any sexual activity with a partner who has HIV, or with any partner outside of a long-term, faithful sexual relationship. Be aware that condoms don't provide complete protection against HIV — the only sure protection is abstinence (not having sex of any kind).

### Safer sex
- **If you do choose to have a sexual relationship, make sure to practice safer sex.** Having safer sex means using a male or female latex condom correctly and consistently, for every sexual act. No exceptions. This will also prevent you from getting other STDs. If you have questions about how to have safer sex, talk with a doctor.
- **There is no such thing as safe sex — there is only safer sex.** Having safer sex means using a male or female latex condom correctly and consistently, for every sexual act. No exceptions.

### Male and female condoms
*Male and female condoms can be used to protect yourself against HIV. But don’t use them both at the same time!*

### Talking with the male partner
- **Talk about HIV and other STDs with each partner before you have sex**
- **Learn how to talk with your sexual partner about HIV and using condoms.** It’s up to you to make sure you are protected. Remember, it's YOUR body!
- **Learn as much as you can about each partner’s past behavior (sex and drug use) and consider the risks to your health before you have sex.**
- **Ask your partners if they have recently been tested for HIV; encourage those who have not been tested to do so.**

### Do not
- **Do not use spermicides that contain nonoxynol-9 (N-9).** This product may...
help keep you from getting pregnant, but it will not protect you from HIV. In fact, using N-9 often may actually make it easier for you to get HIV.

- Do not count on most birth control methods to protect you from HIV. The following birth control methods will NOT protect you from HIV:
  - The pill
  - Diaphrams
  - Shots
  - Implants
  - N-9

- Do not douche. Douching removes some of your body’s natural protection.

Injecting drug use

- Do not inject illicit drugs (drugs not prescribed by your doctor). You can get HIV through needles, syringes, and other works if they are contaminated with the blood of someone who has HIV. Drugs also cloud your mind, which may result in riskier sex.

- If you do inject drugs, do the following:
  - Use only clean needles, syringes, and other works.
  - Never share needles, syringes, or other works.
  - Be careful not to expose yourself to another person’s blood.
  - Get tested for HIV test at least once a year.
  - Consider getting counseling and treatment for your drug use.

- Do not have sex when you are taking drugs or drinking alcohol because being high can make you more likely to take risks.

Myths

Having correct information is the key to understanding HIV/AIDS. Some common myths about HIV/AIDS are listed below
- He doesn't "look" like someone with HIV
- Knowing who is on the "down low" will save me from getting HIV
- I cannot get HIV from tattoos or body piercing
- HIV can be cured

<table>
<thead>
<tr>
<th>Gender-Specific Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-topics</strong></td>
</tr>
<tr>
<td>Poverty/ Low income</td>
</tr>
</tbody>
</table>
| Caregivers              | Women may have to find someone to take care of their children while they go to the doctor.  
Women may be caregivers for others and not feel they have the time to take care of themselves  
Women often place the needs of their family above their own health needs |
| Lack of education       | Many experts also believe poverty, unemployment, and lack of education are helping to "drive" the growing HIV problem among women |
| Lack of control in relationships | Women may lack power in sexual relationships  
Socially, women, especially young women, may be more vulnerable because they have difficulty negotiating protective sex due to power differentials |
| African American women  | There are many issues that may contribute to the problem  
- Poverty  
- STDs  
- Incarceration of African American men |
<p>| Biological              | Women are more likely to get HIV for several biological reasons |</p>
<table>
<thead>
<tr>
<th>differences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>Women's bodies are different</em></td>
</tr>
</tbody>
</table>
Appendix F

Screenshots of Web Pages of CDC HIV/AIDS and Women's Health.gov

HIV/AIDS among Women

View PDF  | Spanish  | Revised August 2008

Early in the epidemic, HIV infection and AIDS were diagnosed for relatively few women and female adolescents (although we know now that many women were infected with HIV through injection drug use but that their infections were not diagnosed) [1]. Today, women account for more than one-quarter of all new HIV/AIDS diagnoses. Women of color are especially affected by HIV infection and AIDS. In 2004 (the most recent year for which data are available), HIV infection was

- the leading cause of death for black women (including African American women) aged 25–34 years.
- the 3rd leading cause of death for black women aged 35–44 years.
- the 4th leading cause of death for black women aged 45–54 years.
- the 4th leading cause of death for Hispanic women aged 35–44 years.

In the same year, HIV infection was the 5th leading cause of death among all women aged 35–44 years and the 6th leading cause of death among all women aged 25–34 years. The only diseases causing more deaths of women were cancer and heart disease [2].

STATISTICS

HIV/AIDS in 2005
(The following bullets, except for the last one, are based on data from 33 states with long-term, confidential name-based HIV reporting.)

- HIV/AIDS was diagnosed for an estimated 9,798 women [3].
- High-risk heterosexual contact was the source of 60% of these newly diagnosed infections [3].
- Women accounted for 28% of the estimated 37,183 diagnoses for adults and adolescents [3].
- Of the 129,964 women living with HIV/AIDS, 64% were black, 16% were white, 15% were Hispanic, 1% were Asian or Pacific Islander, and less than 1% were American Indian or Alaska Native [4].
- The estimated number of HIV/AIDS in female adults or adolescents decreased from 11,941 in 2001 to 6,705 in 2005 [3].
- According to a recent CDC study of more than 19,500 patients with HIV in 10 US cities, women were slightly less likely than men to receive prescriptions for the most effective treatments for HIV infection [5].
Sex of adults and adolescents with HIV/AIDS diagnosed during 2005

- Females 26%
- Males 74%

No. = 37,163

Transmission categories and race/ethnicity of women living with HIV/AIDS at the end of 2005

Note: Based on data from 33 states with long-term, confidential name-based HIV reporting.

AIDS in 2005

- Of 40,868 AIDS diagnoses in the 50 states and the District of Columbia, 10,774 (26%) were for women.
- The rate of AIDS diagnosis for black women (48.5/100,000 women) was approximately 23 times the rate for white women (2.0/100,000) and 4 times the rate for Hispanic women (11.0/100,000).
- An estimated 95,059 women were living with AIDS, representing 23% of the estimated 421,873 people living with AIDS in the 50 states and the District of Columbia.
- An estimated 4,128 women with AIDS died, representing 25% of the 16,316 persons with AIDS who died in the 50 states and the District of Columbia.
women accounted for 161,862 diagnoses, a number that represents 19% of the 952,623 AIDS diagnoses in the 50 states and the District of Columbia during this period [3].

- From the beginning of the epidemic through 2005, an estimated 85,644 women with AIDS died, accounting for 10% of the 850,790 persons with AIDS who died in the 50 states and the District of Columbia [3].
- Women with AIDS made up an increasing part of the epidemic. In 1992, women accounted for an estimated 14% of adults and adolescents living with AIDS in the 50 states and the District of Columbia [5]. By the end of 2006, the proportion had grown to 23% [3].
- Data from the 2005 census show that together, black and Hispanic women represent 24% of all US women [6]. However, women in these 2 groups accounted for 82% (8,837/10,774) of the estimated total of AIDS diagnoses for women in 2005 [3].

### Race/Ethnicity of Women with HIV/AIDS Diagnosed during 2006

![Race/Ethnicity Chart]

- **Asian/Pacific Islander**: 1%
- **American Indian/Alaska Native**: <1%
- **Hispanic**: 14%
- **White**: 17%
- **Black**: 66%

**Note**: Based on data from 33 states with long-term, confidential name-based HIV reporting.

Figure 1: Screenshot of “HIV/AIDS among Women” on CDC HIV/AIDS (February 12, 2008)

Source: http://www.cdc.gov/hiv/topics/women/resources/factsheets/women.htm
What Women Can Do

Your risk of getting HIV or passing it to someone else depends on several things. Do you know what they are? You might want to talk to someone who knows about HIV. You can also do the following:

- Abstain from sex (do not have oral, anal, or vaginal sex) until you are in a relationship with only one person and are having sex with only each other, and each of you knows the other’s HIV status.
  - If both you and your partner have HIV, use condoms to prevent other STDs and possible infection with a different strain of HIV.
  - If only one of you has HIV, use a latex condom and lubricant every time you have sex.

- If you have, or plan to have, more than one sex partner, consider the following:
  - Get tested for HIV
    - If you are a woman who is planning to get pregnant or who is pregnant, get tested as soon as possible, before you have your baby.
    - Talk about HIV and other STDs with each partner before you have sex.
    - Learn as much as you can about each partner’s past behavior (sex and drug use) and consider the risks to your health before you have sex.
    - Ask your partners if they have recently been tested for HIV; encourage those who have not been tested to do so.
    - Use a latex condom and lubricant every time you have sex.
    - If you think you may have been exposed to another STD such as gonorrhea, syphilis, or Chlamydia trachomatis infection, get treatment. These diseases can increase your risk of getting HIV.

- Even if you think you have low risk for HIV infection, get tested whenever you have a regular medical check-up.

- Do not inject illicit drugs (drugs not prescribed by your doctor). You can get HIV through needles, syringes, and other works if they are contaminated with the blood of someone who has HIV. Drugs also cloud your mind, which may result in riskier sex.

- If you do inject drugs, do the following:
  - Use only clean needles, syringes, and other works.
  - Never share needles, syringes, or other works.
  - Be careful not to expose yourself to another person’s
Figure 2: Screenshot of “What Women Can Do” on CDC HIV/AIDS (February 12, 2008)

Source: http://www.cdc.gov/hiv/topics/women/protection.htm
Figure 3: Screenshot of “Prevention Challenges: For the Public” on CDC HIV/AIDS (February 12, 2008)

Source: http://www.cdc.gov/hiv/topics/women/challenges.htm
HIV/AIDS and Women

Prevention Challenges
What CDC is Doing
What Women Can Do
Resources
Links

Source: http://www.cdc.gov/hiv/topics/women/index.htm

HIV and AIDS were originally thought to affect mostly gay men. However, women have always been affected too. And even though more men than women have HIV, women are catching up. In fact, if new HIV infections continue at their current rate worldwide, women with HIV may soon outnumber men with HIV.

The good news is that many women with HIV are living longer and stronger lives. With proper care and treatment, many women can continue to take care of themselves and others.

In some respects HIV and AIDS affect women in almost the same way they affect men. For example,

- Women of color (especially African American women) are the hardest hit.
- Younger women are more likely than older women to get HIV.
- AIDS is a common killer, second only to cancer and heart disease for women.

How are women getting HIV?
The most common ways are (in order)

1. having sex with a man who has HIV
2. sharing injection drug works (needles, syringes, etc.) used by someone with HIV

Figure 4: Screenshot of “HIV/AIDS and Women” on CDC HIV/AIDS (February 12, 2008)
**Gender-specific Problems**

- Biological and Physical Makeup
- Violence Against Women – Sexual Assault
- Barriers to Care
- HIV and African American Women
- A Secret World: Men on the “Down Low”
- Additional Information on Gender-specific Problems

On average, women — especially young women — are more at risk of getting HIV/AIDS because they have a hard time talking to their male partners about safer sex, such as condom use. Many believe that it is the norm for women to have less power in the relationship and rely heavily on their male partners. Thus, women may be less likely to leave an abusive or otherwise harmful relationship if they are dependent on men. And women in this position may feel forced to take part in unsafe sexual practices.

Concerns about high rates of HIV among women have brought new attention to the role of gender in sexual and reproductive behavior.

**Biological and Physical Makeup**

- Women are more likely to get HIV for several biological reasons.
  - There is a more exposed surface area in the female genitals (sex organs) than in the male genitals.
  - There are higher levels of HIV in semen than in vaginal fluids.
  - More semen is exchanged during sex than vaginal fluids.
  - Women often have untreated STDs, which makes them more likely to get HIV.

Many HIV-positive women with negative partners worry about giving HIV to their partner(s). While research shows that HIV more easily than women give the virus, women can still pass HIV to uninfected partners — both male and female — through sex. This is because HIV is in blood (including menstrual blood), vaginal fluids, and in cells in the vaginal and anal walls.

HIV levels in vaginal fluids also increase a lot in the presence of vaginal yeast infections and STDs. Swelling of the vagina, a common symptom of such infections, causes tiny sores and cuts on the delicate skin of the vaginal area that can hide HIV.
HIV levels can also increase temporarily after getting treatment for some of these conditions.

In short, the surest way to avoid passing any STDs, including HIV, is to not have sex. There is no way to know when you are more or less likely to give HIV to your partner(s). Exposure to vaginal fluids with high levels of HIV increases the risk of passing the virus. The risk increases even more when your partner has an infection or inflammation.

If you do have sex, use a latex condom every time.

**Violence Against Women – Sexual Assault**

Violence against women plays a huge role in increasing the risk of HIV infection for women. It is a key reason why women are more likely to get HIV infection than men, particularly during violent or forced-sex situations. The cuts caused through forced penetration allow easy entry of the virus. This is especially true for young girls, whose reproductive tracts are less fully developed.

Fear of violence is a factor in terms of seeking treatment. Women may delay being tested for HIV or fail to return for the results because they are afraid that sharing their HIV positive status may result in physical violence.

**Barriers to Care**

Women infected with HIV may have less access to or lower use of health care resources. This may be due to:

- fewer financial resources
- less access to transportation
- added responsibility of caring for others, especially children

Many experts also believe poverty, unemployment, and lack of education are helping to “drive” the growing HIV problem among women. Women living in inner-city poor neighborhoods are often in poor health and without access to health care for prevention or treatment. While high-risk behavior in these communities directly spreads HIV/AIDS, urban poverty is clearly playing an important role.

Yet, the HIV problem does not only belong to poor neighborhoods in large cities, such as New York and Washington D.C., but also affects women in more rural neighborhoods in southern states. Researchers in North Carolina found that African-American women with HIV infections were more likely to:

- be unemployed
- receive public assistance
- have had 20 or more lifetime sexual partners
- have a lifetime history of genital herpes infection
- have used crack or cocaine
- have traded sex for drugs, money, or shelter

In addition to these challenges, research has highlighted other issues that affect the lifespan of women with HIV. Studies have shown that women with HIV do not live as long as men with HIV, perhaps because women are less likely to be diagnosed early. Early diagnosis of HIV allows women to benefit more from antiretroviral treatments. Other issues may also play a role in this difference in survival.
Women with HIV may have less access to or lower use of health care resources than men with HIV.

- HIV-positive women in abusive relationships may suffer violent reactions from partners.
- Women who are homeless have less access to care. Homeless women who are able to get treatment may not be able to stick with care routines because of irregular meals or not having proper places to store medicines.
- Some women with HIV may not have a people around to provide emotional support or other types of help.

**HIV and African American Women**

AIDS is the leading cause of death among African American women aged 25-34 years, living in the United States. There are many issues that may contribute to the problem.

- **Poverty** — The 2000 U.S. Census found that one in four African American women lived in poverty. Studies have shown a strong link between poverty and the risk of HIV infection. Poor people in general also get lower-quality health care, which can mean advancing from HIV infection to AIDS more quickly.

- **STDs** — HIV is most commonly spread to women through sexual contact. Untreated STDs that break the skin, such as genital herpes and warts, give the HIV virus easy access into the bloodstream. African American women are at much greater risk for some STDs. For instance, gonorrhea rates among African American women were 14 times higher than among white women in 2005.

- **Incarceration of African American men** — Nearly one-third of all African American men have been incarcerated either as teens or adults. Cycling in and out of the prison system leads to fewer available African American men in the community. Prisons also expose many men to anal sex, whether forced or by choice, and injection drug use. These practices raise the risk of passing HIV to both the men and their female partners at home.

African American men on the “down low” may also be a factor in the burden of HIV on African American women.

**A Secret World: Men on the “Down Low”**

The term “down low” or “DL” means to keep something private, whether related to information or actions. Being “on the down low,” “on the DL,” or “on the low low,” are terms that are often used to describe men who have sex with men as well as women, but do not identify themselves as gay or bisexual.

While the term “DL” has most often been identified with African American men, research has shown that it also describes the lives of some White and Hispanic men. Yet because being “on the DL” is defined by secrecy, very little is known about these men. It is not known how many of these men:

- have HIV or AIDS
- practice unsafe sex with any partner
- engage in other actions that put them at risk of HIV, such as injection drug use

Researchers are working to better understand the sex-related HIV risks of men who are “on the down low.” The concern for women remains exposure to HIV without then knowing, if their partners get HIV from unsafe sex with HIV-positive men.
Myths About HIV/AIDS

Having correct information is the key to understanding HIV/AIDS. Some common myths about HIV/AIDS are listed below:

- **Women can't give men HIV.** It is true that it's much harder for men to get HIV from women, but it does happen. Men have fewer areas on the penis where the virus can enter the bloodstream – at the urethra (the opening of the tip) and through cuts or sores on the shaft. But if a partner has an untreated STD like syphilis or gonorrhea, which can break the skin, the risk of his getting HIV from his female partner increases.

- **Since I am HIV positive, if I get pregnant, I will spread the disease to my unborn baby.** When the right treatments are used, a woman who knows about her HIV infection early in pregnancy now has a less than 2 percent chance of delivering a baby who has HIV. Without treatment, this risk is approximately 25 percent in the United States.

- **He doesn't “look” like someone with HIV.** Have you heard the old saying, “everything that looks good, isn’t good?” The 10-year latency period can prevent a person from knowing he or she is infected with HIV. Without knowing, that person may be practicing unsafe sex and may spread the virus to you! You can prevent passing the AIDS virus by not having sex or by using a condom, “no matter how good someone looks.”

- **HIV is the same as AIDS.** HIV is the virus which leads to AIDS. Certain types of infections must be present for a person to be diagnosed as having AIDS. A person can be infected with HIV for years without having AIDS. Having HIV infection does not mean you have AIDS.

- **We both have HIV. We don’t need a condom.** Safer sex is important among positive partners. Increasing evidence shows that re-infection can and does happen. You can infect your partner again if you are taking anti-HIV therapies, which you’ve become resistant to, and then you pass the drug-resistant strain of HIV to your partner. Likewise, if your partner is taking anti-HIV therapy, you could become infected with drug-resistant strains of HIV. Make sure to use a condom every time you have sex.

- **The government produced AIDS to reduce certain groups of people.** The government did not make this disease. Research suggests that AIDS appears to have started in Africa, where several monkey and chimpanzee species had been infected with a virus that is closely related to HIV. There are several ways by which humans may have become infected by this virus, including blood contact as chimpanzees are often killed and eaten in Africa. New research suggests that mutations or changes in a single gene may have turned the AIDS virus from a fairly harmless infection of monkeys and chimpanzees into a global killer of humans. The virus in humans appears to have lost a genetic trait that protected the immune system in monkeys and chimpanzees.

**Prevention**
- Get Tested for HIV
- Living with HIV/AIDS
- Gender-specific Problems
- Treatment
- Research and Clinical Trials

**AIDS Worldwide**
- Myths About HIV/AIDS
- Programs and Events
- Share Your Story
- Recursos en español

Source: http://womenshealth.gov/hiv/myths/

Figure 6: Screenshot of “Myths About HIV/AIDS” on Womenshealth.gov (February 12, 2008)
Prevention

Know Your ABCs to Prevent HIV

The best way to prevent getting or spreading HIV is to know your “ABCs.”

- A stands for “abstinence” (not having sex of any kind). Abstaining from sexual activities, including vaginal, anal, or oral sex, is the safest way to avoid HIV.

- B is for “be faithful.” Being in a sexual relationship with only one partner who is also faithful to you can help protect you. This limits your number of sexual partners and the possibility of infection.

- C is for condoms. Condoms should be used for any sexual activity with a partner who has HIV, or with any partner outside of a long-term, faithful sexual relationship. Be aware that condoms don’t provide complete protection against HIV — the only sure protection is abstinence (not having sex of any kind).

Remember, if you choose not to follow A, B, or C, you could get HIV or other STDs. You can feel proud knowing you are doing your best to keep both you and your partner safe and healthy for life.

These Steps Can Also Help You Prevent Getting HIV

- See your doctor if you think you have HIV. Seek medical help right away.

- Have safer sex. If you do choose to have a sexual relationship, make sure to practice safer sex. Having safer sex means using a male or female latex condom correctly and consistently, for every sexual act. No exceptions. This will also prevent you from getting other STDs. If you have questions about how to have

Take Time to Talk Before Having Sex
safer sex, talk with a doctor.

- Use only water-based lubricants. If needed, use only water-based lubricants (like K-Y® jelly) with condoms. Don't use oil-based lubricants, such as Vaseline®. It may cause the condom to rip. But you can use oil-based lubricants with female condoms. The only brand of female condoms available right now in the U.S. is Reality®. Remember, protecting yourself from body fluids is the best way to decrease your chances of getting HIV.

- Don't use nonoxynol-9. Some contraceptives, like condoms, have nonoxynol-9 (N-9). This may help prevent pregnancy, but will not help protect you from HIV. In fact, research has found that it can actually make it easier for the virus to get into your body.

- Know that not all types of birth control will protect you from HIV. Other methods of birth control, like birth control pills, shots, implants, or diaphragms, will not protect you from HIV. If you use one of these methods, be sure to also use a latex condom or dental dam (used for oral sex) correctly every time you have sexual contact.

- Limit your number of sexual partners. Your risk of getting HIV goes up with the number of partners you have.

- Don't share needles. Don't share needles or drug injection equipment for illegal drugs like heroin and cocaine and legal drugs like steroids and vitamins. If you get a tattoo or body piercing, make sure the needles are sterile (clean).

- Talk with your partner. Learn how to talk with your sexual partner about HIV and using condoms. It's up to you to make sure you are protected. Remember, it's YOUR body! If you are living with HIV, be sure to tell your partner.

- If you are pregnant, get tested for HIV. Get screened as soon as you think you may be pregnant. The longer you wait, the more harm you may do to your baby.

- Talk to your doctor about taking medicine if you're HIV positive and pregnant. If you are HIV positive and pregnant, you can lower the chances of giving HIV to your baby by taking a drug like AZT during pregnancy, labor, and delivery and having your baby take AZT for the first six weeks of life.

- Don't douche. Douching removes some of the normal bacteria in the vagina that protects you from infection. This can increase your risk of getting HIV.

**Male and Female Condoms**

Male and female condoms can be used to protect yourself against HIV. But don't use them both at the same time! Here are some differences between the condoms.
**IV Drug Use**

Injection drug users who share unclean needles are at great risk of being infected with HIV. Sharing unclean needles allows a direct exchange of blood from one person's body into the bloodstream of another. An injection drug user who has never shared needles will not get HIV from needles, regardless of her or his habit. It's the exchange of blood that causes transmission.

If you inject drugs, you should be regularly counseled to:

- stop using and injecting drugs
- enter and complete substance abuse treatment, including relapse prevention

If you cannot or will not stop injecting drugs, take the following steps to reduce your risks.

- Never reuse or "share" syringes, water, or drug preparation equipment.
- Only use syringes obtained from a reliable source (such as drug stores or needle exchange programs).
- Use a new, sterile syringe each time to prepare and inject drugs.
- If possible, use sterile water to prepare drugs; otherwise, use clean water from a reliable source (such as fresh tap water).
- Use a new or disinfected container ("cooker") and a new filter ("cotton") to prepare drugs.
- Clean the injection site with a new alcohol swab prior to injection.
- Safely dispose of syringes after use.

If new, sterile syringes and other drug preparation and injection equipment are not available, then previously used equipment should be boiled in water or disinfected with bleach before reuse.

<table>
<thead>
<tr>
<th>Rolled on the man's penis</th>
<th>Put into the woman's vagina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put onto a man's erect penis</td>
<td>Put into the vagina up to 8 hours before sexual intercourse</td>
</tr>
<tr>
<td>Lubricant added to outside of condom</td>
<td>Lubricant added to the inside &amp; outside of condom</td>
</tr>
<tr>
<td>Use only water-based lubricant</td>
<td>Use water or oil-based lubricant</td>
</tr>
</tbody>
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Share Your Story

Women all across the country are affected by HIV/AIDS. Some women are living with HIV while holding down jobs and taking care of families. Other women are caregivers to family members or friends with HIV. Here, you can read some of their stories.

You may have HIV or know someone who does. If you have insight or advice that can help other women, please share your story with womenshealth.gov.

Share Your Story

Read stories from other people affected by HIV/AIDS.

My name is CM, I will be turning 36 this year of our Lord 2009. I work with a Non Governmental Organisation in Zimbabwe. I tested positive in August 2007. I have two kids, a daughter and a son turning 16 and 10 respectively this year. Their father passed away in the year 2001, after being diagnosed with pneumonia. He was not tested for HIV and neither was I. I got into a relationship with new man in 2002 and also got a bit careless in the process by involving myself with another man. I realised that I was putting myself at a greater risk of infection or re-infection and dropped the second relationship, especially when I discovered that he had a son who was HIV positive. I later on learned that this man died in 2004, while his son passed away in 2003. It was a difficult time for me; I was too scared to share this with friends so I just kept it to myself. I continued my relationship with the other man but somehow I just felt that I needed to know my HIV status. I never faced any health problems until 2006 when I started developing some boils, one after the other. I remember suggesting to the doctor, a white doctor, who laughed at me when I suggested an HIV test for myself, because, according to him I looked healthy. He however went on to give me the laboratory forms to go for a test. I did not go immediately because I just thought that since the doctor did not suspect it then why bother. The following year, 2007, I had two other big boils on my bottom and leg. It was at that time when the crisis was at its peak in Zimbabwe. I could not even get betadine to treat my wound since I did not want to go to the doctor because it was going to turn out to be too expensive. Because the wound would not heal, I had to go to my regular doctor, who then treated me and suggested an HIV test. I told her that I already had the laboratory form from last year. I went for the test and it turned out to be positive. My world stopped for a moment, it was difficult to digest. I received counseling from my doctor, then went home. I had to tell my partner about the results, and I did not know where to start from. When I told him he got really angry and upset, and he told me that I had been irresponsible and refused to talk to me for a month. In the meantime I went for my CD4 count which was 120 and had to start the treatment. The doctor advised me that it was going to be expensive since I was going to pay for my own drugs; the government scheme would mean waiting for 2 or 3 years to get treatment. The fortunate part is that I have a good job that pays in foreign currency so I can afford it even up to now. I had to get the courage to do counseling for my partner, and I encouraged him to go for a test and suggested that we practice safe sex. This improved our relationship. My partner went for the test three times and it turned out that he is negative. I was very relieved to hear that he is negative since I was quite afraid for having infected him. My partner has been a pillar
of strength and support to me and my kids, we are happy and I am taking my drugs religiously. I have to buy my drugs from South Africa since it has been difficult to transact in Zimbabwe due to the ever spiralling inflation. I cannot also have regular CD4 count and viral load tests because of the cost. I am not ready to disclose my status to my children and family for now. I felt so encouraged by the stories that I read from the avert website and would like to encourage other women who don't know their status to get tested. And encouraged that all people living with HIV and AIDS will live longer lives. God will continue to favour and protect us, the same way that he has given me food in a country that had empty shelves and the same way that he has allowed me to have access to drugs in a country that hit the 2 billion percent inflation mark, AMEN.

CM from Alabama

I came across your website and I wanted to share my story. I think it is important that people are aware that heterosexual women can and do contract HIV, even if they believe they are not at risk.

I was awoken one morning by the phone. I remember thinking, "If it is important, they will leave a message," and then falling back asleep. Later that day, I noticed the message light blinking on the phone. After a few ordinary messages, a woman from the South Texas Blood and Tissue Center (STBTC) left a message saying that it was very important that I return her phone call today.

I thought she might be trying to recruit me as a blood donor again, as I recently had donated blood. In fact, I had already received the letter in the mail, just as they had promised, informing me of my blood type and cholesterol and blood sugar levels. I had already done my duty for the year as far as blood donating was concerned so I didn't return her call right away.

As I ran my errands that afternoon, the message played over and over again in my head. I began to have an unsettling feeling, and I was unsure why. As I hurriedly returned to my apartment, I could hardly wait to return her call.

The woman first asked me a few minor questions to confirm that she was speaking to the right person. After a short exchange, she requested that I come into their office to have my blood retested. When I asked the reason, she replied, "You failed the preliminary test for HIV."

I dropped the phone and began to sob. My then boyfriend, Lupe, ran over to me, took me into his arms and asked me what was wrong. He handed the phone back to me; however, I cannot recall a thing the woman said. The only thoughts running through my head were about Lupe. If I had contracted this horrible disease, had I passed it on to him? We had been dating for two years at that point, and he had been tested for STDs only the year before at a checkup. His HIV test was negative. But I had not been tested.

I called my brother, who is HIV positive. I didn't know where else to turn. He told me if I went back to the STBTC, that it could take as long as four weeks to get results back and I would have to pay for it. He directed me then to the San Antonio AIDS Foundation (SAAF). He said they could get the results in days, and it would only cost me $20. Lupe and I arrived at the SAAF the next morning, as soon as the facility opened. A
counselor quickly greeted us. The process was explained, and we were given paperwork to fill out. We each were assigned a separate number so that our names would not be used and the test results would be confidential.

The nurse who drew my blood could sense I was nervous and began making small talk. I realized that this was the first time I wasn't entirely sure where my future laid. I was about to start nursing school, and now I wasn't so sure this would happen. The nurse told me that he was HIV-positive, and he said nothing should stop me from pursuing my education. He said, "Even if your results come back positive, you will have an illness, you won't be dead."

I had a million things running through my head. I still had concerns about Lupe and whether he would be okay, if in fact my results were positive. I pondered about school. And most of all, I questioned how this could happen to me. I have an older brother who is HIV positive and had educated myself about HIV and AIDS. At that moment I realized that having all the tools and using all of the tools are two separate entities. I was quite wild just a few years earlier. My early twenties were spent out and about – lots of parties, lots of clubs, lots of new people, and I hate to admit it, but a few one night stands that were entered unprotected. WHAT WAS I THINKING? I wasn't thinking, that was part of the problem. Just being young and dumb with no regards to anything, and I guess, no regard for my life and future.

We returned to the SAAF on Monday. A counselor met us at the front desk. He asked Lupe to come in first; I found that very strange, as I had gone in first to have my blood drawn and my number was first. I asked if I could come in and "confidentially" was all that was said as the door closed. I suppose that was the first time that I realized that I was positive. I believe they called Lupe in first to inform him of his negative results so that when I came out with my positive results, he did not go into shock waiting for his answer.

Where do I go from here? I had no idea where to start or whom to turn to. I returned to my home in Del Rio at a completely different place in my life than the few days earlier when I left. I didn't even know where to start. I did not have health insurance. I had only moved to Del Rio the year before and was working at a small mom and pop owned restaurant that didn't offer benefits. How was I going to pay for a doctor or the medication? Where would I even find a doctor like that in such a small town? What if someone finds out about me? I picked up the phone book and located the local health department. I thought they may be able to help.

I learned that the local health department could not help me and that Del Rio doesn't really have community services such as those available in San Antonio. Del Rio doesn't even have an infectious disease doctor. But the health department was able to refer me to services in another town, which provides counseling, case management, housing funds, transportation services, and medication assistance to HIV positive clients. I quickly phoned their office, and asked to speak to the man I was referred to. Gustavo. I was transferred to him without delay. Gustavo answered the phone with a jovial "Hello." I remember wondering why he was so happy as I told my sad story, once again. Gustavo immediately said, "We can help you. No problem. When can you come to meet with me?" I told him I would come as soon as he could see me. He was ready right then.

As we sat in front of Gustavo, he appeared to look puzzled. I guess I did not look like a typical HIV positive individual. I think I may have been his first female client. We talked for hours, and of course he was curious as to how I had contracted HIV. I have never used drugs, with a needle or otherwise, and had never been a "sex worker." I had, however, had unprotected sex. I also had multiple tattoos and body piercings, which I learned poses a very small risk of contracting the virus if the equipment is not sterile. Likely culprit: stupidity and alcohol leading to unprotected sex. Not a good combination.

I am living positive, as well as healthy and happy. I am 43 days away from being married to my soul mate, Clyde. We have a wonderful life, and I am also finishing my book and my education. Thanks for the opportunity to share my story.

Angela from Texas

Figure 8: Screenshot of “Share Your Story” on Womenshealth.gov (February 12, 2008)

Source: http://womenshealth.gov/hiv/stories/
**What is HIV/AIDS?**

The human immunodeficiency virus (HIV) causes AIDS, the acquired immunodeficiency syndrome. There are different types of HIV. Most people have the HIV-1 strain (type), but there are many strains. A person can become infected with more than one strain. HIV attacks the body's immune system (natural defense system against disease) by destroying one type of blood cell (CD4 cells) that helps the body fight off and destroy germs.

- **CD4 cells** belong to a group of blood cells called T-cells that also help the body fight disease. In the body, HIV gets into these cells, makes copies of itself, and kills the healthy cells. Then the body can't fight germs anymore. When HIV takes over enough CD4 cells or causes serious infections that don't normally make a healthy person sick, a person then has AIDS. The progression from HIV to AIDS is different for everyone — some people live for 10 years or more with HIV without developing AIDS, and others get AIDS faster.

### How HIV is Spread

HIV is spread through some of the body's fluids. HIV is in:

- blood
- semen
- vaginal fluids
- breast milk
- some body fluids sometimes handled by health care workers (fluids surrounding the brain and spinal cord, bone joints, and around an unborn baby)

HIV is passed from one person to another by:

- having sex (vaginal, anal, or oral) with a person who has HIV
- sharing needles with someone who has HIV, such as during injection drug use
- pregnancy, birth, or breastfeeding if a mother has HIV
- getting transfusions of blood that has HIV, which is rare in the United States

HIV is **NOT** spread by:

- sitting on toilet seats
- hugging, handshakes, or closed-mouth kissing
- sharing food or drinks
- donating blood
- working with or being around someone with HIV
- using phones
- getting bug bites
- tears
- swimming in pools

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Figure 9: Screenshot of “What is HIV/AIDS?” on Womenshealth.gov (February 12, 2008)

Source: http://womenshealth.gov/hiv/what-is-hiv/
Figure 10: Screenshot of “Women & HIV/AIDS” on Womenshealth.gov (February 12, 2008)

Source: http://womenshealth.gov/hiv/
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